
CDTM
CENTER FOR
DIGITAL TECHNOLOGY
AND MANAGEMENT
ENTREPRENEURSHIP
IN BAVARIA
TREND REPORT FALL 2015

ZD.B ZENTRUM DIGITALISIERUNG. BAYERN

Gründerland. Bayern

Kindly supported by Gründerland.Bayern and Zentrum Digitalisierung.Bayern

The Bavarian State Ministry for Economic Affairs and Media, Energy and Technology launched "Gründerland.Bayern" in 2014. The objective of this initiative is to improve framework conditions for startups and create an optimal ecosystem for founders. The program offers measures ranging from business plan competitions to startup centers and tailored financing options.

The Zentrum Digitalisierung.Bayern (ZD.B) brings together existing initiatives in the field of digitization with an aim to strengthen and bundle competencies. Beyond, it develops future-oriented activities at the intersection of science, economy, politics and society.

For more information about Gründerland.Bayern please visit http://www.startup-bavaria.com and for more information about the ZD.B http://zentrum-digitalisierung.bayern/

CDTM CENTER FOR DIGITAL TECHNOLOGY AND MANAGEMENT

A project of the Center for Digital Technology and Management (CDTM)

The Center for Digital Technology and Management (CDTM) is a joint, interdisciplinary institution for education, research and entrepreneurship of the Ludwig-Maximilians-Universität (LMU) and the Technische Universität München (TUM).

It offers the add-on study program "Technology Management" for students from various backgrounds, which provides students with tools and knowledge at the intersection of business and digital technologies.

The entire trend report was written by CDTM students under the close guidance of research assistants in 2015.

For more information about the CDTM and its related projects, please visit http://www.cdtm.de

Entrepreneurship in Bavaria

ISBN: 978-3-9815538-9-5

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Preface of the Editors

As Herman Kahn, one of the founding fathers of modern scenario planning, nicely states, it is tremendously important for strategy and policy makers to get a deep understanding of possible future developments in order to be prepared for them. At the Center for Digital Technology and Management (CDTM), our aim is to develop innovators of the future. It is our mission to equip our students with the tools and knowledge they will need in order to become responsible leaders in their careers, shaping the environment, rather than reacting to it.

This trend report is the result of a course within the interdisciplinary add-on study program in Technology Management at CDTM, called the Trend Seminar. 26 selected students of various disciplines, such as Business Administration, Economics, Psychology, Computer Science or Electrical Engineering, work together on a relevant topic related to ICT. Over seven intense weeks, full-time, the participating students dive deeply into the topic of the Trend Seminar. Thereby, they work in interdisciplinary sub-teams, applying the knowledge they bring along from their main studies and extending it by extensive research. They conduct trend research, develop scenarios of the future, generate ideas for innovative products or services and detail them out to concrete business concepts.

> **“Everybody can learn from the past. Today it is important to learn from the future.”**
>
> Herman Kahn

We would like to take the chance to thank everyone who contributed and made this CDTM Trend Report possible: We want to thank the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology and the associated initiatives Gründerland.Bayern and Zentrum Digitalisierung. Bayern, who were highly interested in the interdisciplinary Trend Seminar course format as well as in the topic.

Finally, we want to say special thanks to the CDTM students of the class of Fall 2015. They put great energy and enthusiasm into this project, which made it a pleasure for us to supervise the course and coach the individual teams.

Florian Lachner and Stefan Nothelfer
Center for Digital Technology and Management

In addition, we very much thank all of our lecturers who shared their knowledge and contributed to this project’s success:

Patrick Bilic (CDTM)
Frederik Brantner (Magazino GmbH)
Michael Braun (CDTM)
Patrick Christ (CDTM)
Dr. Frank Danzinger (Fraunhofer IIS)
Veronika Gamper (CDTM)
Juliane Schiefer (Media-Saturn-Holding GmbH)
Dr. Christian Göttsch (Experteer GmbH)
Matthias Kessler (IICM)
Avinash Kundaliya (CDTM)
Vlad Lata (KONUX GmbH)
Katharina Naumann (IICM)
Leopold Neuerburg (Building Radar GmbH)
Ludwig Preller (Clevis Research)
Hanneke Riedijk (Personal Coach)
Valentin Rüchhardt (CDTM)
Dr. Hartwig Ruell (Strategist)
Julia Schmalenberg (Fraunhofer, EIT Digital)
Felix Schollmeier (Finanzchef24 GmbH)
Andreas Schrems (Personal Coach)
Dr. Georg Schroth (NavVis GmbH)
Christoph Sedlmeier (doo GmbH)
Ahmed Shafei (CDTM)
Michael Strobel (CDTM)
Andreas Schrems (Personal Coach)
Dr. Felix von Held (IICM)
Dr. Felix Werle (IICM)

Entrepreneurship in Bavaria

The Bavarian State Ministry for Economic Affairs and Media, Energy and Technology launched 'Gründerland.Bayern' in 2014. The objective of this initiative is to improve framework conditions for startups and create an optimal ecosystem for those who found them. The program offers measures ranging from business plan competitions to startup centres and tailored financing options.

> **"Stay hungry, stay foolish."**
>
> Steve Jobs

Steve Jobs underscored this phrase several times in his famous speech at Stanford University. He pointed out that people can take new paths, follow their own curiosity, and be courageous if not a little crazy.

This can be especially applicable to entrepreneurs and even more to startups. In following one's own path, it is necessary to have the courage to face challenges and remain open to new ideas at all times. It is also important, however, to keep an eye on future customers and their potential desires.

Personal consultation alone is not enough for many customers today. There is the feeling that those who buy products and services want to be impressed first and foremost. Products should be more than practical, useful and state-of-the-art; they should make an impression. When customers are impressed, they are happy to plug a product. Social media can deliver immense benefits for entrepreneurs when they "win over" a customer. However, negative critiques also circulate at unbelievable speed. Customer satisfaction is doubly important as Facebook, Twitter and a multitude of apps are now an integral part of how we communicate.

New technologies shape every area of our lives. Who would want to unfold a city map and painstakingly find their way to their destination? A smartphone provides a direct path. Walking and driving a vehicle are still controlled individually, but new mobility models may soon be in use here as well.

New products, ideas and trends offer opportunities for both established and new companies. We are in the midst of a "spring" for startup entrepreneurs and opportunities for successful self-employment are better than ever.

This report takes an in-depth look at the influence of these new trends on companies and the difficulties and advantages resulting from adaptation to the digital age. It also examines interesting financing models, critically assesses startup support options, and reflects the interaction between society and politics when it comes to startup sponsorship.

We are excited to learn more about the details of this report and their impact on everyday business practices.

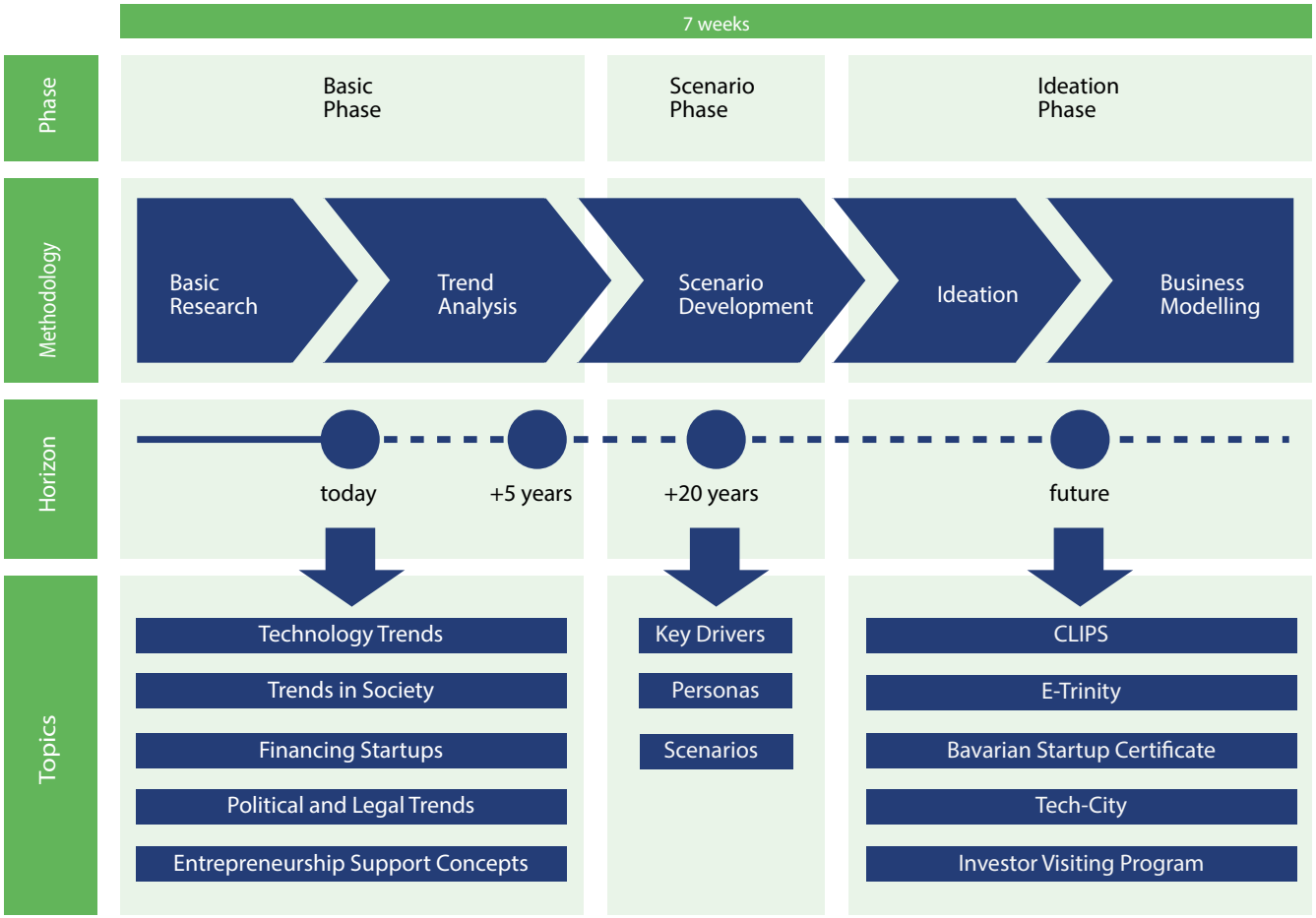
Christoph Pfaff
Bavarian Ministry of Economic Affairs and Media, Energy and Technology

Methodology

For a given topic that is highly impacted by digital technologies, the Trend Seminar pursues three main goals:

- To analyze the status quo, recent developments, and to identify important trends
- To develop extreme scenarios of the future in order to be prepared for upcoming challenges
- To develop future-proof product and service ideas and detail them into business concepts

These goals are represented by the three phases of the Trend Seminar, the Basic Phase, the Scenario Phase and the Ideation Phase. 26 students, supervised by two doctoral candidates, pursue the Trend Seminar in seven weeks of intensive full-time work. In each phase, interdisciplinary subteams are formed with students from technology and business backgrounds.



The **Basic Phase** yields a holistic overview on recent developments and trends in the environment of the overall topic. Based on the commonly used STEP approach, the status quo and trends in the fields technoloy, society & culture, financing, political & legal, and entrepreneurship support concepts are analyzed. Knowledge is gathered by literature research, preceded by a series of input presentations by experts on the topic.

The class is split into five teams, each working on one of the thematic scopes. At the end of the Basic Phase, teams present their key findings to each other in order for everyone to get a holistic view on the topic to build upon in the following phases.

The **Scenario Phase** builds upon the analyzed trends in order to create four extreme scenarios of different futures in twenty years ahead. Driving forces behind developments are identified and specified as drivers with bipolar, extreme outcomes. Once specified, all drivers are ranked according to their respective impact on the overall topic and the perceived degree of uncertainty regarding their outcome. Two key drivers that are independent from each other and have both a high impact and a high degree of uncertainty are chosen and, with their bipolar outcomes, span a scenario matrix creating four extreme scenarios. A timeline for each of the scenarios is created and the scenarios are sketched out using personae descriptions and visualizations.

The Scenario Phase starts with a two-day workshop followed by group work in four teams. Teams are newly formed in order to include experts from each subtopic of the Basic Phase in each new Scenario Team.

In the third phase, the **Ideation Phase**, the goal is to develop innovative business and educational concepts, which are then tested against the previously developed scenarios. Within a two-day workshop on structured ideation following the SIT approach, a large number of business ideas are developed.
Out of these, the most promising five ideas are selected and further developed into detailed business concepts. The business model canvas by Alexander Osterwalder and Yves Pigneur serves as base structure.

At the end of the seminar, the business model concepts are presented to the project partner and guests.

Trends

The following chapter lists currently observable trends with a strong impact on the future of entrepreneurship in Bavaria. In accordance with the Basic Phase methodology, trends and related driving forces are structured in five areas: technology, society, financing, legal, and entrepreneurship support concepts.

An exhaustive description can be found in the Chapter Methodology.

Technology Trends in Entrepreneurship

Collaboration Tools

Cloud Computing

Rapid Prototyping

Open-Source Software

Peter Budweiser, Liesbeth Claessens, Fabian Gruner, Stephan Rabanser, Felix Wolf

Technology Trends in Entrepreneurship

Entrepreneurship has a significant impact on the emergence and maturation of technology, but technology also shapes the future of entrepreneurship. The world is becoming increasingly connected and ideas are being discussed with a broader range of people; this affects the development of startups and their ecosystems. In the following chapter, the most important technology trends affecting entrepreneurship will be summarized.

First, collaboration is one of the key elements in building a company and tools to facilitate this collaboration are highly important and on the rise. Knowledge transfer, as well as the workflow in companies, can be improved by collaboration software. Moreover, collaboration facilitators like real-time translation and augmented reality may help to overcome collaboration barriers like geographic location and language differences. All in all, collaboration tools contribute to more flexible and efficient startups.

Second, cloud computing technology is maturing and widely available to startups as well. Through scalable and inexpensive IT architecture in the cloud, tech-heavy startups can be incubated without the need for heavy upfront technology investments. Furthermore, more mature startups in the growth phase can leverage cloud computing technologies to dynamically scale their infrastructure as they grow.

Thanks to the fast developments that are currently taking place in the prototyping industry, rapid prototyping technologies and corresponding tools are currently emerging. In particular, precise and fast 3D printers and well-designed and interactive digital mock-up tools are fuelling developments in this area. Modern prototypes support entrepreneurship because founders, developers, and designers can express their ideas at lower costs and effectively communicate them, decreasing development time and speeding up release cycles.

Last but not least, large tech companies are further increasing their support of open-source software projects. Open-source software, upon which the Internet is primarily built, comes with advantages like transparency, easy customization, and lower total cost of ownership. Therefore, knowing how to use open-source software implies many direct benefits for startups. Moreover, transferring the open-source collaboration model to the startup scene can enhance startups with global feedback and collaboration.

All together, these four technology trends have a high impact on entrepreneurship and will be strong drivers that shape entrepreneurship in the future.

Collaboration Tools

Emerging technologies enable and simplify collaboration between individuals and within teams.

As starting and building a company is (in most cases) a team effort, effective collaboration is essential. One of the most important aspects for successfully working together is "[...] effective communication among teams and team members" [1]. To facilitate effective communication within teams and companies, several technological solutions emerged in the past. These were mainly aiming at improving knowledge transfer and collaboration workflows as well as overcoming limitations like geographical position and language barriers.

For the purpose of communicating or discussing ideas across a variety of users and to deliver project results, companies nowadays heavily rely on powerful collaboration tools. In particular, wikis, blogs, social networks and chatting portals are increasingly used for communication and collaboration. Due to this development, how companies collect and deal with information is currently shifting. There is an ongoing transition from employees being receivers of information to employees actively contributing to the knowledge management process [2].

Furthermore, technologies are emerging that simplify the process of working together. Augmented reality (AR) – and as the technology advances also virtual reality (VR) – provides the ability to enhance users' visual spectrum by inserting useful information in (near) real-time. AR is interactive and combines real and virtual objects in a 3D environment [3], yielding the possibility of 3D video chats and working together on 3D prototypes. Second, as speech recognition is in the final stages of becoming a mature technology [4], real-time translators are improving at rapid pace. For example, Skype's real-time translation service (Skype Translator) now makes it possible to speak to each other in different languages [5]. Conversations between people that speak different languages thereby become realistic and usable in corporate contexts.

In conclusion, software solutions facilitate collaboration provide an easier way to manage knowledge and knowledge transfer within companies. Moreover, emerging technologies can dissolve physical and language barriers making it possible to collaborate with people from all around the world.

Facts and Challenges

- Collaboration technology enables companies to streamline their business processes, better manage projects of all sizes, and boost productivity across the board [6].
- A company's employees need to use a variety of social business and collaboration tools, since no single tool provides enough functionality to handle all use cases [2].
- Tools like Slack have emerged that successfully combine different collaboration tools in one platform [7].
- Growth expectations: the collaboration software industry is expected to be worth $5.9 billion by the end of 2018 [8].

Key Drivers

- Continued globalization and the need for tools that allow collaboration all over the world without physical presence
- New and innovative interaction concepts, such as touch input or augmented reality [3]
- Improved speech recognition with better and more reliable performance [4]
- Network expansion and increasing connectivity speeds [9]

Impact on the Future of Entrepreneurship

The future of facilitated collaboration will also affect the future of entrepreneurship. Even before founding a startup, potential entrepreneurs can benefit from improved collaboration tools as they can share their ideas on platforms such as Crowdicity and work on them with people from all over the world. This can lead to advances in the development of ideas, business models, and the iteration on those without the necessity of living and meeting at the same physical place.

Furthermore, once a company is established, collaborative technologies can simplify the hiring of and later working with people from different countries. Branch offices outside the country of origin can more easily be established to work together with the headquarters at an early stage. This reduces the need of having all employees at the same place, which can lead to strategic and financial advantages.

Moreover, as a startup enters the growth phase, modern collaboration tools are essential to manage the increasing complexity within the company. In high growth startups, the majority of employees are new or recent hires. Consequently, there is no common knowledge base and there are knowledge management struggles to keep up with the company growth. Collaboration tools aim to organize all knowledge into one central place and make it available to everyone who needs it, thereby facilitating the rapid growth of many startups [2].

Finally, employees become empowered to take a more active role in their company and to communicate ideas and knowledge more effectively. Startups with collaborative tools can therefore benefit even more from highly motivated and driven employees.

Cloud Computing

Scalable and inexpensive IT resources over the cloud become mature and widely available.

Cloud computing describes the provision of both hardware and software over a network, therefore enabling individuals and corporations to use resources not directly owned by them but rather shared between multiple users [10, 11]. Users can typically access cloud computing resources on-demand without requiring individual installation. The emergence and maturation of cloud computing services transform IT resources into utility-like resources that can be accessed and paid for as needed [10] [12]. For this reason, companies are now able to dynamically scale their IT infrastructures as they grow and migrate to new, more powerful systems, without immense initial investment costs [10] [11].

Cloud computing can traditionally be divided into three service models: the remote provision of hardware resources (Infrastructure as a Service – IaaS), of development platforms (Platform as a Service – PaaS) and of applications (Software as a Service – SaaS) [10] [11]. More recently, cloud computing companies have started to combine these three service models and are now able to offer the outsourcing of entire business processes into the cloud: Business Process as a Service – BPaaS [13]. In this case, the cloud computing company provides all necessary hardware, software, and personnel such that the customer typically does not even see which IT resources the provider uses. While BPaaS is currently still predominant in simpler business processes such as accounting and payroll, in the future more complex business processes will be covered and efficiencies will increase due to rising automation [14].

While the rise of cloud computing comes with significant cost and flexibility improvements for companies, the issue of security in the cloud also grows increasingly relevant. Potential data security threats include data breaches or leakages of sensitive data, the danger of data loss, or an unavailability of the cloud service [15] [16]. There has been no known major security issue at a leading cloud computing company so far, but in the light of the many recent security breaches, cloud security is likely to become even more important in the future [17].

Facts and Challenges

- 11% of enterprises in Germany use cloud computing as of 2014 (compared to 19% average in EU) [18].
- According to Gartner, the technology is in the "trough of disillusionment", reaching the plateau in 2-5 years [19].
- Growth expectations: global SaaS revenue alone is forecasted to reach $10 billion in 2016 with more than 20% year-on-year growth [20].
- 42% of IT decision makers plan to increase spending on cloud computing in 2015, but so far the strongest increase is in large corporations (52%) [21].
- The industry is consolidating under a few very large players, further showcasing the increased maturity:
  - Amazon's IaaS-cloud is 10x larger than that of the next 14 competitors combined [22].
  - Microsoft purchased large IaaS-competitor SoftLayer for nearly $2 billion [23].
  - Cloud computing firm Salesforce.com named 2nd most innovative company in the world after Tesla Motors [24].
  - 15 companies in Gartner's IaaS "Magic Quadrant" 2015 vs. 19 in 2010 [25] [26].
- Main concern for European companies is the threat of a security breach [18].

Key Drivers

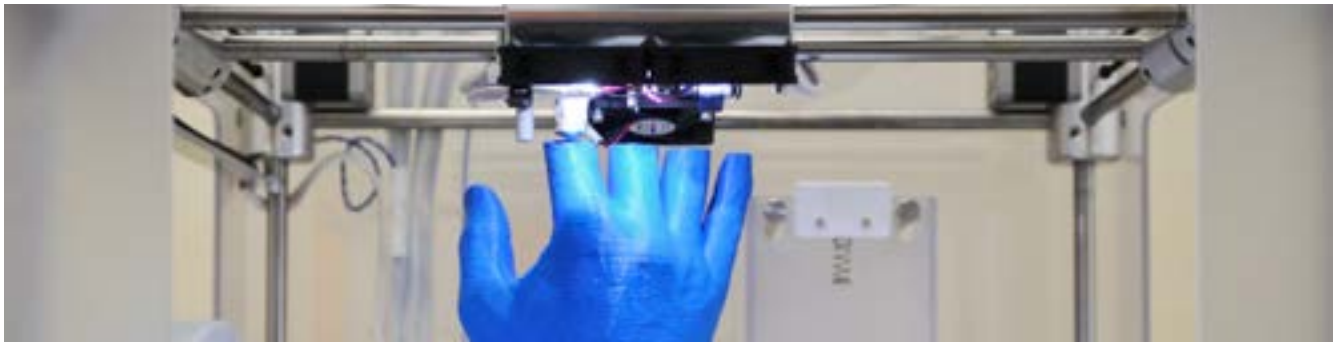
- Increased rate of innovations and decreasing technology life cycles [27]
- Increasing network speeds [9]
- Increased amount of outsourcing in corporations [16]
- High performance computers and highly scalable computer architectures [16]
- Barrier: Lack of trust in the security of the cloud [16] [18]

Impact on the Future of Entrepreneurship

As cloud computing technologies become more mature, reliable and widely available, entrepreneurs are able to build on established, well functioning IT infrastructures and services without having to invest heavily in their own infrastructure. This drastically reduces initial financing needs for new startups.

Furthermore, established startups in the growth phase can scale their IT infrastructure as needed (pay-as-you-go), which also reduces financing needs in the growth phase and enables entrepreneurs to focus on their business instead. Especially in business cases where the demand for computing capacities varies over time, the business can save additional funds by not having to invest in their own overcapacity IT resources to deal with peaks in computing needs.

Nevertheless, the security risks of cloud computing can be even more relevant to small startups than to large enterprises, especially if the startup deals with sensitive customer data. While a large corporation might be able to absorb the reputational and financial damage a potential data breach could cause, such an issue is likely to be fatal to a young startup. For this reason, cloud computing options must be carefully evaluated before being selected by a startup.



Rapid Prototyping

Tools that enable developers to build prototypes of their product ideas within a very short time are currently gaining popularity.

Rapid prototyping is a methodology used to quickly and easily create prototypes. Prototypes are early stage experimental models or mockups that try to mimic, mock, visualize, or simulate product ideas [28]. As a result, these prototypes serve as a proof-of-concept for a product to be developed. In traditional hardware and software development workflows, such prototypes are usually created during or after the requirements elicitation phase. Therefore, errors and concept weaknesses can be discovered early on and fixes or changes are therefore substantially less expensive when compared to issues arising in the implementation or testing phase [29]. Now, rapid prototyping is used for both hardware and digital/software prototypes.

Hardware prototyping

New technologies in hardware prototyping are capable of forming parts with complicated structures and non-homogeneous materials. Traditional rapid prototyping techniques, such as stereolithography or three-dimensional (3D) printing, are used mainly as prototypes in product invention processes [30]. While traditional rapid hardware prototyping is not necessarily a new trend, the rapid rise of 3D printing is currently disrupting and changing the application of fast prototyping techniques and the way hardware producers think about and deal with prototypes. This is due to the fact that 3D printed prototypes can be created in a fraction of the time used for traditional prototyping while incurring much lower costs.

Software prototyping

After their application to hardware products, rapid prototyping techniques quickly transitioned to software products, too. For this reason, a variety of digital prototyping tools have emerged. Some of them are mainly directed at software prototyping (e.g., MarvelApp [31], Proto.io [32], InvisionApp [33], etc.), while others are designed to digitally mock physical parts and hardware products (e.g., AutoCAD [34], Inventor [35], etc.).

Facts and Challenges

- Rapid prototyping enables product development teams to get an idea of the final project outcome faster and at much lower costs than ever before [36].
- Rapid prototyping solutions exist for both hardware products (e.g., 3D printers) and software projects (e.g. prototyping applications).
- Rapid prototyping enables effective communication of ideas in an early stage of the product development process, which reduces the rate of failed and over budget product development projects [37].
- Growth expectations: the 3D printing industry is forecasted to reach $12.8 billion by 2018 and more than $21 billion by 2020 [38].

Key Drivers

- Increasing costs and time pressure in development processes [39]
- Startup financers demand more concrete visualisations of ideas [40]
- Prototype-based thought schools such as design thinking [41]
- Lean startup methodology [42]
- Openness of broad public towards programming and software development [43]

Impact on the Future of Entrepreneurship

Rapid prototyping techniques make a relatively quick transition from project idea to a mocked project realization possible. This also corresponds to the lean startup methodology [42], which aims at validating ideas and assumptions fast while repeatedly challenging said ideas with prospective customers. While the development of such prototypes definitely causes additional expenses, they still aid in overall cost reduction since they enable the development and management teams to evaluate their ideas and proposals in early project stages. Errors and concept weaknesses can therefore be fixed and re-evaluated in a timely manner incurring only minimal costs, if any at all. Consequently, more money can be spent on research, experimentation, and new project ideas, which will strengthen the entrepreneurial spirit.

In addition, rapid prototyping improves the communication of various ideas and reduces the amount of misunderstandings in early project stages, which speeds up internal release cycles. 3D-modeled objects and executable, non-paper-based digital prototypes can make a big difference here. As a result, early-stage testing brings early feedback on technical feasibility and product market fit. Such prototypes may also be used to convince investors. Even if the prototype might just correspond to a low-cost visualization at that given point, it can already provide an outlook about what the final product will look and feel like. Finally, modern collaboration tools also boost and support rapid prototyping. Augmented reality, for instance, facilitates collaboration when people are not at the same place, making working (e.g., brainstorming, presenting, etc.) a lot easier.

Open-Source Software

The amount of open-source software used by large corporations has drastically risen, with large tech companies increasing contribution to OSS projects.

Open-source software (OSS) is a type of computer software for which the source code is made available with a license in which the copyright holder provides the rights to study, change, and distribute the software to anyone and for any purpose. It is intended to be a community effort, where different collaborators improve the source code and share it.

The popularity of open-source software is increasing and the number of open-source software projects is multiplying; therefore more open-source software is available for companies to use. This is largely due to big tech companies increasing their contributions to open-source projects because the quality of their product directly depends on it. Moreover, because the source code is available, it is easy to customize and transparent, making it popular to adopters.

Facts and Challenges

- OSS use in corporations is experiencing massive growth.
  - 78% of companies run open source software; usage doubled between 2010 and 2015 [44].
  - 66% of companies consider OSS before proprietary software [44].
  - The number of open-source projects increased from 20,000 in 2007 to 1,400,000 in 2015 [44].
- Corporate participation in OSS development is increasing.
  - 64% of surveyed companies contribute to open source projects [44].
  - 88% plan to intensify their open source contributions in the next 2-3 years [44].
  - Large tech companies contribute to open-source software projects because the quality of their products depends on it [45].
- Many companies choose OSS because they believe it is more secure [46]. Nevertheless, some very notorious bugs were detected in open-source software (e.g., Heartbleed and Shellshock [47]).
- Due to the wide use of OSS, open-source security is an industry-wide concern [48].
- Open-source software usually has a lower total cost of ownership and is therefore more budget-friendly than big-ticket enterprise applications [49].
- Many companies say that participation in OSS helps them find and recruit top talent [44].

Key Drivers

- Increasing participation of the developer community as the success of cooperative software projects depends on their collaboration [44]
- Emergence of collaboration tools such as GitHub simplifies and speeds up collaboration [50]
- In the open source community leaders are chosen based on their merits. Recognition is a fundamental motivator for the developers and therefore driver for the movement itself [51].
- Privacy concerns, especially after recent surveillance scandals, lead to a preference of transparent open-source software [44]

Impact on the Future of Entrepreneurship

Open source software has the potential to provide direct monetary benefits to small businesses and is on its way to becoming the mainstream approach. The low cost of starting a web-based business is mainly due to the availability of open source technologies (Linux, Apache, MySQL, PHP, etc.). Moreover, as desktop application suites, such as LibreOffice, mature, there may be a shift towards open-source software in the desktop area, from which startups could benefit financially.

Apart from its cost-effectiveness, open-source is also an enabler for innovation. Open-source software is the tool used for the development and deployment of the modern web. Sample projects include Bootstrap, Drupal, and OpenStack for cloud computing. In this sense, every startup should be familiar with the major open-source solutions available in order to use them to their advantage.

Furthermore, open-source software can speed up the development process of proprietary software developed by a startup. Developers can use existing OSS as a basis for their development, for example as components in their own software. Therefore, startup developers do not have to start from scratch every time and can increase their go-to-market speed.

Indirectly, open-source software also boosts the creation of new companies. Open-source software has created a multi-billion dollar ecosystem from which businesses of all sizes and types are benefiting. For example, “open-source startups” generate revenue by charging for support or for developing premium features for which enterprises are willing to pay.

Trends in Society and Culture

Senior Entrepreneurship

Migration

Women in High-Tech and Startups

Acceptance of Failure

Entrepreneurship as a Career

Entrepreneurial Education

Social Entrepreneurship

Patrick Barin, Victoria Hauzeneder, Magnus Jahnen, Sabine Kaupp, Lukas Kondmann, Alexander Schenker

Trends in Society and Culture

Changes in society have always had a strong impact on entrepreneurial behavior and will continue to do so in the future. Developments in the field of entrepreneurship are, for example, caused by demographic shifts and value changes of younger generations. Our research suggests that seven societal trends will directly impact the future of entrepreneurship in Bavaria. First, the importance of senior entrepreneurship is set to increasing as demographic developments result in an aging society. Experienced employees above the age of 50 start to engage more in entrepreneurial activity. This could also imply increasing quality of new ventures as older entrepreneurs are more experienced.

A second important aspect consists of the increase in migration, which is likely to affect entrepreneurship positively. On average, migrants start new ventures more often compared to the average German, but they are also an important labor source for German startups.

Furthermore, women are engaging more in full-time entrepreneurial activity and participating in high-tech startups, although the overall number of female co-founders has not increased. Since ventures founded by women show different characteristics, this is likely to influence the startup landscape. Nevertheless, it still remains a challenge to increase the share of female entrepreneurs in Germany.

Another aspect that impacts the entrepreneurial scene is that the German society starts to accept failure as an opportunity. The personal stigma that characterized failing is decreasing and is starting to be replaced by the belief that failure is part of innovation. This mindset shift might lead to more startups overall, as the fear of failure remains an obstacle to overcome in the process of founding.

Moreover, entrepreneurship is becoming an increasingly attractive career path for young professionals. Due to a value shift, members of Generation Y are looking for different factors when searching for a job, such as self-expression, autonomy, creative control and flexibility. Earlier generations put more importance on aspects such as wealth and security. Hence, startups are becoming equally or even more attractive than an employer, compared to traditional businesses.

Sixth, the supply of entrepreneurial education is rising. The number of universities without a chair for entrepreneurship is close to zero, and a rising number of entrepreneurship centers provides infrastructure to support and consult founders. Millennials therefore have a higher exposure to entrepreneurship at university, which is expected to further foster a higher interest in founding a company.

Finally, social entrepreneurship is emerging as a new form of entrepreneurship. The shift in society's mindset towards environmental awareness, sustainability and fighting social inequality opens up new opportunities for potential founders. Smaller companies respond to societal problems faster, and the changing mindset can also put pressure on traditional businesses, since they possibly lose reputation if they do not adapt.

Senior Entrepreneurship

Demographic changes lead to an aging society and therefore an increasing relevance of elderly entrepreneurs.

The term senior entrepreneurship refers to individuals aged 50 or above who intend to start a venture, are currently in the process of starting one, or have recently founded [52]. The role of senior entrepreneurship is becoming increasingly important in Germany. Founders aged 55-64 are currently responsible for 10% of startups in Germany. However, their relevance rises as the growth rate in this group is nearly one-third [53]. The age group of entrepreneurs between 45 and 55 showed the highest growth rates in 2014 [54]. One reason for this is the aging of society due to decreasing birth rates and higher life-expectancy. Until 2060, approximately one-third of the population will be older than 60 years and one in seven older than 80 [55]. Because of the higher number of individuals in this age group, the absolute number of entrepreneurs increases.

Facts and Challenges

- Financial stability and self-realization are two of the main drivers for individuals aged 45 or above to found a startup [56].
- Statistically, startups in Germany with young founders only tend to be more productive if they are operating in the high-tech industry [57].
- Mature individuals are more capable of starting and running a business than younger people, mainly due to their experience [52].
- The number of individuals engaged in "early stage" entrepreneurial activity in the "prime-age" (20-49) is twice as high as for individuals 50-65 [52].
- The increase in the share of individuals in the 20-30 age range and in the 40-50 age range has a positive effect on the number of high-tech startups in Germany [58].
- The number of entrepreneurs age 45-55 showed the highest growth rates in 2014 [54].

Key Drivers

- Share of individuals age over 50 is increasing [55]
- Higher success rates of elderly entrepreneurs due to their experience [52]
- Growing interest of people older than 50 to engage in entrepreneurship [53]

Impact on the Future of Entrepreneurship

The decreasing population has a negative impact on the number of startups as the absolute number of potential entrepreneurs decreases. However, the share of senior entrepreneurs has risen over the past years and will continue to rise. Furthermore, institutions that support entrepreneurial activity adapt to these changes and develop strategies to assist elderly founders, as shown by a recent study by the RKW Kompetenzzentrum [56]. In conclusion, the whole entrepreneurial landscape will cater to more older founders. Therefore, the quality of ventures is likely to increase [52].

Migration

Migrants tend to engage more in entrepreneurial activity than the average German.

In recent years, Germany has experienced increasing immigration [59]. As a consequence of this development, many potential employees are coming to Germany and Bavaria. Most are ambitious or have a high level of education. In fact, the share of highly qualified immigrants, who came to Germany since 2005, is twice as big as the share of highly qualified Germans in the working population [60]. Due to the recent refugee crisis in late 2015, this is likely to change. Regardless, the job market for immigrants in Germany is problematic and 28.7% of immigrants in 2012 were unemployed [61]. This could be due to the fact that companies tend to prefer hiring Germans because of their allegedly higher education as well as due to German labor laws, which can be problematic when employing non-EU nationals [62]. Founding a company is an attractive option for an immigrant. Nearly every fifth entrepreneurial-enthusiast who approaches the German Chamber of Industry and Commerce (IHK) has a migration background. Most of these entrepreneurs found traditional companies, for instance in the field of gastronomy or trade [59]. IHK experts also state that many immigrants lack commercial business principles and a command of the German language.

Facts and Challenges

- More than 610,000 immigrants came from EU-Countries to Germany in 2014 (Net Immigration 220,000) [63].
- Every sixth company is led by a person with a migration background [63].
- Every fifth company is founded by an immigrant [59].
- Half of newly founded startups are founded by migrants from the EU-28 area [59].

Key Drivers

- Germany is becoming increasingly attractive for immigrants [64]
- Great obstacles at finding a job in an existing company [65]
- Migrants are more venturesome than Germans (“German Angst”)
- Increasing amount of highly educated immigrants in Germany

Impact on the Future of Entrepreneurship

Highly qualified immigrants are currently becoming an important source of labor for established companies and startups alike. Often, immigrants are hired for a smaller salary than equally educated Germans. The number of entrepreneurs with a migration background will continue to increase in the near future. Startups employing immigrants may have advantages regarding internationalization and globalization [59]. Immigrants bring knowledge of different cultures and backgrounds from other countries and can help to tap into foreign markets. Additionally, entrepreneurs with different backgrounds working together in a team provide different perspectives and insights [66].

Women in High-Tech and Startups

Women start to play a larger role in the German high-tech startup scene.

Currently, women are underrepresented in German startups, and the number of female founders is declining. In 2013, 12.8% of the founders were female, while the percentage went down to 10.7% in 2014. In Munich, 9% of founding teams include females, which is relatively low compared to other regions such as Hamburg (11.6%) or Berlin (10.7%) [67]. The overall number of founded companies is decreasing, but since 1995 the number of those started by women is decreasing at a faster rate than those started by men [68]. One field is, however, an exception: Women founded more industrial high-tech startups in 2010 (15%), compared to 2006 (11%), whereas companies founded in this area by men only saw a moderate increase [68]. Furthermore, women engaged more in full-time entrepreneurial activity over the last two years [54]. They are more confident that they can found a company on their own [69]. The High-Tech Gründerfonds claims that women are statistically more successful in founding a company; their average failure rate is significantly lower than that of men [70]. There is room for improvement and potential in the female startup scene [71] [72]. Accordingly, activities to foster female engagement in the German startup scene are on the rise. Examples are the Bundesverband Deutscher Startups, which founded the Startup-Unternehmerinnen-Netzwerk in 2014 [73], and Startup Weekend Hamburg, which initiated the Startup Weekend Women Hamburg for the first time in April 2015 [74].

Facts and Challenges

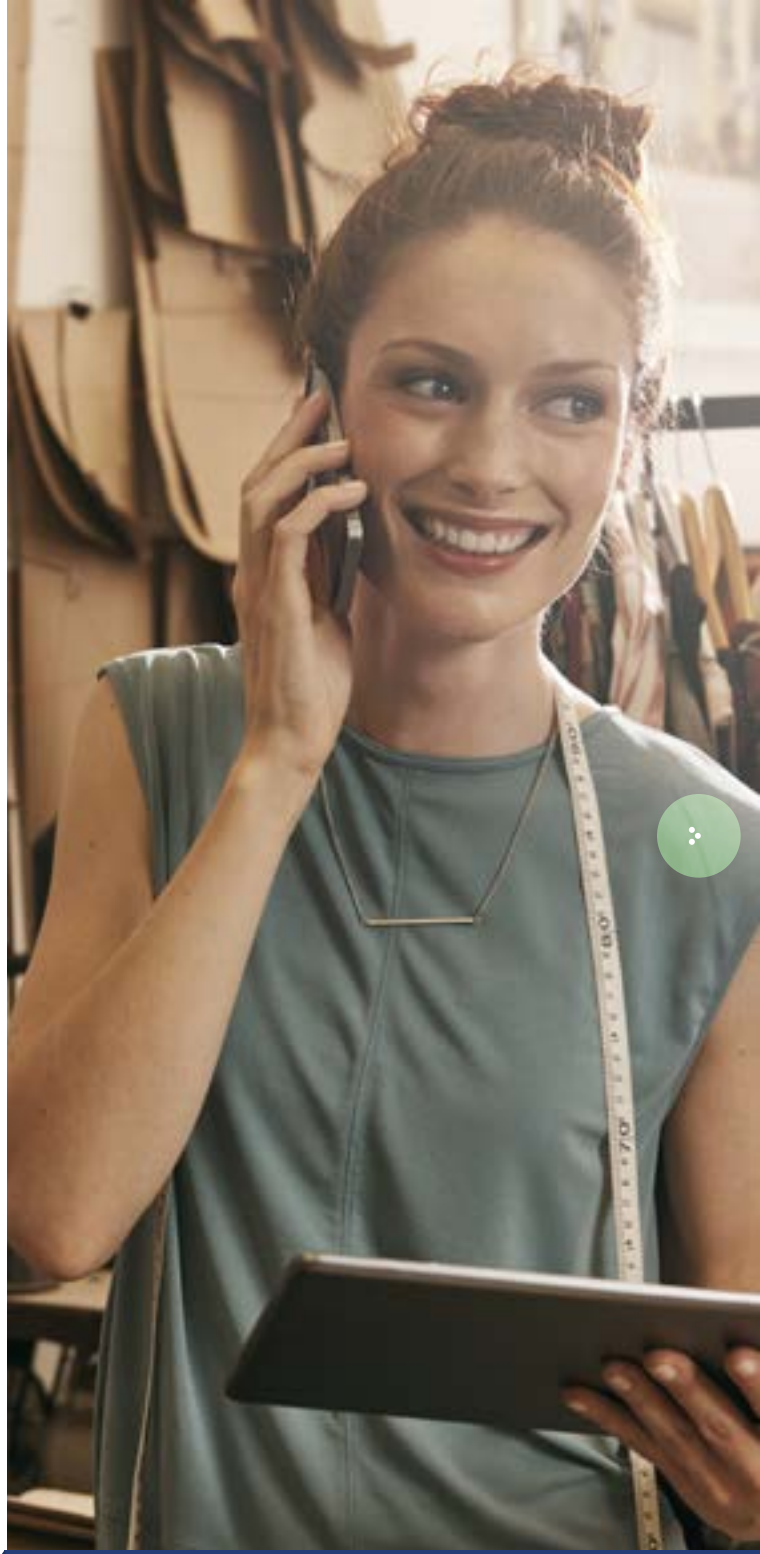
- The number of female co-founders in German startups has not increased [67].
- Women show a higher tendency to work part time in entrepreneurial jobs [67].
- The number of startups founded by women is decreasing faster than those founded by men since 1995 [67].
- Exception: The number of startups founded by women increased among industrial high-tech startups from 11% in 2006 to 15% in 2010 (only moderate increase of men engaged in entrepreneurial activity at that time) [67].
- Women engage more in full-time entrepreneurial activity in the last two years (all time high of 41% in 2014) [54].
- Challenge: Get more women to found a startup.

Key Drivers

- Women in entrepreneurship initiatives like the Startup-Unternehmerinnen-Netzwerk [73], the Female Camp [72] or the startup Weekend Women Hamburg [74]
- Stories of female role models like the founders of Outfittery or Amorelie [75]

Impact on the Future of Entrepreneurship

It is likely that women begin to play a more important role in the German startup scene, for example, due to initiatives like the Startup-Unternehmerinnen-Netzwerk. With this there might be an impact on the overall startup scene, since there are studies that show that women found differently than men [76] [77]. For example, women typically found smaller companies, but their financial planning is more precise [76].



Acceptance of Failure

German society begins to see failure more as an opportunity rather than something that should be avoided at all costs.

Failing as an entrepreneur was seen for a long time as purely negative in Germany. Within Europe, the fear of failure is only higher in Greece, Spain and Poland [78]. Due to this, one out of two potential founders does not found a company. A recent study shows that only 15.5% of Germans have a positive attitude towards entrepreneurial failure [79]. However, this mindset is shifting. Hannelore Kraft, Minister-President of North Rhine-Westphalia (SPD) and FDP-chairman Christian Lindner agree that a misstep should not be seen as failure, but a useful experience for a second chance [78, 80]. Back in 2013, Gründerszene stated that Germany needs to develop a culture for failure [81] and a study by Deloitte shows that risk-taking in Germany is rising [82]. Events like FuckUpNights, where you can publicly share your business failure story, become increasingly popular [83]. In Munich, the first FuckUpNight took place in April 2015 with 230 participants.

Facts and Challenges

- Risk-taking is increasing overall in German businesses (13% growth from 2012-2015), specifically in the TIME sector (17%) [82].
- 63.3% of interviewed entrepreneurs estimate low acceptance of failure in German society [67].
- There are emerging debates about the opportunities of failure in politics and economy [78].
- Challenge: Introducing the acceptance of failure to the traditional business mindset [80].
- Challenge: Stop seeing failure as a sign that the entrepreneur will fail again [80].

Key Drivers

- Publicly dispersed stories from now successful entrepreneurs who have failed before
- High participation in events like FuckUpNights
- Politicians openly encouraging society to accept failure and to learn from it
- Shifting mindset of the German society towards acceptance of failure

Impact on the Future of Entrepreneurship

Failure will become more accepted by the German society. It will be seen as something to be learned from rather than a stigma that marks failing entrepreneurs as people, who will be unsuccessful with other projects as well. With this mindset, the fear of failure will be a lesser barrier to found a company. In addition, people who failed once might be more likely to try again instead of giving up.

Entrepreneurship as a Career

Founding a company or taking a job at a startup are becoming increasingly attractive career paths.

While the profession of entrepreneurship has long been regarded as a career path resulting from personal necessity, this has changed in recent years as the values and priorities of Generation Y have shifted. Earlier generations were focused on job security and ownership, while the millennial generation regards values, such as self-expression, autonomy, creative control and flexibility as pivotal when deciding on a job [84]. A recent study, showing that 43% of young founders regard the prospect of working independently as the most important motive to create a venture, confirms this development [85]. To attract potential employees, many startups offer employee bonus schemes, where founders give company shares to their employees [67]. This constitutes an important instrument for startups to acquire personnel, differentiating them from other potential employers. Official numbers on the gross employment effect, which describes the total number of jobs created by a founder's company during the founding year, underline the importance of startups as job creators: while German startups created 12.5 jobs on average in 2012, the number increased to 16.8 in 2014 [67]. A survey, conducted among students and professionals, showed that 25% valued startups as more attractive in comparison to other employment options, while 52% regarded them equally attractive [86]. As a consequence of these developments, entrepreneurship is becoming a more attractive career path among young professionals.

Facts and Challenges

- The number of individuals in Germany who quit their job to become entrepreneurs rose by 55% in 2014 [54].
- The number of founders from Generation Y rose from 266,000 in 2013 to 287,000 in 2014 [87].
- The percentage of German labor force that seriously plans to found a venture rose by 2% from 2008 to 2014 [54].
- A global comparison of entrepreneurial activity (relative to the total population) ranked Germany 22nd out of 26 with a percentage of 5.0% [88] [89].

Key Drivers

- Generation Y prioritizes different aspects, such as independence, autonomy, and creative control, when looking for jobs [84]
- Better entrepreneurial education arouses interest in startups
- Startups often offer shares to employees as incentive, which makes them stand out from other potential employers

Impact on the Future of Entrepreneurship

The value shift in younger generations paired with the rising importance of entrepreneurship for job creation and economic growth will have a positive effect on the number of entrepreneurs [90]. Furthermore, the establishment of entrepreneurship as a popular and respected choice of work is likely to lead to a higher acceptance of the field, thus in the long term potentially leading to entrepreneurship communities, education centers and new forms of entrepreneurship, such as social entrepreneurship.

Entrepreneurial Education

The number of entrepreneurship centers, chairs of entrepreneurship at universities and other institutions for entrepreneurial education is rising.

Younger generations value an interesting and diversified life, and independence regarding their career path. A growing number of highly motivated young talents is contemplating working in small innovative companies, such as startups, rather than aiming for a conventional job in large companies, consultancies or investment banks [91]. In addition, politicians are interested in promoting entrepreneurship, as small startups create economic value and jobs [67]. To satisfy the increasing interest in this field, a growing number of universities and institutions are offering entrepreneurial education. The number of chairs of entrepreneurship in Germany has more than doubled from 2007 to 2012, and the number of universities not offering entrepreneurial education approaches zero [67]. While lectures on entrepreneurship teach theoretical basics, entrepreneurship centers provide the infrastructure to support and consult founders [92]. Facilities for additional entrepreneurial education are emerging so that the number of academic and non-academic institutions in Germany offering entrepreneurial education has reached a total of 200 in 2015 [93].

Facts and Challenges

- Low amount of entrepreneurial education at high-school [93].
- Millennials have a higher exposure towards entrepreneurship at universities [80] [93].
- Entrepreneurial education reduces fear of failure [94].
- Number of chairs of entrepreneurship in Germany rose from 45 in 2007 to 97 in 2012 [93].

Key Drivers

- Government interest in entrepreneurship as a source of innovation and jobs
- Creating a venture is becoming an increasingly attractive career path
- Network provided by entrepreneurial education institutions provides contact to other startups
- Hands-on projects focused on startups provide first entrepreneurial experiences

Impact on the Future of Entrepreneurship

While the access to entrepreneurial education in high-school is still very low, the rising amount of offers at the university level will lead to a higher number of entrepreneurially interested people. A growing number of highly talented people will consider entrepreneurship as an alternative to working in large companies, while the knowledge provided through entrepreneurial education is likely to increase the number of successful startups. Although the number of newly founded companies is currently decreasing, the increasing number of people interested in founding may have an opposite effect. Another advantage is the growing network provided by entrepreneurial education institutions. Young potential founders have access to both successful and unsuccessful founders and are able to learn and benefit from their experiences. This interchange of experiences will further increase the acceptance of failure and decrease other mental barriers caused by lacking knowledge [94].

Social Entrepreneurship

Social Entrepreneurship is gaining popularity.

While entrepreneurship has always been a key driver for both technological and societal innovations, the progress is paralleled by a wide range of environmental and societal issues. Exploitation, poverty or scarcity of water affect billions of people worldwide [95]. The German welfare state has been in a crisis since the 1990s and has been less reactive to unforeseen societal changes. As large corporations and governments face high operational overhead, they need more time to adapt to new developments. It is easier for smaller and more flexible companies and organizations, such as startups, to innovate [96].

A currently trending solution to tackle these issues is the use of social entrepreneurship, where innovative business models are combined with social goals. Social entrepreneurship explicitly aims for the creation of social value in order to address common problems and is therefore not necessarily profit oriented. One of the most important goals of social entrepreneurship is sustainability, as environmental awareness and demand for morally acceptable products increase [97]. Growing awareness in society for environmental issues can put pressure on businesses. The certainty that resources are becoming scarce and that the world climate is changing forces commercial companies to act. Those that do not adapt will face higher costs and risk long-term reputation damage, therefore compromising their competitiveness [98].

Facts and Challenges

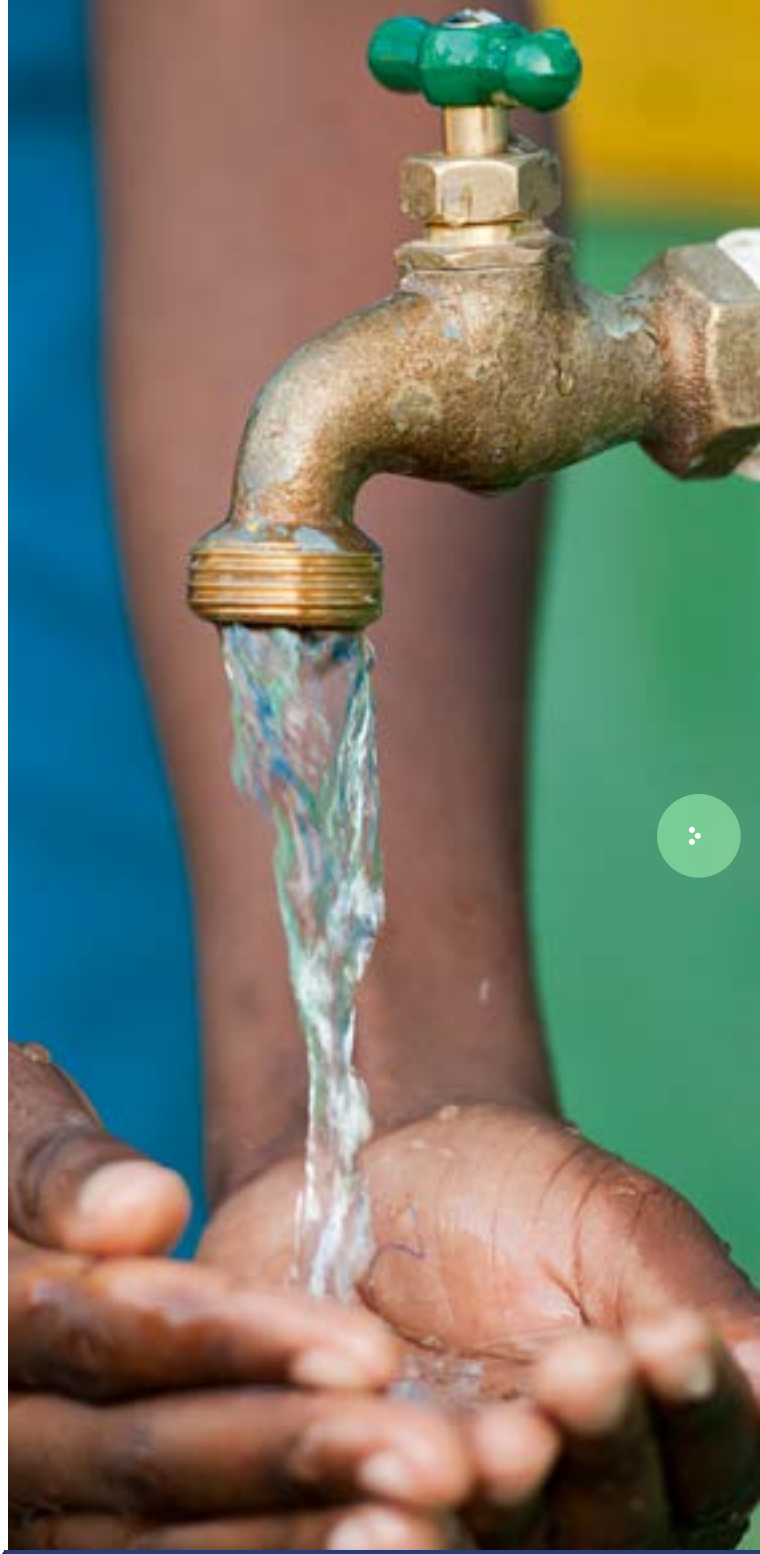
- Social Entrepreneurship is a young and growing field [99].
- The number of founded gGmbHs (German equivalent of a nonprofit Limited) increased with 54% of existing gGmbHs in 2011 founded after 2000 [100].
- Challenge: Difficulty to build up a sustainable business model that adds a social value.

Key Drivers

- A capacity overload of public institutions and governmental instances fosters innovative social businesses to address existing issues
- Social entrepreneurship education is becoming an inherent part of business qualification
- Society undergoing a value shift towards post-materialism values
- Growing sense of responsibility in society

Impact on the Future of Entrepreneurship

Adding social value to products or services will not only be a motivational driver for founders, but can also be seen as a sales argument in a society, where post-materialism values are increasingly pivotal in sales decisions. Considering the dwindling resources, sustainability will become the central motivation for a social venture. This will not only lead to an increasing popularity of social entrepreneurs, but the aspect of "being social" will become an important argument for founding a new company. This will eventually cause a shift of the overall entrepreneurial landscape towards social entrepreneurship.



Trends in Financing Startups

- Venture Capital
- Reward-Based Crowdfunding
- Crowdinvestung and Crowdlending
- Governmental Support
- Business Angels
- Corporate Venture Capital

Areeb Kamran, Christian Ittner, Christopher Helm, Julian Nast-Kolb, Quirin Körner

Trends in Financing Startups

Fostering a favorable environment for startups is often considered one of the key drivers for macroeconomic success in the competitive, globalized state of the world. How entrepreneurs acquire funding and how this will change in the future is therefore of great importance, as the possibilities in financing business development and growth are crucial for a successful startup scene.

Most business startups require external funding during the founding phase, for product and business development, market entry, and the subsequent growth period. Successful startups generally receive several rounds of funding. Most investments in startups are typically equity-based, which means the investor buys a part of the company. A successful startup eventually either gets acquired by another company (M&A exit) or turns into a public stock market corporation (IPO exit).

In this section, six trends in startup funding are identified. First, the overall volume of venture capital invested in German-based startups increases. This leads to easier access to capital for these startups and enhances their competitiveness in the global environment.

Second, reward-based crowdfunding is a fast growing trend which enables B2C startups to acquire funding and customers at the same time by pre-selling their product. Additionally, crowdfunding is a novel marketing channel and allows early product validation.

As a third trend, the growing market for crowd investing and lending provides startups with new ways of access to financing. The dependency on venture capital (VC) funds and banks diminishes and a less demanding shareholder portfolio can be achieved.

Fourth, government-backed financial support for startups is increasing. Government innovation support programs on the European, national and regional level offer grants and funding for early stage startups. In particular, startups can use proof-of-concept grants to test the feasibility of their product and develop a sound business model. Government VC seed funds then provide initial funding and help to attract further investors.

Fifth, we identified the increasing organization of business angels via networks and through online platforms. Together with an increase in overall angel investment, this facilitates financing through this channel and opens up further opportunities for later stage funding. Furthermore, angel investors could rival corporate venture capitalists and VC funds in the future.

Finally, the increase in corporate venture capital funds is a strong and accelerating trend. It has the potential to continue its growth, as the established companies rely more on startups to access newer technologies and markets. Being a possible exit point for startups, any action that these companies take has the ability to greatly impact the startup scene.

Combined, these six trends describe future opportunities and changes in the financing of startups.

Venture Capital

The amount of venture capital for startups is increasing.

Venture capital (VC) funds provide money in exchange for equity to startups to receive a positive return on their investment when selling their shares after some years. Since VC is a main source of financing for startups, its landscape is an important indicator for startups' access to funding. Looking at the years 2013-2015, one can see an increasing amount of VC made available to German startups [101] [102]. Overall, the volume exceeded €1.5 billion in 2014 and €1.9 billion only within the first half of 2015 [102]. Looking at tech-based startups, not only the amount of capital, but also the number of overall deals has been increasing [101]. VC investments are however not spread evenly across Germany. Munich and Berlin accounted for about 90% of all tech deals in Germany in 2014 [101]. Within the same year, there were more than twice as many VC investments done in Berlin than in Bavaria [102].

Facts and Challenges

- Volume of investments in VC-backed German startups first half 2015: €1.9 billion; CAGR '13-15': 144% (estimate) [102]
- Number of deals in VC-backed German tech companies 2014: 154; CAGR '11-'14: 22% [101]
- Large difference in number of deals between Berlin and Munich (106/39 in 2014) [102]
- High-Tech Gründerfonds is the most active fund in Germany with investments in 57 startups in 2014 [101] [103].
- Challenge: Raising more capital in later stages complicates an exit other than an IPO since companies become too expensive to be acquired.
- Challenge: Overcome legal hurdles for investors

Key Drivers

- Low interest rates as a result of ECB's monetary policy make it easier for VC funds to raise money [104].
- Delay of exits and IPOs at a later stage enhance need for larger funding rounds [105].
- Acceptance and support of the startup culture within the German society is constantly growing [106].

Impact on the Future of Entrepreneurship

An increase in the volume of VC in Germany improves the financial situation for German-based startups and increases their competitiveness in the international environment. Due to the leading role VC plays regarding startup financing, this could also be seen as an indicator for an increase in other forms of startup funding. Furthermore, easier access to capital may further the growing startup culture in Germany and encourage people in Germany to found startups.

Reward-Based Crowdfunding

Reward-Based Crowdfunding offers new channels for startups to find funding and exposure.

Reward-based crowdfunding, or pledging money in exchange for a reward, collects funds from many backers.

Startups advertise their projects on a crowdsourcing platform and ask for a specific amount of money (goal) to finance their project. The investors (backers) pledge a small amount of money to the projects. In exchange, the startup gives them a non-financial reward in the future. This reward might be a physical product developed in the project, a digital copy or even a non-material gift. Crowdfunding is mainly targeting B2C ideas. The variety of ideas reaches from music/art and social projects to technology driven startups, which collect 17% of the overall investment volume [107]. The funding volume ranges from several thousand to several million euros (for example Pebble smart watches) [107].

Additionally, crowdfunding offers a new way of marketing products to early-adopters and helps to evaluate the market for a specific product before production.

Subsequent to the development in the U.S., the volume of crowdfunding is growing fast in Germany. American platforms like Indiegogo and Kickstarter are dominating the market and even the majority of German investments are done on these platforms. However, German reward-based crowdfunding platforms currently more than double their volume each year [108].

Facts and Challenges

- In Germany the volume of reward-based crowdfunding was €8.7 million in 2014; CAGR '11-'14: 159% [108].
- In Europe the volume was €120 million in 2014; CAGR '12-'14: 127% [109].
- Over 2 million people pledged over half a billion dollars on Kickstarter in 2014 [108].
- Challenge: Requires proper cost, logistics and time of development estimation for the listing.
- Challenge: Increasing cost of campaigns due to professionalization.

Key Drivers

- New social marketing channels, like Facebook and Twitter, can spread the word about campaigns [110]
- Involvement in the development of innovative products encourages people [111]
- Cheaper and easier prototyping enables startups to start campaigns [112]

Impact on the Future of Entrepreneurship

Rising popularity of reward-based crowdfunding offers new possibilities of financing for startups. Selling a product that is produced in the future allows startups to finance their expenses without losing equity or paying interest rates. For non-profit startups (for example arts, social) it might become the main financing source of funding. Besides, using reward-based crowdfunding offers startups new marketing channels to early adopters and even might attract the attention of the media. As the startup sells its future product, crowdfunding might also become an important tool to prevalidate the estimated market size.

Crowdinvesting and Crowdlending

New financing instruments are emerging for startups to seek funding via new channels.

Crowdinvesting is a way to finance a startup based on multiple small contributions instead of a few big investments.

A special type is crowdlending, which is a classic loan agreement, but between many investors (crowd) and a startup. The interest rate is based on a risk analysis calculated by the lending platform.

The average volume of a classical crowd investment campaign in Germany rose to €369,000 this year [108]. Recently, the investment volume of each investor was limited by law to €1000 and the total volume of a campaign to €1 million.

For startups, both forms offer new and attractive ways to raise money. In the case of crowdinvesting, investors are usually silent shareholders and therefore have fewer rights. Startups thus face less external control than with VCs or BAs. Crowdlending agreements on the other hand are more flexible than conventional loans (for example no penalty for early repayments) [109]. Furthermore, they can be used at stages where conventional loans are not handed out yet. With both financing methods however, there is no support besides money and the terms are fixed by the crowd platforms.

The increase in these alternative investments in Germany is supported by the strong growth in Europe. Crowdinvestment more than doubled each year (CAGR '12-'14: 112%) and crowdlending even tripled (CAGR '12-'14: 248%) [excluding UK, 109].

Facts and Challenges

- Volume crowdinvesting in Germany 2014: €14.7 million, CAGR '12-'14 [113]: 87% [108].
- Volume crowdlending in Germany 2014: €6.1 million (CAGR: no market before 2014) [109].
- "Peer-to-peer business lending is already the largest online alternative finance segment in the Netherlands with €35.3 million recorded in 2014" [114].
- Challenge: High-risk investing is limited by law ("Kleinanlegerschutz") [115].
- Challenge: If acquiring VC funds, many small investors might be an obstacle [116].
- Challenge: Diverse legislation in Europe could limit the overall market size.

Key Drivers

- Web-based platforms connect micro-investors and startups [108]
- Success stories of startups make high risk investments more popular [117]

Impact on the Future of Entrepreneurship

The acceptance of crowdinvesting and crowdlending is growing steadily, thus those two new financing instruments will provide an alternative source for seed funding. Startups can raise money within established financing models, but from new sources.

Furthermore, crowdinvesting changes the equity structure of startups. There are no big seed investors anymore. A consequence is more autonomy for the startup, as there are many investors without one strong opinion, but also less guidance by an experienced investor.

With respect to crowdlending, startups will increasingly be able to avoid giving out equity while still being able to receive money that banks may not supply.

Governmental Support

Innovation support from regional and national government entites is increasing.

Governments subsidize startups and SMEs in order to foster innovation and economic growth (e.g., create jobs). Typically, governments offer various programs that cover three types of financial entrepreneurship support: Proof-of-Concept funding, often grant-based, with the aim to assess technological feasibility of the project; Pre-Seed funding, with the aim to reduce organizational uncertainty; and Seed VC funding (for equity), with the aim to lower investment risks for industry investors [118].

Recent programs on the European, national and regional level specifically target technology startups and university spin-offs. Examples of growing government support within Europe include: The restructuring of the EU Framework Programme for Research and Technological Development into "Horizon 2020", with focus on industry competitiveness and innovation [119]. UK's innovation schemes such as Startup-Loans [120] or the British Business Bank [121] (founded in 2013). Germany's VC and founder support (for example INVEST [122], EXIST [123], High-Tech Gründerfonds (HTGF) [124] or KfW/ERP-Startfonds [125]).

Facts and Challenges

- Governments are interested in innovation support as innovation is "one of the most powerful catalysts of [economic] growth" [126].
- Horizon 2020 [119] includes several schemes for startup support: 'COSME' [127] (€2.3 billion), 'Entrepreneurship 2020' [128], and 'Startup Europe' [129] specifically target startups and SMEs.
- Horizon 2020 additionally supports government-backed VC funds by the European Investment Bank, for example InnovFin [130] and EFSI [131].
- The HTGF, Germany's largest VC fund with a combined size of €573.5 million, is about 90% government funded [124].
- Challenge: Government funding may be slow to obtain.
- Challenge: Success of government innovation programs in creating long-term jobs is hard to measure.

Key Drivers

- Startups/SMEs succeed in creating permanent jobs
- Political interest in economic growth is aroused through innovation
- Especially high-tech startups contribute to establishing innovation and industry leadership

Impact on the Future of Entrepreneurship

A growing volume of government-backed startup funding in the future will improve entrepreneurs' access to finance. Proof-of-concept grants and pre-seed funding programs allow founders to develop and test sound products and business ideas. Seed VC support (for example co-investment strategies, where government VC funds match deals by industry lead investors) mitigates the risk faced by investors, thus attracting further industry funding for startups and SMEs. Government programs bridge financing gaps in difficult, high-risk stages of startups.

Business Angels

Investment volume increases and Business Angel networks emerge.

Business Angels (BA) are affluent individuals who provide startups with seed capital for equity, with a mainly financial motivation [132]. They usually invest around €50,000-100,000 infrequently in early stage startups [133], as these amounts usually do not suffice for Series A or later investments. Additionally, they also equip startups with knowledge and contacts and board functions. In the past, BAs were not well-known publicly and relied on personal contacts to match with startups in need of funding [134]. Recently this changed, with BAs increasingly collaborating in so-called "syndicates". These networks and their benefits provide an incentive to enter the market and become a BA. Within a syndicate, each individual often invests smaller amounts of money than before, but more frequently. As a group, BAs can thus make larger investments than in the past (around €200,000 [135]) [136]. Angellist [137] and other web-based platforms provide matching opportunities between startups and BAs, facilitating the initial contact. By leveraging on the "syndicate-fund", follow-up investments rivaling VCs are now possible, as VCs generally invest in later stages rather than in seed rounds. Since 2013, the German INVEST program offers a 20% repayment of angel investments, hence incentivizing BAs [138].

Facts and Challenges

- Between 2007 and 2013 BA participation rate in Europe increased from 4.6% to 26.8% [139].
- BA investments in Germany increased, despite cyclical quarterly fluctuations [133].
- The total BA investment (partly unobserved) is likely larger than the total VC investment [134].
- 28.2% of startups in Germany received angel investments in 2014 [140].
- 90% of UK business angels are organized in networks [136].
- Challenge: BAs are still hard to identify and approach due to the importance of personal contact [134].
- Challenge: The involvement of several players in syndicates makes board decisions more difficult [136].
- Challenge: A current legal draft might remove tax incentives for BAs in Germany but is still in debate [141].

Key Drivers

- Growing individual wealth, especially of successful entrepreneurs, increases the number and volume of BA investments [113]
- Syndicates and platforms facilitate the entry for BAs in the market and empower their position [137]

Impact on the Future of Entrepreneurship

BAs are easier to access and financially more potent when investing within a syndicate or through platforms. This and the general increase in BA investments help to satisfy the seed phase funding demand. Furthermore, syndicate investments rivaling conventional VCs are possible. Consequently, startups have more choices and a stronger negotiation position. They also have a higher chance of receiving funds and benefit from more consistent investor groups.

Corporate Venture Capital

Corporations provide large volume investments in order to stay innovative

Large firms are increasingly setting up venture capital (VC) arms to strategically invest in startups. These corporate venture capital (CVC) funds tend to focus on strategic goals over financial goals. The main reason is that companies use this as a way to buy innovation [142] and keep it separate from the slow pace of corporate operations. Some companies even partnered with traditional VCs or incubators [143] to ensure a smooth deal flow and availability of funds. Generally, CVC firms tend to invest in startups at later stages, but there has been a recent trend to invest in seed and early stages [144] to benefit from a first-mover advantage. Tech and ICT firms seem to be more active in this regard and have the largest CVC arms [145]. CVC investments may additionally include office space, support or mentorship. Major corporations in Germany are following the U.S. trend and investing in startups. About 70% of Germany's biggest companies (according to Forbes) have institutionalized their investments in startups via setting up separate VC companies, as shown in the table on the next page. A lot of them stopped operations after the 2000 tech-bubble burst, but many have recently started to be active again and are setting up new funds for investment. However, several German firms such as BMWi (BMW), T-Ventures (Deutsche Telekom) and Sapphire Ventures (formerly SAP), with over €2 billion in combined investments, are still investing heavily in the U.S.

Facts and Challenges

- The number of CVCs participating in VC deals is increasing [144].
- CVC share in overall VC deals is growing and is up by 55% from 2012 in U.S. [144].
- German companies invested 16% of the total VC funds in 2015 as strategic investments [146]. This is on par with the U.S. figures from 2014 [144].
- Average deal size with CVC participation is growing and touched €23 million in 2014 [144].
- Corporations tend to invest higher sums than traditional VCs on average [144].
- Challenge: Getting German CVCs to invest in German instead of U.S. startups.
- Challenge: Strategic buyers in the mix may eventually discourage general VCs, thereby reducing later stage VC funds for those startups which may not fit in any CVC portfolio.

Key Drivers

- Fear of corporations losing out to newer, more innovative and faster players, especially in ICT
- Massive success of startups in the U.S., with both financial and technological gains, is motivating European and especially German and British corporates to follow suit and foster the startup culture
- High-quality startups with highly qualified teams are increasing in the market
- The move towards "digital everything" means companies have to innovate in the digital domain even if they do not have the expertise

Impact on the Future of Entrepreneurship

Accessing CVC funds is becoming easier. This opens up an opportunity for startups to get larger investments with fewer investors and raise larger later stage investment rounds. One of the main advantages for startups using CVC is the availability of a clear exit strategy as potential buyers have already invested in them.

Table 1: Venture Capital Funds of the 20 Largest German Companies (2015)

	Company	Industry	VC Arm	Founded	Active
1	Allianz Worldwide	Insurance	Allianz Digital Corporate Ventures	-	2015
2	DaimlerChrysler	Consumer Durables	DaimlerChrysler Venture	1997	-
3	Deutsche Bank Group	Banking	Deutsche Venture Capital	1998	2012
4	Deutsche Telekom	Telecommunications Services	T-Venture & Deutsche Telekom Capital Partners	1997	2015
5	E.ON	Utilities	E.ON Venture	-	-
6	Siemens Group	Conglomerates	Siemenes Venture Capital	1999	2015
7	Munich Re	Insurance	Strategic Corporate Venutres (HSB)	-	2015
8	RWE Group	Utilities	Innogy Venture Capital	2010	2014
9	Deutsche Post	Logistics	Deutsche Post Ventures	2000	-
10	BMW Group	Consumer Durables	BMW i Ventures	2011	2015
11	Volkswagen Group	Consumer Durables	Audi Electronics Venture	-	2015
12	BASF Group	Chemicals	BASF Venture Capital	-	2014
13	Commerzbank	Banking	CommerzVentures	2014	2015
14	Bayer Group	Chemicals	Flagship Ventures	2000	2015
15	Metro AG	Retailing	TechStars	-	2015
16	HVB Group	Banking	HVB-Gründerinnen (mentoring only)	-	2015
17	ThyssenKrupp Group	Conglomerates	-	-	-
18	Eurohypo	Banking	-	-	-
19	SAP	Insurance	SAP Ventures / Sapphire Ventures	1997	2015
20	Continental	Consumer Durables	-	-	-

Political and Legal Trends

Legal Hurdles in Business Creation

Incentivizing High-Risk Investments

Intellectual Property

Government Support

Global Trade Barriers

Data Protection

Political and Legal Trends

As growth in traditional industries slows and the focus of the global economy shifts towards emerging markets, policymakers in industrialized countries are looking for new ways to foster economic growth. Regional, national, and supranational governments increasingly place their hopes in technology-driven, high-growth startups. They are looking for ways to remove political and legal barriers that make founding difficult for startups and are actively supporting entrepreneurs in the process of creating their ventures. Furthermore, policymakers are increasingly adapting legislation in areas such as data protection in the digital age. Six trends were identified in the area of entrepreneurship legislation.

First, governments on the national and supranational level increasingly aim to facilitate the process of formally registering a legal entity. It is a crucial step when setting up a new business and typically requires completing lengthy and bureaucratic procedures. They do so by introducing simplified, often web-based application formalities and by lowering the minimum capital requirements on certain legal forms.

Second, EU and German legislators are incentivizing high-risk investments and unifying EU legislation to accelerate the growth of the venture capital industry. The political developments in this regard are expected to make funding businesses easier and increase the valuations of European startups. Thereby, setting up a business in the EU will become more attractive.

Next, the EU is working on unifying its legislation regarding intellectual property protection across Europe. The current lack of uniformity in patents within the EU is unfavorable to small enterprises that often lack legal knowledge and financial means. Unlike for trademarks and copyrights, the EU doesn't have a community-wide patent or patent court, but this situation should change in the near future. The expected changes would provide improved access to intellectual property protection in other EU member states for Bavarian startups.

Governments also increasingly build or strengthen supportive ecosystems for high-tech startups to profit from their potential of boosting the economy. This support takes place in four areas: entrepreneurial education, consultation and mentoring, funding, and networking. This has the potential to lower the barriers to founding a company and could increase the success rate of startups.

In addition, developments, such as the continued growth of the European Single Market and the EU's progress toward closing free-trade agreements with non-member states, enlarge the market accessible to Bavarian startups. Traditionally, smaller companies would not have the resources to handle the burdens of international trade or would at least be disadvantaged by them. However, this trend also increases the competition in Germany and Bavaria as foreign companies find it easier to enter the market.

Finally, the European Commission is actively pushing for more uniform and stricter European data protection regulations. The current lack of uniformity in data protection regulations within the EU causes huge struggles, especially for small businesses that operate in the digital space. This is why the expected EU-wide legislation could have a strong, positive impact on making EU expansion more accessible for startups. However, the increasingly strict regulation could also lead to higher costs and overhead for the storing and processing of user data.

The following section will detail the aforementioned trends and explain their influence on the future of entrepreneurship.

Reduction of Legal Hurdles in Setting Up New Businesses

Simplified founding processes allow startups to focus on growing their business.

Registering a startup as a legal entity is a critical step for the startup because it is a legal requirement to be protected by law and to conduct business. It also communicates a company's adherence to legal standards to its stakeholders and improves the probability of survival [147]. A major source of bureaucratic hurdles for new companies is the process of compiling the necessary documentation for incorporation and submitting it to the authorities. To reduce the costs and the necessary time required for this process, governments increasingly provide platforms called company registeres where entrepreneurs can register their companies online. The creation of one-stop shops, where all necessary physical interactions with the authorities can be performed at centralized offices, is another way of facilitating incorporation [148]. Apart from documentation requirements, formally setting up a new business can also involve paying a minimum amount of capital, depending on the legal form. There has been a tendency towards reducing capital requirements for establishing or the creation of new legal forms in order to reduce the burden that such requirements can impose on entrepreneurs [149] [150].

Facts and Challenges

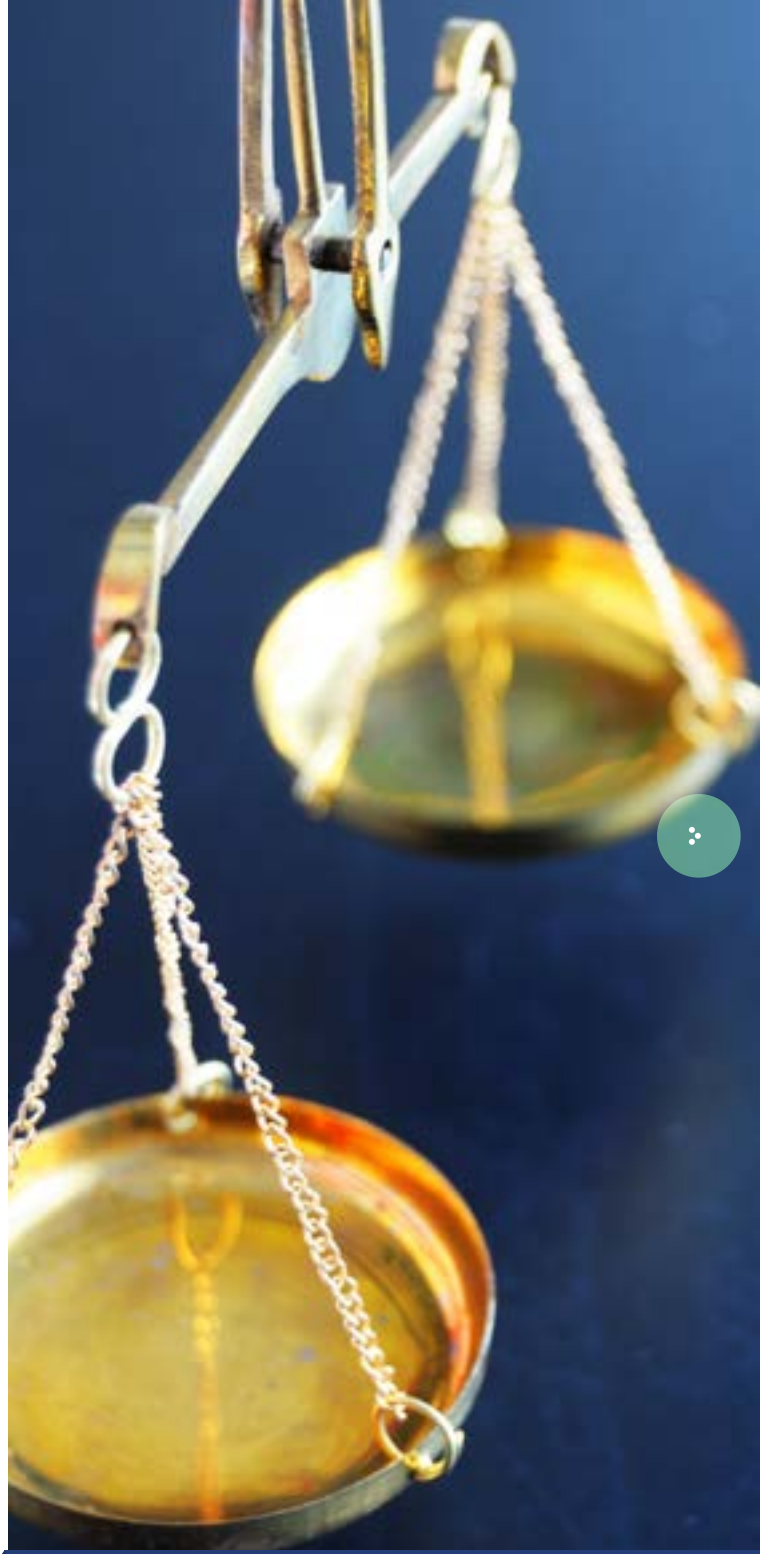
- By 2014, 144 out of 189 countries offered online company registers. Germany only partly offers this service [148].
- The average amount of days it takes to register a new company decreased from 36.7 to 11.6 days between 2004 and 2014. Germany is above average with a mean duration of 14.5 days in 2014 [151].
- Germany introduced the UG as a new legal (sub)form with limited liability and no minimum capital requirement in 2008. By 2014, it accounted for over 18% percent of all registered private limited companies registered [149, 152].
- Ongoing initiatives by the European Commission aim at creating a European Limited Liability Company with a lean online registration process that can be completed within three days with no minimum capital requirements [150] [153].

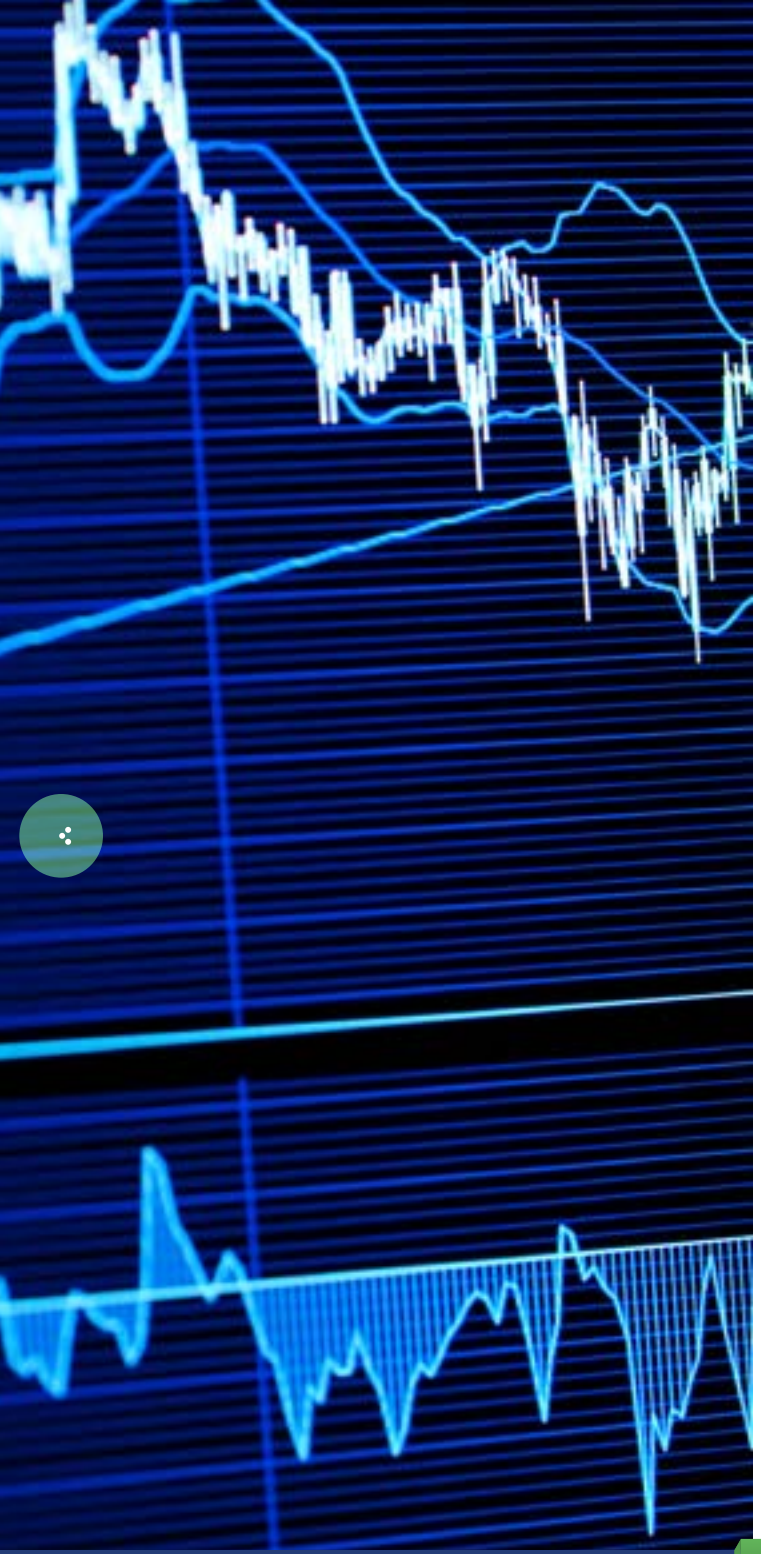
Key Drivers

- Increased integration of digital technology in the public administration sector as a consequence of their increased importance in establishing businesses [154]
- Widespread political commitment towards facilitation of administrative processes [155]
- Importance of facilitating entrepreneurship on the global political agendas with the aim of inducing economic growth [155]

Impact on the Future of Entrepreneurship

The trend towards reduced bureaucracy will result in a further reduction of the time and the costs it takes entrepreneurs to formally establish their businesses. This can lead to increased entrepreneurial activity, such as a focus on the core business, since many businesses fail nowadays due to complex and expensive registration requirements. In cases where entrepreneurial activity is carried out without officially registering a company, formal registration could also yield benefits for governments. In Germany, where hurdles for formally setting up businesses are still comparably high, implementing online application processes and (formal) one-stop shops could prove as a major driver of entrepreneurship in the coming years.





Incentivizing High-Risk Investments

Legislative reforms aim to increase incentives for private investors to fund high-risk startups.

The volume of venture capital (VC) investments in Europe remains very small in comparison to the US [156]. To improve the availability of funding for European startups, European governments, including the German federal government, have been working on legislation that eases the regulatory burdens that come with VC investments by incentivizing high-risk investments over more conservative investments. The current German federal legislation is unfavorable to VC investors due to inability to carry forward losses and the lack of VAT exemption for fund management [157]. In addition, there is not coherence in legislation between different EU member states, which creates a large regulatory burden for the European VC industry [158]. This means that the VC funds have been forced to adapt to many differing legislations in order to operate in several EU member states. The EU has addressed this in recent years with the introduction of regulations that unify legal practices to reduce the red tape investors face in the EU and to enable all member states to raise VC funds.

Facts and Challenges

- The last two German coalition treaties state the intent to improve conditions for venture capital in Germany and to make investing in small enterprises more attractive [155] [159].
- The German parliament implemented the MoRaKG in 2009 with the aim of providing tax incentives for risk capital investments [160, 161].
- Investor-friendly tax regimes have been implemented in the UK to attract more VC investments [162].
- The German government is expected to pass a new venture capital law in September 2015 that should improve VC investment circumstances [164].
- In 2013 EU regulation for venture capital laid out new measures that allow venture capitalists to market their funds across the EU and grow using a single set of rules [165].
- Challenge: Incentivizing risky capital investments raises opposition as giving benefits to investors is a politically difficult topic. Therefore, the German federal government recently planned a InvStRefG to withhold the tax-exemption of investment profits if they are re-invested [163].
- Challenge: EU State-aid law can limit member states' freedom to pass legislation incentivizing high-risk investments. This can be extremely challenging as the EU does not have legislative power with regard to taxation. For example, the MoRaKG was deemed not compatible with EU state-aid law [161].

Key Drivers

- Involvement of the EU in investment legislation
- Pressure on states to remain competitive internationally
- Demand for economic growth and creation of new jobs [166]

Impact on the Future of Entrepreneurship

Due to legislative changes, European VC funds will be incentivized to raise more capital and thus finance more startups. Additionally, increased investment targets all around Europe will make the market as a whole more attractive to investors. Finally, this better supply of capital to European startups will help startups access funding, which in turn can reduce the gaps in the supply of capital for European startups [156].

Intellectual Property Policy Unification in the EU

The European Union is unifying intellectual property legislation thereby making IP protection more accessible to startups.

The current situation regarding intellectual property protection in Europe is unfavorable for small enterprises. The different IP protection legislations among the member states lack uniformity, which makes acquiring and enforcing IP rights expensive, time consuming and complicated [167]. This poses a challenge to startups that often lack legal knowledge and financial means. However, IP protection is very important for high-tech startups since they often have an innovative technology or idea as their main asset. The EU aims to unify the protection of intellectual property with regard to patents, trademarks, and copyright licensing. In December 2012, the European Parliament voted in favor of an EU regulation on a unitary patent for Europe [168]. In February 2013, an agreement establishing a common patent court was reached that is still in the process of ratification [169]. It will be enforced after ratification by at least 13 EU Member states, but as of December 2015 it was ratified by 8 member states [170]. The latest developments on creating a unitary patent system in 25 countries across Europe will reduce costs for community-wide patents and make it easier to meet the translation requirements [171]. Currently, patents can only be enforced in national courts, but a new Unified Patent Court will be established after being ratified by EU member states [172]. In addition, initiatives by the European Commission aim to adapt copyright rules to the realities of the Digital Single Market [173]. The European trademark registration system will be made both more accessible and efficient in terms of lower costs, complexity, predictability and legal security [174].

Facts and Challenges

- In 2011, the European Commission proposed the strategy "A single market for Intellectual Property Rights" that lays out a blueprint for a number of initiatives the Commission intends to take towards unifying patents, trademarks, and copyright licensing [173].
- Unitary European patents will coexist with national patents and classical European patents [175].
- The Unitary European patent may cost just €4,725, compared to the current average of €36,000 for a community-wide patent [171].
- The current patent system incurs costs for validation and renewal in each member state; the new unitary patent system will incur only a single renewal fee and no validation costs [176].
- In 1998, the European Commission established IPR-Helpdesks that offer free-of-charge inquiry services concerning IP protection for SMEs [177].
- 72% of the Academic Enterprise Award program's (ACES) successful startups say that IP plays a significant role in the growth of their company [178].

Key Drivers

- EU member states harmonizing their legislation to create a unified legal space and a European Single Market [179]
- Competitive pressure to internationalize in high-tech industries [180]
- Developed economies' dependence on knowledge pushes for easier IP protection [181]

Impact on the Future of Entrepreneurship

Unified IP protection in the EU will make community-wide IP protection and IP enforcement more attractive and accessible for startups. Reduction in costs and red tape, in combination with a single Unified Patent Court, will allow startups to compete with large corporations when it comes to patent enforcement. Easier IP protection will enable startups to decrease the time-to-market for new, innovative technologies. Entrepreneurs who protect their IP will benefit from enhanced credibility and thereby easier fundraising. Internationalization, at least across Europe, will be made easier. On the downside, startups might have to increasingly deal with patent trolls who could be encouraged to become more active players in Europe.

Increasing Government Support for Startups

Governments are building and strengthening support ecosystems to foster high-tech startups environments.

Having realized the importance of high-tech startups as economic growth drivers [166], governments are increasingly supporting high-tech startups through entrepreneurial education, consultation, and mentoring by opening up access to funding and networking opportunities. First, new educational course formats [182, 183], and student competitions [184] expose students to entrepreneurial work and thinking. Second, free-of-charge consultation services [183] help founders in matters related to legal issues. In addition, mentoring programs facilitate experience exchange between successful founders and newcomers [185]. Third, federal governments have introduced several forms of public funding to overcome the shortage of venture capital available to startups [186]. In order to comply with EU law, the EU has adjusted the state-aid legislation to exclude support for small companies [187]. Finally, state-financed startup networks are becoming increasingly important [188]. Through these networks, big corporations, research institutions, universities, and startups are all able to come together and exchange ideas, creating entrepreneurial opportunities.

Facts and Challenges

- New entrepreneurial education formats, for example by the LMU Entrepreneurship Center or the UnternehmerTUM, demonstrate how the innovation process can be supported by government institutions [166].
- Consultation is especially important for high-tech startups. The LMU Entrepreneurship Center and UnternehmerTUM, for example, offer free-of-charge consultation [183].
- To provide more venture capital for founders, Germany initiated the High-Tech Gründerfond (HTGF) in 2005 [190]. The HTGF has a volume of €576 million and supports 420 startups.
- Zentrum Digitalisierung Bayern (ZD.B) was founded in 2015 to create an exchange platform for innovation in the digital age. The State of Bavaria is investing €200 million in this network and expects 1000 startups to be founded in the circle of influence of this network in the next five years [191].
- Challenge: According to the GEM Report 2014, entrepreneurial education in Germany is still below average [189]. Entrepreneurial education programs increase the success of startups and the German government could improve their offerings.
- Challenge: Despite the establishment of the High-Tech Gründerfond, founders in Germany increasingly faced financing problems in recent years [54].

Key Drivers

- Transformation of the economy in the digital age [191]
- Political desire to benefit from startups' speedy adaption of innovations in existing technology infrastructure
- Ever-pressing demand for economic growth and creation of new jobs [166]
- Shortage of private support for startups

Impact on the Future of Entrepreneurship

Generally, increasing government support of startups will make entrepreneurship a more attractive career choice. Through better entrepreneurial education, the average success rate of startups will also increase. Startups will also be better equipped to deal with legal hurdles as legal support becomes more accessible. The availability of funding for startups will also increase with legislative changes incentivizing investors. Finally, startup hubs and networks facilitate knowledge exchange, helping entrepreneurs form teams and find funding, customers, and partners.

Reduction of Global Barriers to Trade and Investing

Barriers to international market and capital access are decreasing for European entrepreneurs.

In the past, internationalization was a big step for companies as it was accompanied by high fixed costs for setting up infrastructure to manage exports and imports. Besides that, import tariffs and restrictions limited trade and access to foreign markets, making internationalization very difficult for small businesses [192]. Furthermore, divergent legislations restricted the movement of capital between countries [193], limiting the supply of capital for entrepreneurs. Since the foundation of the EU, Europe has developed into a single market that enables free movement of goods and capital. This single market is still continuing its expansion [194], and the EU is currently working on Free Trade Agreements with other economic areas like the US.

Facts and Challenges

- European SMEs perceive high costs, lack of capital, lack of information, and paperwork as the main barriers to internationalization. The perceived importance of the barriers increases with decreasing company size [195].
- The percentage of EU SMEs engaging in international trade is considerably higher than the corresponding percentage of Japanese and US SMEs. This can be explained by the Intra-EU trade that is made easy by the Single Market [195].
- The EU and the US are working towards a Transatlantic Trade and Investment Partnership (TTIP) to reduce barriers to trade and to ease the movement of capital [196].
- The EU has expanded to include Croatia, Romania, and Bulgaria in recent years [197].
- EU expansion is continuing with many Balkan countries currently considered candidates for membership [198, 199].

Key Drivers

- Growth and increasing integration of the European Single Market
- International agreements that reduce trade and investment barriers
- Pressure on states to remain competitive internationally

Impact on the Future of Entrepreneurship

The market accessible to European startups that would otherwise struggle to overcome the barriers of internationalization will continue to grow, making it easier for startups to do business internationally [200, 201]. These unified markets can also enable new business models, especially in industries where current trade barriers have a high impact, such as industrial hardware. Niche markets, in which it used to be hard to obtain a critical mass in Germany or the EU alone, will thus become accessible to startups. Additionally, unifying regulations across markets will provide startups with access to a larger market for capital, thus increasing competition and reducing gaps in the supply of capital. However, the improved access to the European market for foreign startups will also increase competition here, leading to a completely new level of competition for markets and funding.

Data Protection Regulation

Governments are building and strengthening support ecosystems to foster high-tech startup environments.

As the world digitalizes, data protection becomes increasingly important. Having recognized this trend, governments around the world are introducing regulations and reforming existing rules related to data protection. In 2012, the EU Commission proposed reforms to the data protection rules of 1995 called the General Data Protection Regulation to make them "future-proof" and uniform across member states [202]. Furthermore, the EU Commission is pushing for a "Digital Single Market", which would remove regulatory walls between the 28 member state markets, thus potentially adding €415 billion per year to the EU economy [203].

Facts and Challenges

- Studies estimate that by 2020 big data analytics could boost EU economic growth by an additional 1.9%, equaling a GDP increase of € 206 billion [204].
- The EU Commission prioritizes the "Digital Single Market" as part of data protection reform [205].
- Under the Single Digital Market program, the EU Commission will propose a "European free flow of data initiative" to promote the free movement of data within the European Union [203].
- Uniform legislation will help eliminate the current fragmentation and costly administrative burdens, leading to savings for businesses of around €2.3 billion per year [202].
- The German Bundesdatenschutzgesetz (BDSG), together with the Data Protection Acts of German federal states, implements laws regarding personal data that are manually processed or processed in IT systems [206].
- The 2013 coalition treaty announced data privacy regulation in the areas of smart energy grids and healthcare, as well as the intention to ensure the high level of data privacy regulation in Germany in the TTIP negotiations [155].
- Uniform EU data privacy regulation is expected in late 2015 [202, 205].

Key Drivers

- Increasing public concern about data privacy in the digital space
- Emergence of digital technology that is not covered by existing data privacy legislation
- Involvement of supranational bodies such as the EU in data privacy legislation

Impact on the Future of Entrepreneurship

New reforms in data protection legislation will result in uniform laws across the EU, which can potentially help startups internationalize and scale across other EU countries without having to worry about regulations. With the introduction of a 'Digital Single Market', cross-border selling by SMEs, which currently stands at only 7%, will increase [204]. According to the German Federal Minister of the Interior Dr. Thomas de Maizière, such a clearly-defined system will encourage citizens to share information and will help build public trust in the Internet and new technologies [207]. However, the increasingly strict legislation could also hamper the development of Internet advertising and marketing industries. This could affect startups in particular as the legislation could lead to higher costs and overhead for storing and processing of user data.

Entrepreneurship Support Concepts

Incubators and Accelerators

Public - Private Sector Collaboration

Entrepreneurial Events and Competitons

Entrepreneurship Clubs and Organizations

Outreach to Underrepresented Demographic Groups

Support for Spin-Off Formation

Alexandra Butts, Alexandra Fritzen, Michaela Grädener, Kevin Probst, Timothy Smith

Entrepreneurship Support Concepts

Startups enter the market with high ambitions and enthusiasm, only to quickly discover the business ecosystem is a complex, ever-changing, and competitive environment with several barriers to entry, including stiff regulations and high costs. Entrepreneurial support is essential for startups to overcome these barriers, exit the startup stage, grow, and ultimately contribute to a stronger economy.

We identified six clear trending developments in entrepreneurial support: First, there is a proliferation and evolution of incubators and accelerators. Due to the increasing number of startup programs, incubators and accelerators are creating new, disruptive structures in order to differentiate themselves and compete to win over startups. This comes, for example, in the form of corporate accelerators and business angel supported nonprofits.

Second, there is an increase in collaboration between public and private sectors. Following the success of Silicon Valley, where research, government, and industry work closely together, similar models are being applied to several different support mechanisms on regional, national, and even international levels to offer extended support to entrepreneurs.

Third, there are an increasing number of networking events and competitions for entrepreneurs. In recent years, competitions are introducing new themes to target specific entrepreneurs and foster innovation in these domains. Participants are increasingly benefiting from additional support possibilities during and after competitions, particularly in terms of monetary prizes, but also from coaching and mentoring.

Fourth, the number of, and participation in, entrepreneurship clubs and organizations are growing. These clubs offer non-financial support for startups in the form of networking, coaching, and knowledge exchange opportunities in collegiate and professional environments.

Fifth, there is an increase in initiatives targeting underrepresented demographic groups. Organizations, government programs, and scholarships are created specifically to support women (e.g., funding and networking) and migrants, to overcome language barriers, skill gaps, and legal status issues (e.g., startup visas).

Sixth and finally, increased efforts are being made to exploit research results to their full potential. Public programs are directing more resources to promote the formation of spin-offs in academia and institutions. Universities are also establishing infrastructure supporting the translation of research into commercial products.

Incubators and Accelerators

The number of incubators and accelerators is increasing worldwide creating strategic and disruptive shifts.

Incubators, the first of which was founded in 1959, are typically nonprofit organizations offering free or low-rent workspace for entrepreneurs to work in a collaborative environment with access to various resources for an undefined period of time. Accelerators, the first of which was founded in 2005, are a relatively new phenomenon. An accelerator is a "fixed-term, cohort-based program, including mentorship and educational components, that culminates in a public pitch event or demo-day" [208]. The numbers of both incubators and accelerators are ever-increasing as the startup scene continues to gain momentum worldwide. Although both accelerators and incubators began as general support systems, many are shifting towards industry-vertical focuses that provide specific support in order to build better companies [208]. Additionally, there are new, disruptive architectures branching away from traditional approaches to find innovative ways to add value and support entrepreneurs, such as no equity accelerators like Mass Challenge and Bento or entirely online programs such as Society [209]. Furthermore, prominent angel investors are founding nonprofits, such as Michael Baum's Founders.org, to coach entrepreneurs while also benefiting from the networks, knowledge, deal flow, and investments in the startups [210]. Corporations are also funding their own accelerator programs to build reputation, drive open innovation, and invest strategically [211]. Another new architecture from Entrepreneur First recruits the best talent, brings them together in an accelerator program, and then builds teams to found startups, as opposed to traditional structures which fund already established teams with ideas [212].

Facts and Challenges

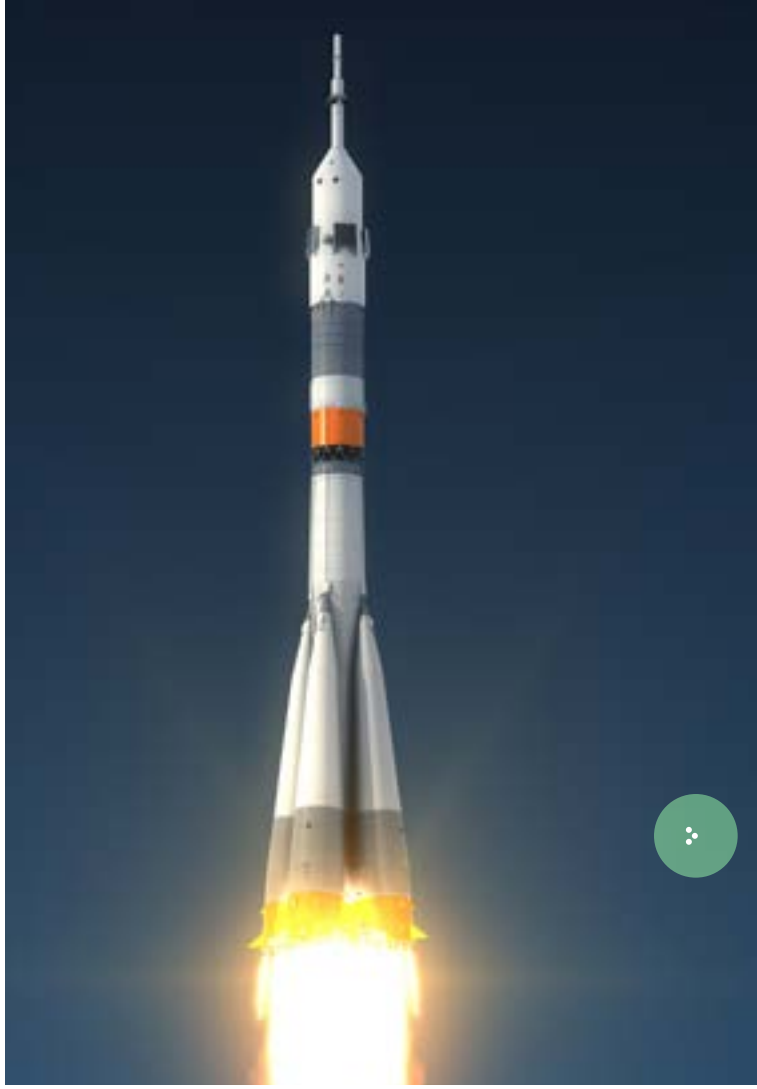
- The number of incubators and accelerators in Europe increased by 400% from 2007 to 2013 [213].
- Incubator program quality variables are a stronger predictor of successful outcomes than regional variables (72.9% versus 56.3%) [214].
- The European Commission will allocate €100 million to 20 startup accelerator programs in the European Commission's Future Internet Public Private Partnership [213, 215].
- About four out of five new businesses fail within their first five years, while 70-80% of startups that graduated from incubation programs are still in business [214].

Key Drivers

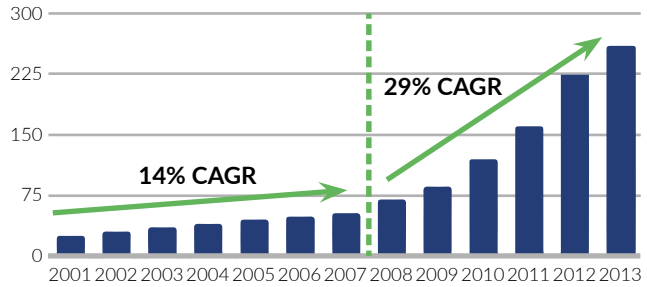
- Increasing number of startups means more entrepreneurs seeking support and investments [216]
- Increasing number of accelerators and incubators creates competition amongst the incubators and accelerators themselves [213]
- More capital is being poured into the startup ecosystem [217], often in the form of incubators
- Local, state and federal governments are adding startup support to their political agendas and creating their own incubators

Impact on the Future of Entrepreneurship

In order to compete in the saturated market, accelerators and incubators will find their own unique selling points and value propositions to offer specific advice and targeted resources. This competitive market will result in more new, diversified program structures that cater to every industry need. This will increase opportunities for startups to find targeted, higher-quality support making launches more successful.



Number of Incubators and Accelerators



Source: [213]

Public - Private Sector Collaboration

Public and private entities are teaming up with the commercial sector to offer full-fledged support to startups.

Independent organizations learned that entrepreneurial support is no longer about relying on individual competencies, like accelerators mainly do, nor about simply providing co-working space, as incubators tend to do. In addition, the collaboration of research, government, and industry enables great networking possibilities for startups and also provides an opportunity for entrepreneurs to find everything they seek in a single place. Rather, in an effort to build high impact startups, public and private sectors are increasingly joining forces to better equip startups with funds and programs, such as mentoring services in finance, business law, and intellectual property [218]. The main goal of these collaborative efforts is to narrow the gap between research, education, industry, and government. This takes place on regional, national, and lately, within the European Institute of Innovation and Technology (EIT), even on international levels. These hybrid approaches, while still fostering a collaborative environment, are more program-driven [218]. Efforts include initiatives such as co-financing, university startup centers and knowledge transfer partnerships.

Facts and Challenges

- The Fraunhofer-Gesellschaft receives 30% of its funding from the German government and 70% from its industry contracts, and supports research spin-offs [219, 220].
- UnternehmerTUM and LMU Entrepreneurship Center are both examples for university centers guiding student-founded tech startups to market entry [221].
- The European Union formed EIT fosters international collaboration and knowledge hubs (e.g., EIT digital, KIC climate etc.) allowing startups to use their services and networks to go international [222, 223].
- The Saudi Arabian government started a venture capital fund managed by the nation's largest bank to invest in new companies [224].
- Madrid City Council's International Labs program is a public accelerator program with private-sector sponsors such as Microsoft Venture and Telefonica [225].
- In order to encourage investments, Singapore's SPRING Seeds co-funding scheme matches third-party investors up to $1 million [226].
- The British government will combine public and private sector funds to support entrepreneurs by setting up an independent bank [227].

Key Drivers

- Local, state, and federal governments adding startup support to their political agendas [228]
- Startup rates surge worldwide and create the need for these collaborations [216]
- Risk mitigation fosters the entrepreneurial spirit
- Unicorn investments (startup's valuation has exceeded $1 billion dollars) and the success of Silicon Valley serve as a role model

Impact on the Future of Entrepreneurship

Collaborative efforts will make it easier for young startups to establish a larger network and access necessary resources. This leads to more room for capital-intensive technologies and disruptive innovations. Additionally, collaboration provides broader access to potential business partners and investors, which nurture the success of new ventures. These new co-operations will evolve further into "one stop shops", where entrepreneurs can find everything they need. Injecting the entrepreneurial mindset in universities and public institutions like Fraunhofer-Gesellschaft particularly, boost establishments of high-tech startups. In the future, lower costs for both startups and investors will be realized, emphasizing the importance of these joint efforts. The intersection of diverse European competencies will also push innovations, simplify remote collaboration, and pave the way for startups going international.

Entrepreneurial Events and Competitions

The number of networking events and competitions for founders and startups to connect, learn, share ideas, and gain support is rising.

Networking events bring together multiple actors in the entrepreneurial community to form connections, share ideas, learn, seek support, and discuss emerging trends. Networking gatherings take place on several scales: from virtually to face-to-face, from a local after work drink to an international weekend conference. In particular, entrepreneurial competitions, which are designed to help participants enhance their abilities and willingness to found a company, are growing in popularity. Participants can gain experience through feedback, networking with other aspiring entrepreneurs, and may even receive idea validation and seed funding [229]. Entrepreneurial competitions can focus on business ideas, business plans, or entrepreneurial personalities and have three main goals: First, to initiate the foundation of companies by the participants. Second, to offer aid and consultation for setting up a business plan. Third and last, to create a strong network of potential supporters from various sectors, such as the scientific, financial, and economic communities, to enable and facilitate collaboration [230]. In recent years, several variations concerning the structure, focus, and rewards have developed, leading to a much larger range of competitions [231]. While some are focusing only on existing business plans, an increasing number targets lean startups and business ideas. In order to foster entrepreneurship in specific fields (e.g., concerning environmental or social issues), competitions and events are initiated targeting these areas. For example, the Bio-Gründer competition focuses on ideas regarding biotechnology [232] and the Act for Impact competition by the Social Entrepreneurship Akademie targets social issues [233].

Facts and Challenges

- Several online platforms for entrepreneurs to connect, find staff and seek advice exist, such as Meetup.com, with over 18,000 entrepreneurship-related groups in 123 countries, and CoFoundersLab [234] [235].
- Large networking events are becoming increasingly international, such as the EO 2015 Global University event in Osaka [236].
- Both participation numbers as well as the value of the awards of competitions are increasing [231] [237] [238].
- The monetary value of the awards of all startup competitions in Germany increased from €1.6 million in 2013 to €3.16 million in 2014 [239] [240].
- There are more competitions directed towards specific sectors or methodologies, for example lean startup events such as Chicago Lean Startup Challenge [241], 1st50k [242], and Foundersensei [243].

Key Drivers

- Increasing number of participants seeking idea validation and a kick-start [244]
- Local, state and federal governments adding startup support to their political agendas
- High barriers to enter the entrepreneurial market create difficulties which can be simplified by event participation
- Efforts from government and society to increase innovation and entrepreneurial mindset
- Competition hosts (e.g., companies, governments) seeking new innovations

Impact on the Future of Entrepreneurship

Networking events and competitions will continue to increase entrepreneurial awareness and spirit in society. Participants in startup events are more likely to found a company. The growing publicity of entrepreneurial events is therefore much likely to have a positive influence on the number of founded startups. Participation in these events will also lead to "[increased] quality of entrepreneurship, and thus the probability of successful development of the prospective startups, through the development of entrepreneurial skills" [245]. Entrepreneurial events will also help to create a tighter and more extensive network between founders and supporting institutions, which facilitates funding opportunities. Additionally, an increasing number of events focusing on a specific domain (e.g., environmental activities) bring attention to rising industries, which will inspire more startups in these domains.

Entrepreneurship Clubs and Organizations

The number of clubs and organizations focusing on entrepreneurship, as well as the number of members in these clubs, is increasing.

Entrepreneurship clubs and organizations have emerged as an effective way for entrepreneurship enthusiasts to network, exchange ideas with like-minded individuals, meet mentors, share knowledge, and gain insights into the latest industry trends [246, 247]. They are a means of enhancing their members' understanding of entrepreneurship, providing related education, inspiring and encouraging entrepreneurial interest, and developing entrepreneurial skills and competencies [248]. This is particularly true for the student-led, self-educating and -organizing communities often found at high schools and universities [248, 249]. The reach of entrepreneurship clubs and organizations can span locally or internationally, with important globally and locally active organizations being the Entrepreneurs' Organization, Enactus, and JADE (European Federation of Junior Enterprises). In recent years, the number of entrepreneurship clubs and organizations, as well as their membership numbers, has increased significantly.

Facts and Challenges

- There was a 25% increase in student enterprises and 16% increase in participating JADE countries from 2007-2015 [248, 250].
- Entrepreneurs' Organization grew by 41% from 2009-2014 [251].
- On Meetup.com, the number of entrepreneurship groups grew by 40%, the total number of members of these groups grew by 90% from September 2014 to August 2015 [234, 252].
- At British higher education institutions, the number of student enterprise clubs and societies increased from 52% in 2007 to 67% in 2010 [249].
- In 2012, there were between two and five entrepreneurship clubs and societies at each of Entrepreneur Magazine's top 50 institutions in the United States [248].
- From 2012-2013, Korea saw a 50% increase in entrepreneurship clubs and 25% increase in participants [253].

Key Drivers

- Increasing public and private interest in supporting entrepreneurship
- Increasing number of startups [216] leads to growth of entrepreneurship organizations
- Increase in demand for and importance of non-financial entrepreneurship support [254]
- Popularity of entrepreneurship success stories that promote entrepreneurship as a career path to students and potential founders

Impact on the Future of Entrepreneurship

The growth in popularity of entrepreneurship clubs and organizations is building strong networks that offer opportunities to everyone interested in founding a company. There is an increase in individuals with an entrepreneurial mindset who are likely to participate in or start an entrepreneurial undertaking [255]. Their startups will benefit from the exchange of experiences and knowledge as well as the guidance and advice of other members sharing their successes and failures, which will contribute to more successful startups. Additionally, experienced entrepreneurs can give back to the startup community, stay current on the latest trends, and have access to a large pool of talented and entrepreneurial individuals. However, there are also challenges that arise from a higher number of entrepreneurship clubs and organizations. The growing number might lead to a decrease in the level of quality and education provided by these organizations, making it difficult for entrepreneurs and startups to identify the ones that they will actually benefit from [247].

Outreach to Underrepresented Demographic Groups

Organizations and government initiatives increasingly target specific demographic groups to provide them with additional entrepreneurship support.

Women and migrants are two demographic groups with high entrepreneurial potential that are underrepresented or disadvantaged within the makeup of the entrepreneurial landscape [256, 257]. Public and private initiatives are arising, in order to encourage these groups to become entrepreneurs and provide support when faced with entrepreneurial problems that are common among these groups. Women, for example, often lack access to resources such as financing, technology, market skills, and networks [258, 259]. This can be due to a vast amount of reasons such as old boys' clubs in VC funding circles, lower average credit scores for women and discriminating evaluations of women with non-technical backgrounds [260, 261, 262]. Some programs trying to relieve these shortcomings are Savor the Success (founded in 2008 [263]), the European Network of Female Entrepreneurship Ambassadors (2009 [256, 264]), the European Network of Mentors for Women Entrepreneurs (2011 [256, 265]), and the Female Founder Fellowship (2011 [266]). They offer networking opportunities, mentoring, knowledge exchange, and free access to courses.

Migrants are more entrepreneurial than natives and create more new businesses, but the number of employees, profit, and survival rate of these businesses is lower [256, 267]. This is due to financial constraints, language ability, legal status or lower education levels and therefore limited skills in business and management [267, 268, 269]. Relieving the problem of legal status, so-called startup visas have been introduced in many countries (2012 in Ireland [270], 2013 in Canada [271], 2014 in New Zealand [272] and Italy [273], and 2015 in Denmark [274]). Startup visas allow businesses with high growth potential and sufficient financial resources to immigrate for a limited amount of time (2-3 years), with the possibility of a visa extension. In Germany, there is no specific startup visa, but a work permit can be issued if the business has access to €250,000 in funding and creates at least five jobs in Germany [275]. Most other programs supporting migrants operate on a local or regional scale. An example of a national initiative is Student Dream, a 2013 initiative focusing on the education and support of colored university students in their entrepreneurial undertakings in the USA [276].

Facts and Challenges

- Women make up only one-third of all business founders in the EU [256, 259].
- "The ambassadors [of the European Network of Female Entrepreneurship Ambassadors] have supported the creation of more than 250 new women-led enterprises and created 22 networking and business support clubs for women." [265]
- "While only 15.9% of women entrepreneurs sought angel investments in the first half of 2013, the acceptance rate was 23.6% - higher than the overall market's 21.5% [...]. This suggests that programs helping women get 'investor ready' are yielding results" [277].
- The introduction of the Female Founder Fellowship increased the women's quota in the Founder Institute from 16% to 32% [266].

Key Drivers

- Underrepresentation of demographic groups in the entrepreneurial environment
- Success and struggle stories of women and migrants that point out pain points and disadvantages and inspire new support initiatives [258]
- Governments' entrepreneurship agendas mentioning targeted outreach
- Increasing government funds for targeted outreach programs [257]
- Increasing number of migrants and unemployed people inspire targeted outreach initiatives

Impact on the Future of Entrepreneurship

Targeting migrants and women with unique initiatives increases the presence of entrepreneurship among them and lowers their barriers of entry into entrepreneurial undertakings [264]. Therefore, there will be an increase in companies founded and jobs created, as well as improved success rates and longevity of these companies. In particular, migrant unemployment will decrease. In the future, it will be easier for entrepreneurs from all over the world to set up their businesses in countries that offer a startup visa, leaving Germany lagging behind. However, a backlash from individuals part of disadvantaged and non-targeted groups can be expected.

Support for Spin-Off Formation

Increased efforts are being made in most industrialized countries to promote the commercialization of research results through spin-off firms.

In the past two decades, the field of academic entrepreneurship has found greater visibility and universities are increasingly recognized as sources for the creation of high-tech firms [278]. Respectively, government support programs (GSPs) have evolved and specialized over time to exploit the hitherto underestimated potential inherent in academic research [279]. GSPs support portfolios ranging from providing early-stage funding, training, cultural exchange activities, and scholarships for academic entrepreneurs to building specific prototype-testing infrastructures. Typically, these GSPs aim to increase commercialization of university research in the form of new spin-off firms or licenses. Evidence of this trend is most visible at universities' Technology Transfer Offices (TTOs), which are established units that evaluate commercial potential of research and innovations and formulate strategies to exploit them [280]. Besides the TTOs, a new type of organization has emerged called the Proof of Concept Center. Amongst others, these organizations strive to fill the funding gap and accelerate the commercialization of university innovations by providing seed funding to novel, early-stage research that would not receive funding from another conventional source. Two pioneers, namely the Desphande Center at MIT and the von Liebig Center at UCSD, are hereby often used as reference of success [281]. Technology patents and research spin-offs have a significant impact both on regional economy, by transforming the results of scientific research into innovative products and services, and on societal wealth, through new job creation [282]. Therefore, German institutions are also aiming to support the formation of spin-offs coming from research institutions, such as Fraunhofer Ventures by the Fraunhofer-Gesellschaft [283].

Facts and Challenges

- Domestic and government spending on research and innovation increases, e.g., from domestic $772 billion in 2000 to $1076 billion in 2013 in OECD countries [284] [285].
- Commercialization of publicly funded research at U.S. and European universities resulting in spin-offs is increasing significantly [285].
- Science, technology, engineering, and mathematics (STEM) funding and the large number of TTOs are important factors explaining spin-off formation rate [286].
- Many European countries are complementing support programs by implementing reforms in national research systems aiming to increase technology transfer [287].
- New Proof of Concept Centers are created monthly, the first being the Deshpande Center at MIT and the von Liebig Center at the University of California San Diego in 2001 [288].
- A fund created by Munich Venture Partners (MVP) in cooperation with the Fraunhofer-Gesellschaft, which are both partially public funded, raised approximately €51 million to support Fraunhofer-Gesellschaft spin-offs [283] [289].

Key Drivers

- Increased collaboration of private and public sectors [218]
- Success stories of Silicon Valley (e.g., Google from Stanford)
- Stronger infrastructures for translating research into commercial products
- Increased government budgets for supporting entrepreneurship [279]
- Differentiated, densely packed, and high-potential research landscape

Impact on the Future of Entrepreneurship

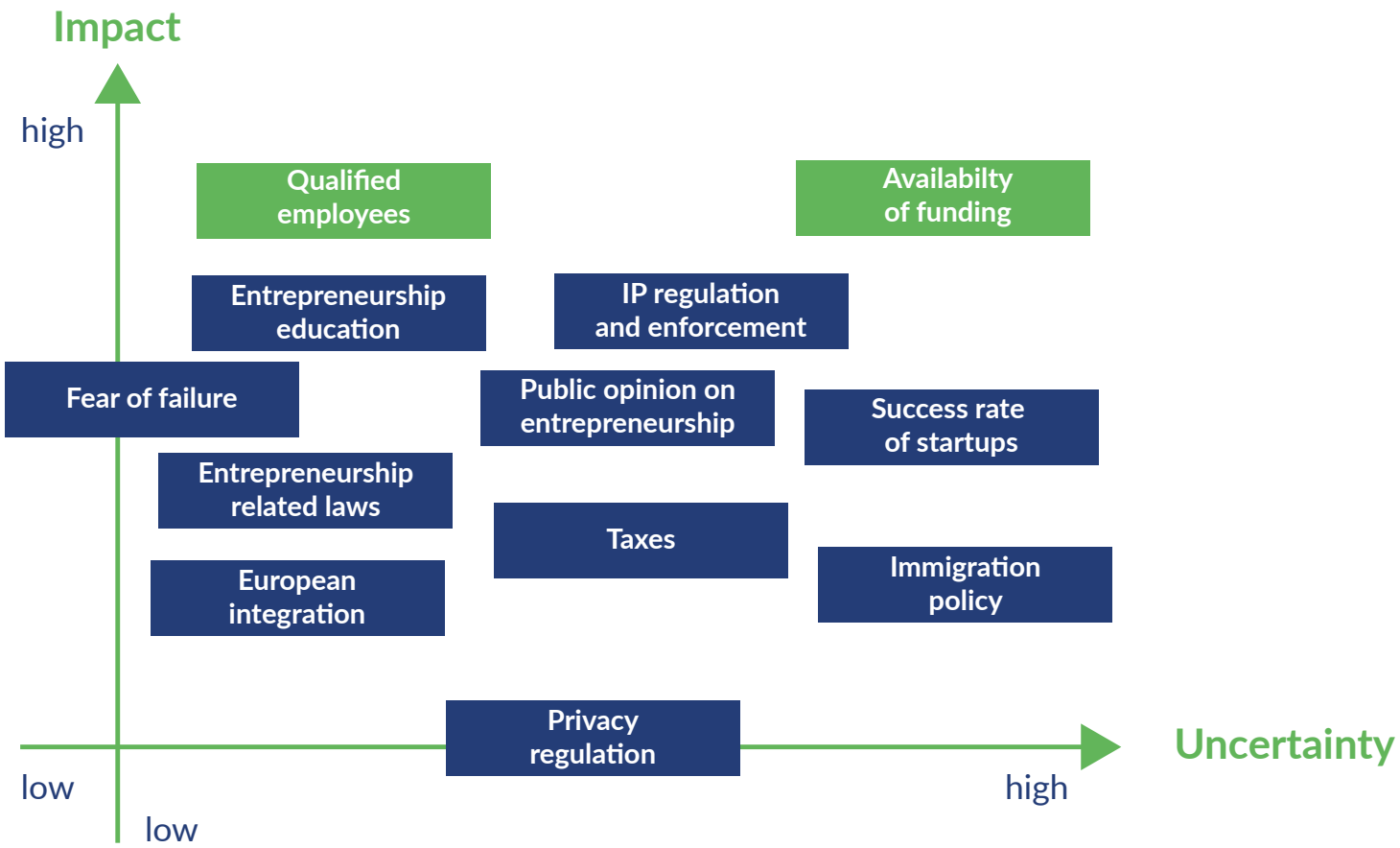
Increasing support aimed at the creation of spin-offs will enhance the development and formation of high-tech ventures and provide a mechanism to commercialize inventions that have higher uncertainty and would otherwise go undeveloped. Since mobilized research results increase the chance of disruptive innovations, the likelihood of new startup hubs emerging near great research institutions and universities increases. Additionally, governments will be more capable of regulating the development of specific industry sectors through focused support of particular university and research departments. Challenges that may hinder the formation of spin-offs lie in potential principal-agent problems. For instance, GSPs aim for commercialization through new spin-off firms and the sale of licenses, while researchers desire autonomy and further research funding. Academics may also wish to develop their ideas with other partners instead of disclosing them to TTOs.

Scenarios

The following chapter describes four scenarios of different futures. The chosen scenarios are relevant and of consequence for the user's decision, internally consistent, challenging, and recognizable from the signals of the present and near future. All four scenarios described on the next pages are equally plausible, but with regards to two key drivers which present extreme visions of how entrepreneurship in Bavaria might look like in the year 2035. Signposts that indicate a development towards each scenario are identified in order to describe a possible path from the present to each of the four extreme futures.

An exhaustive description can be found in the Chapter Methodology.

Driver Matrix



The Scenario Building Phase follows a structured approach. Based on the research conducted in the Basic Phase of the Trend Seminar, current challenges and drivers for the future development of education are identified. Drivers are forces that shape the future of entreprenurship in Bavaria and that are usually exogenous to an organization. All identified drivers are modeled with bipolar extreme outcomes. In order to create four equally plausible scenarios, two key drivers are combined in a scenario matrix (see page 54). The key drivers are characterized by a high impact on the future of education in Bavaria and a high degree of uncertainty (i.e. it is impossible to assign probabilities to their respective outcomes). Furthermore, the key drivers are independent from each other and do not overlap.

In order to select the most suitable key drivers, all drivers are ranked in a matrix according to their respective impact and degree of uncertainty. Different combinations of potential key drivers are then compared and the best combination of key drivers is chosen.

Key Drivers

Extreme outcome A:
Access to a large amount of funding

In case of outcome A, various conditions support the availability of funding in Bavaria in 2035. Investors see startups as an interesting investment alternative, as they have shown a record of sustainable financial success in the past two decades. Further, the government supports venture investments due to the positive impact startups have had on economy and society so far. The German market is an attractive investment alternative to other foreign markets outside the EU. In addition, foreign investors receive great incentives for investing in Germany while domestic investors may receive disincentives to invest outside of Germany. This effect can be increased by a weak European currency. Low interest rates make conventional investments less attractive and more capital flows into new ventures. A general economic upturn leads to greater availability of capital and higher success probability of startups due to an increased purchasing power of customers.

These factors lead to a large amount of available capital. The accessibility of this capital is eased through networking opportunities and connecting institutions, like accelerators and/or incubators, who bring together investors and startups.

← Availability of funding for startups →

Availability of funding is one of the most important success factors for startups in every phase. Startups depend on funding for research, prototyping, growth and paying wages. Hence, availability of funding can be very crucial to enable sustainable success. Availability in this case means how likely it is that a startup gets funded. It has nothing to do with the overall liquidity of the economy. Thus, there can be a lot of money inside the economy, but investors tend to not invest in startups, but in something else.

We examine the bipolar outcomes for the availability of private and/or public funding for startups in Bavaria. Outcome A means easy access to a large amount of funding. Outcome B means little or no funding for startups in terms of amount and/or accessibility.

Extreme outcome B:
Access to a small amount of funding

For outcome B, these influences head in the opposite direction. Startups have had no financial success record in the past two decades. There is no governmental support of venture investments. Germany is an unattractive market and legislation hinders foreign investors to invest in Germany, while domestic investors have incentives to invest outside of Germany. This effect can be increased by a strong European currency. High interest rates make conventional investment opportunities more interesting and less capital is available for startup funding. A stagnating economy reduces the availability of capital in general and the success probability of startups. Since funding for new ventures is almost unavailable, networking opportunities and connecting institutions are hardly existent.

Availability of qualified employees for startups

Extreme outcome A: High availability of qualified workers for startups

There are various aspects that support outcome A, leading to high availability of skilled employees for startups in Bavaria. First, the new generation prioritizes the same values as Generation Y – independence, creative control, and autonomy – which makes them regard startups as highly attractive employers. As a result, many people prefer startups over traditional corporations, making themselves available as potential employees. The sustained success of established startups, such as Uber and Airbnb, reinforces this effect, further increasing the attractiveness of newly founded ventures. Second, entrepreneurial education has been rising steadily since the early 2000s, resulting in a broad variety of entrepreneurship-based programs offered by universities, and a higher interest in startups and entrepreneurship in 2035. Moreover, there is ongoing migration of highly skilled workers. This leads to yet another increase in the number of available and skilled laborers. Finally, an upturn in the economy leads the German government to enact a stimulus program, resulting in more financial support for universities and institutions that foster entrepreneurial education. As a result, qualified employees look for alternative positions at startups.

The second pivotal factor for the success of startups in Bavaria is the availability of qualified employees to work for startups. More precisely, this availability depends on the level of qualification of workers and their willingness to work for a startup. In order to grow sustainably and compete on the market, it is of utmost importance to attract highly skilled people for all divisions, such as product development, marketing, and financing. The availability of qualified employees for startups can thus be seen as a vital factor determining the success or failure of newly founded ventures.

Again, we examine two extreme outcomes for this key driver. Outcome A means that the availability of qualified workers for startups is high and qualified employees believe that startups are a great place to work. Outcome B implies that there is no availability of a suitable startup workforce.

Extreme outcome B: No availability of qualified workers for startups

An antithetic scenario is considered in outcome B, where startups face unavailability of qualified employees. The entrepreneurship hype from 2015 stagnated and the startup bubble burst, resulting in the absence of educational offers for, and no interest in, entrepreneurship in 2035. Due to the resulting negative reputation of entrepreneurship, young professionals have lost interest in the startup scene and prefer corporate jobs that offer security. This effect is reinforced by an economic downturn, which further increases the attractiveness of secure corporate jobs with handsome benefits. In addition, entrepreneurially-minded people move abroad to the United States and other countries, where startup support is better.

Other drivers with high impact and a high degree of uncertainty

Lack of entrepreneurship education

There is no education targeting entrepreneurship. Even people who want to start a company can't get relevant training. Workshops are expensive, there are no study programs, and information is hard to find and outdated.

Entrepreneurship Education

Refers to the level of knowledge in society about funding and leading a startup. The availability of workshops, study programs and information material is as important as the participation in these programs.

High willingness to pay

The offers in entrepreneurial education are versatile and target a broad audience. It is part of school education and every university offers entrepreneurial programs with different focus. Information is easily accessible.

Highly regulated laws for SME

Founding requires a high deposit and private liability cannot be excluded. As SMEs have to deal with complex law, costs for legal advice are increasing. Employment is protected in the long term, without flexibility for SMEs.

Entrepreneurship related laws

Refers to the law environment in which the startups operates, including the laws for employment, investing, accounting and profit.

No barriers for startups

Founding is based on standardized forms. Employment is very flexible, with only few regulations involved. Accounting practices are simplified for startups and investing in startups is not regulated.

Low level of integration

National states leave the EU and the remaining ones gain a multitude of exceptions to European laws. Working abroad is complicated due to bureaucracy. Products have to be adopted according to legislation for every country.

European integration

Refers to the homogeneity of markets and laws in the European Union. This also includes the size of the European common market.

High level of integration

Laws and regulations are uniform in all European countries. There is a single European job market and the language barriers are low. People identify themselves as Europeans and all European countries have joined the EU.

Bad image of entrepreneurship

Entrepreneurship has a clear negative connotation. The public sees founding a company as a risky and selfish career choice. The stereotype of an entrepreneur is arrogant and greedy.

Public opinion on entrepreneurship

Refers to the perception of entrepreneurship in society. This is mainly influenced by the stereotype of an average entrepreneur.

Entrepreneurship hype

Founding a company is a highly respected and popular career choice. The stereotype of an average entrepreneur describes an innovative leader who contributes to society.

Inaccessible to SMEs

Protecting IP requires legal knowledge and high investments. Complying with already protected IP binds resources.

IP regulation and enforcement

Refers to the accessibility of IP protection to SMEs. This includes legal requirements and incurred costs that come with protection and enforcement of patents, trademarks and copyrights.

Accessible to SMEs

Protecting and enforcing IP is easy. Fees are low and red tape is cut to a minimum. Free-of-charge enquiry and advice services are available.

Other drivers with high impact and a high degree of uncertainty

Success rate of startups

Low

Startups run out of money before they become profitable. There are multiple reasons for that like lack of employees, expertise, funding or market suitability of the idea.

Refers to the percentage of startups that do not go bankrupt and are expected to become profitable.

High

Many startups are growing fast and they manage to acquire enough resources to reach profitability.

Immigration policy

Closed policy

Immigration to Germany is highly restricted. It is only rarely possible and comes along with high efforts and many legal formalities. Qualified immigrants cannot get working-visas to work for a startup.

Refers to the strictness of governmental regulations towards immigration.

Open policy

There are no or only weak restrictions regulating immigration. It is easy for startups to employ foreign people and the government offers support.

Fear of failure

Failure as a stigma

Entrepreneurs who failed are considered to be losers and cannot get rid of their stigma. Unsuccessful founding makes it hard to get a regular job later and is kept secret.

Refers to the attitude of society towards the failing of founders. Fear of failure can keep potential entrepreneurs from founding.

Encouraging failure

Failure is an opportunity to improve by learning from mistakes. It is an important experience without any negative connotation in society.

Taxes

Low taxes

Startups are largely excluded from taxation. Low taxes for investors incentivize investments in startups.

Refers to the financial charges imposed upon a startup by the state, including taxes that are incurred by investing in startups.

High taxes

Startups pay high taxes on revenue, which hinders reinvestments and growth. High taxes for investors lower their returns and thereby the attractivity to invest alltogether.

Privacy regulation

No protection

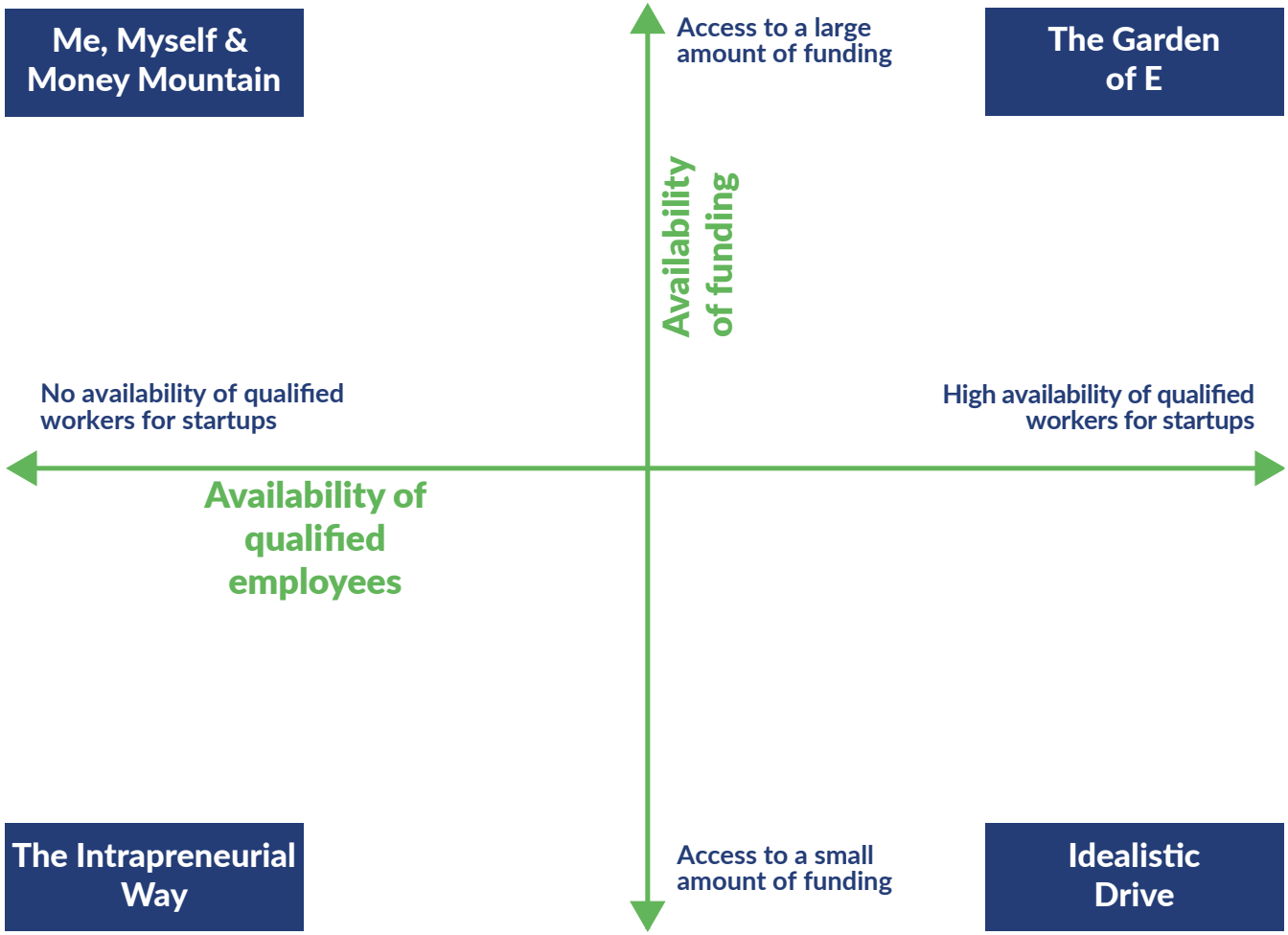
Regulation with regard to data protection is absent. This gives companies complete freedom in handling private data according to their needs and business model.

Relates to the degree to which private data is protected. This includes regulation on collecting, processing, storing and selling personal data.

Strict protection

It is restrictively defined what companies can do with their customers data. Customers have to be informed about everything that concerns their privacy and can easily enforce their rights.

Scenario Matrix



The two key drivers and their outcomes create the scenario matrix. Each key driver represents one of the axis, with bipolar outcomes on each end. All four scenarios are based on extreme outcomes of both key drivers. Plausible and consistent outcomes of other important drivers are included in each of the scenarios, but not taken to an extreme.

"The Garden of E" describes a society with a high availability of qualified workers for startups and at the same time these startups have access to a large amount of funding. "Me, Myself & Money Mountain" describes a world in which the access to the amount of funding is the same as in "The Garden of E", but there is no availability of qualified workers for startups. "The Intrapreneurial Way" is a future with neither availabilty of qualified workers for startups nor access to a large amount of funding. Accordingly, "Idealistic Drive" describes a future with high avaliabtilty of qualified workers without any access to a large amount of funding.

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The Garden of E

A day in 2035

"You received 73 new funding requests last night," announces a female voice as Dasha opens the Pitchster app on the smart table. Dasha and her family are all having breakfast together, which is pretty unusual for them.

As Max, Dasha's half-brother, rushes down the stairs, he bursts out with excitement: "SpaceX is coming to school today. Maybe they have some internship offers."

"I don't get you Max," Dasha states coldly. "Why wouldn't you want to start something yourself and be your own boss?"

Max is tired of hearing these comments from his half-sister. "You don't understand, Dasha. Not everybody wants to be an entrepreneur..."

Aleksey, their father, jumps in: "Come on Max, you'll be late." He has heard this conflict between the two all too often. As Max goes upstairs to get his bag, Aleksey enquires, "Stressed, my darling?" "Yes, these investors are really overwhelming me," Dasha replies. "They all seem so attractive, but I know that making the wrong choice can shatter my dream into a million pieces."

Dasha's newest startup, EcoMore, is currently looking for funding to take its product to market. Her previous startup had nearly failed two years ago because she did not put enough effort in finding the right backers, so she is stressed facing the same situation again.

"At the same time, I really need a co-founder to take the idea to the market. I know I can rock the product myself, but I really need a trustworthy marketing expert to sell it."

As Aleksey is about to respond, Max shouts from the door, "Dad, I'm ready. Let's go!"

"Alright honey, I have to go now," Aleksey says. "But let's meet for dinner in Munich and talk about this. Maybe your old man can give you some useful advice." Dasha and Monika finish up the rest of the potato pancakes. "What do you have today, Mom?" Dasha asks. "Basics of Prototyping."

Last year, Monika started a government-funded program called the Reintegration Management School (RMS), which helps those who have fallen out of the system find their way back into the workforce by starting their own business.

"Oh, that one. I aced the course! It's not that hard," Dasha shrugs and gets up to go to the bathroom to get ready. As she leaves, Monika starts wondering about what has happened that is making her struggle in a class her stepdaughter finished eight years ago. "Freaking liberalist generation!" she grumbles.

Back in 2021, the European government introduced new laws governing employment, which effectively resulted in the abolition of traditional employment contracts. Companies all over Europe reacted quickly by switching most of their full-time staff over to flexible freelance contracts. At the same time, globalization and the development of artificial intelligence led to employees being replaced by robots and cheap labor in developing countries. As a consequence, competition and price pressure in the labor market intensified. People who were not ready for this change, like Monika, were left behind. Aleksey, however, jumped on that train like a cat after a mouse.

"Uber drone 5 minutes away," the sympathetic female voice of the smart table announces, pulling Monika out of her thoughts. At the same moment, Dasha returns to the kitchen.

"Shall we share the Uber to Munich, mom?"

"Fine with me, darling," Monika replies.

Just like Max and Aleksey, Dasha and Monika commute to Munich every day. Real estate in big cities like Munich has become so expensive in the last ten years that living there is only affordable for the wealthiest citizens. Nowadays, cities like Munich are mere business centers. Today, Dasha wants to go to the city to meet an advisor at the European Center for Entrepreneurship (ECE). She needs advice on choosing investors and the large network of experienced entrepreneurs at the ECE offers the best source for help.

As the automated passenger drone lands in their front yard, Dasha remembers that she still needs to finish the payroll accounting for StreetWise, another startup she founded in 2032. Nowadays, it is not uncommon for founders to have multiple businesses running at the same time, even at a young age. As she does not have time to take care of the payroll accounting, she decides to handle it on the way to the ECE. On the drone's infotainment system she quickly checks the real time quotes for labor on the Global Virtual Labor Market (GVLM).

"Look mom, human-based payroll accounting is at G$2.34 per hour. It has not been this low for at least two weeks. Fully automated, it is even lower at G$1.11 per unit, but last time there were still too many mistakes and I don't have the time to make sure the work is correct this time," Dasha explains eagerly.

"Well, take the humans then. It is a shame that somebody has to work for such a low wage," Monika sighs.

"Do you at least know who will be doing the job?" she continues.

"No, of course not, mom. You know how the GVLM works: Standardized tasks can be carried out by anyone around the globe on demand and the price is determined by the current supply and demand in the specific area. It is very efficient, I love it."

While Dasha orders three hours of payroll accounting and sends out the standardized task files, Monika again wonders what has happened to the world. She cannot believe that just 15 years ago, strict employment laws and minimum wage legislations were common all over Europe.

Dasha is excited about meeting the ECE alumnus who has a successful career in high-tech startups. Just a minute before the meeting starts, Dasha receives a message from her father with his location so that they can meet up for dinner.

"That's great! Accepted!" she taps the screen of her smartwatch, which updates her calendar and schedules an Uber. The door of the conference room opens and Dasha enters.

"As I mentioned earlier, I secured the necessary funding for my previous startup StreetWise from many small investors via the Global Crowdfunding Market (GCM)," she explains to her advisor. "Initially, this was very efficient but it made things rather difficult later on, as communicating with investors caused a lot of trouble. I also struggled gathering any useful advice from them as they invested relatively small amounts and lacked the incentive and experience to provide me with guidance. For EcoMore, I definitely want to put more effort in finding the best match. Do you have any advice?"

"As you know, raising money from the public on the GCM is not the only way to finance your startup. For starters, you have the G$50,000 that every ECE student gets from the European State. Furthermore, you could turn to private investors that are looking to make more strategic investments with larger amounts of money. You can easily reach them through Pitchster, for example."

"I know, but I've already tried Pitchster and received more than a hundred funding requests within two days. Now I have no idea how to select the cream of the crop," Dasha complains as she shows the long list of Pitchster investor applicants to her advisor.

"I know what you mean, Dasha. With so many investors pouring billions into startups every month, the biggest problem is finding good guidance. Looking at your list of applications, I would suggest Alibaba Ventures. They are one of the brightest VCs from China and with the global free trade agreement and unified currency introduced by the WTO in 2029, they can invest here in Germany without any hassle."

Dasha and her advisor put on their VR glasses and start their virtual meeting with Alibaba Ventures. After a lively discussion and introductions to Alibaba Venture's other entrepreneurs, Dasha feels comfortable that they are the right match for EcoMore. The meeting is over just in time and Dasha receives a notification that her ride is here to pick her up. Already dreaming about what to order at the restaurant, she thanks her advisor and rushes out the door.

Aleksey is sitting at the Seehaus in the English Garden. Wearing his VR glasses, he is immersed in his own virtual office. At this time of the day, the Seehaus is reserved for business people who believe that fixed places in offices are a thing of the past. For them, location is irrelevant because you can work on anything from anywhere. Today, Aleksey finds it difficult to focus on his work, as the conversation with Dasha in the morning has led him thinking about his life's rollercoaster. It

all really changed when Aleksey had to leave Ukraine to seek refuge in Germany because of the Great Hailstorm in May 2015. Thanks to the fact that he already was a skilled engineer in Kiev, he was able to find a job at Audi. Once the European State introduced the freelancing laws in 2021, this employment became the basis for his own company. When Audi changed his contract to a freelance agreement, he was able to start working for several companies at the same time, so he started working for BMW and Ford as well. Two years later, he had already received so many assignments that he was able to hire some of his former colleagues for his company.

However, in Aleksey's opinion the biggest achievement of the European State so far was the Entrepreneurship Enabling Act passed in 2028. The law provides every European citizen above the age of 18 with G$65,000 of entrepreneurship support money and to a large extent exempts startups and SMEs from taxation. In combination with easy enforcement and protection of IP due to free-of-charge inquiry and advice services, this act finally catapulted entrepreneurship to be the mainstream career choice it is today.

"Excuse me, sir?"

Aleksey is pulled out of his thoughts and takes off his VR glasses. In front of him stands a waiter with a broad smile.

"Excuse me", he repeats, "but the gentlemen over there asked me to give this to you." He hands over a drink and points towards a group of men. Aleksey turns his head and sees them toasting in his direction. He knows most of them; they are investors, who come here to woo entrepreneurs and find new investment opportunities.

"Say 'thank you' to them, I really appreciate it."

He is not in the mood for conversation. Investments are basically a dime-a-dozen these days.

"Can I bring you anything else?" the waiter asks.

Aleksy is content and looks after the waiter as he walks away. He somehow reminds Aleksy of his wife, Monika, always looking a bit lost, not really fitting in this world anymore. As much as the freelancing bill freed Aleksey, it restrained Monika and so many others who could not keep track. If you cared to see it, there was already a massive wealth gap, and it was only getting bigger. A lot of jobs were automated or outsourced and Monika was not the only one driven out of the system. She lost her job at Audi in 2025. Aleksey sighs. It doesn't really matter. Everything Monika lacks, Dasha has twice. He looks at his watch; it is close to 6 p.m.. He gets up from his chair to go meet his daughter.

A few minutes later, Dasha and Aleksey are sitting at Königin 43 having dinner. Dasha eagerly explains to her dad how she found the perfect investor this afternoon. Aleksey is pleased to hear about the investment and asks about the problem with recruitment that she had raised in the morning: "How about the marketing expert you were looking for?"

"So I put an ad on LinkedIn and received more than 2000 requests. They all seem to be so talented. Now I just need to figure out how to set the criteria for selecting the right person. Do you think I should put more emphasis on experience, education, or perhaps references?" Dasha asks. Aleksey takes a deep breath, "You know, the world has changed a lot in the last

decades. Do you really think an algorithm can make such an important decision for you? This might work for standardized tasks via the GVLM, but we are talking about a co-founder and a marketing manager here. Even though these people on LinkedIn may have good ratings and seem highly qualified, for me, knowing someone in person is essential. My first employee was Reinhardt, a trusted colleague of mine from Audi. Of course, he was qualified on paper, but I guess there were much more talented people out there. The thing is, I knew how enthusiastically he worked and how well we got along. I just cannot believe that any app or algorithm could ever take such factors into consideration."

Dasha answers with a smile, "Come on Dad, you are so old school. You should really open up to these new things!"

"Ok, so what have you done so far?" Aleksey sighs.

"My plan was to shortlist the best applicants and hire them each for one day. LinkedIn allows me to compare their work and it also automatically analyzes performance," Dasha explains.

"Well that sounds like a good approach. But how is it supposed to rate peoples' character? This just cannot work."

Dasha looks away uneasily. Deep inside, she knows her father is right. She finds it really difficult to start trusting these people from all around the world with whom she has no contact.

"Maybe you are right, dad," Dasha concedes. "What would you suggest then?"

"Well, how about these friends at the ECE? They might not excel in all your LinkedIn criteria, but you seem to get along with them really well. You shouldn't forget that you have to work with that person every day and you have to trust him."

That evening, Dasha is struggling to fall asleep. She decides to go through some of the LinkedIn applications again and tries to decide on ranking criteria. At the same time, she cannot get the conversation with her dad out of her head. Maybe she should really just talk to her friends at the ECE tomorrow. She is also having second thoughts about her investor choice, which makes it even more difficult to find sleep. Even though she feels happy to have Alibaba Ventures on board for EcoMore, she is unsure whether this was the best decision. It all happened so fast; she could not even consider half of the investors. Sometimes she wonders if it was actually easier with less highly qualified workers available and less money lying around.

Signposts

- Governments increase entrepreneurship funding and decrease taxes for startups
- European startup exits were highly successful
- Liberalization of labor laws enables flexibility in utilizing human resources
- More people want to work for startups than corporations due to higher work satisfaction and better benefits
- Entrepreneurship education becomes an integral part of the curriculums in all stages of education
- There is standardization and wide acceptance of large and small startup investments
- Legislation that eases incorporation and IP protection
- Global free trade and investment agreements facilitate global movement of people and capital
- New technologies make offshoring and global collaboration more efficient and widely accepted

Liesbeth Claessens, Florian Ettlinger, Alexandra Fritzen, Areeb Kamran, Quirin Körner, Lukas Kondmann

Me, Myself & Money Mountain

A day in 2035

All happy people sleep well. Entrepreneurs don't. At 5:45 a.m., the ambient notification interrupts Tim's disturbed sleep. He groans and stretches his back. Starting the day this early is always annoying. In 15 minutes, he has to be fresh and alert for his virtual meeting with his startup Nesco's offshore branch in Indonesia. Part of the company's software is developed there. As the sun rises, he gives his girlfriend Anna a soft kiss on the cheek. Surprisingly, she is already awake. After popping two bitter tasting caffeine pills to fight exhaustion, he heads into the living room to prepare for the meeting and activates the daylight imitator to ensure optimal working conditions. At 6 a.m. sharp, there is a loud beep and a holographic figure emerges, hovering a few centimeters above the coffee table. This is one of the features of the new virtual collaboration tool his startup bought a few months ago.

"Hi Buana, nice to see you again," Tim yawns. Buana laughs.

"Good morning to you, too, Tim." Buana is the head of development at the offshore branch and only speaks Indonesian. However, Tim can understand him easily because everything they say is translated in real time into each other's preferred language. Over the next two hours, Buana and Tim discuss the development progress of the software and Tim is quite content with how things are going. He realizes how glad he is to have offshored to Indonesia because it is currently extremely hard to find qualified people in Bavaria who are interested in working for a startup. Since his offshoring experience has been so positive, Tim has been toying with the idea of outsourcing some of the hardware production to big corporations within Bavaria or Germany. Since Bavarian startups are flooded with capital but lack the human resources to develop products themselves, this is the way most of them go nowadays. Even though Buana thinks it would be smarter to add more people to the offshore branch in Indonesia, he agrees that they could also benefit from a corporate's knowledge and resources.

"Thanks for bringing me up to speed," Tim says at the end of the meeting,

"You know how much I wish, you guys could start working at our office here in Munich." Unfortunately, as a small startup, it is almost impossible to bring international employees to Germany. Large chunks of the visa quotas are owned and issued by big German corporations and startups have to compete for a smaller common quota. Buana and Tim end their meeting and agree to schedule the next one on coming Monday.

Once Buana's hologram has disappeared, Tim realizes that he is very hungry. He heads to the kitchen, where the smart system has already prepared a latte macchiato and a veggie omelette for him. Anna is sitting at the kitchen table, reading today's news.

"Good morning, Schatz," says Tim as he picks up his plate and starts munching down his breakfast. Anna doesn't respond, which is weird because she usually asks him how his meeting went. He looks at her. Her bright blue eyes are wide open and she has a worried gaze.

"Why were you already awake this morning? What's the matter?" Tim asks. Anna is quiet for a few seconds, then looks at him and says,

"Tim, we need to talk." Tim's heart sinks but at the same time he feels a small vibration on his left arm. He looks down at the watch that is part of his augmented skin.

"Oh crap, it's already 8:25! Sorry, Liebling, I have to go or I will miss my train. Maybe tonight?" He says as he is gulping down his coffee and grabs his bag. Anna sighs.

"Sure. Dinner's at 6:00 p.m.."

Tim hurries to the subway station and just manages to hop onto the oncoming train. He finds a seat and squeezes in between an old lady with five shopping bags and a muscular man. However, he is too absorbed in thought to care. Anna's words at breakfast come back to him and he starts wondering what she wanted to say. What else could they imply other than a breakup? Was it because he had cancelled their last vacation just for an opportunity to interview a potential employee? Even the 'BMW wants you to vote for CSU' advertisement, which usually makes him puff with anger over the politicization of the big Bavarian corporations, can't distract him today. But when the lady to his left takes a little robot kitten out of one of her bags and starts babbling about the good old times, he is torn from his worrisome daydream.

"Focus, Tim, focus", he thinks to himself. It's not even 9:00 a.m. and his day is already crazy. He has a recruiting meeting scheduled early this morning, and after that lunch with one of his old classmates, Paul. Then, there is the usual office business and maybe, if he is lucky, he can make it home in time for dinner at 6:00 p.m.. That sounds like a solid plan. Fairly optimistic, Tim gets off the subway and quickly walks to the Nesco office building.

As he starts the day and boots up all the virtual screens, he feels a little anxious about the recruiting interview which is about to start. Only one candidate, Leon, has responded to his advertisement for a job at Nesco and Tim is hoping he takes the job. Leon just graduated from university and doesn't have good grades or the relevant experience, but Tim desperately needs someone for a marketing position here. So he was glad to submit his job proposal documents to Leon. Due to the massive scarcity of human resources for startups, employees now have the upper hand on them and this very frequently results in unqualified employees joining the startups.

Leon was supposed to be here at 9:30 am, but he seems to be late. Tim cannot even complain about it because he knows that it might push Leon away. So he just sighs and starts putting the slide deck together for his next investor meeting. He is unfocused and keeps on thinking about the candidate but it doesn't really matter, he knows the slide deck is just a formality. He will get the investment anyway as long as he has a half decent business model and shows up at the investor's office. This also makes him realize the stark contrast of his situation. Just a decade ago, he would have been much more concerned about the investor instead of the candidate. Getting investment capital was a lot harder back then and finding highly qualified and motivated people was almost a piece of cake. But it didn't stay that way for long.

After completing the slide deck, Tim wanders around the empty office to grab a coffee. It's almost 30 minutes past the appointment time, but there is still no sign of Leon. He gets back to his desk. While drinking his coffee, he contemplates again

what Anna wanted to tell him. Should he call her? Just then, a few minutes past ten, Leon casually strolls up to the office door. Tim is agitated by his casual demeanor, but he forces a smile and asks him to have a seat. Leon starts questioning Tim right away.

"So why should I work for you? Can you tell me? Which benefits apart from the salary can you offer?" Tim is struggling to explain, desperately trying to convince Leon to accept the job.

"What guarantee do you have for me if your company fails?" Leon asks. Tim is ready for this.

"We guarantee you an extra 6 months of salary which will give you enough time to find a new job." Tim then shows Leon around the office. They have excellent computers, a nice kitchen, free food all day and 4D foosball. They're trying hard to make people want to work here, yet it doesn't always work out. Leon doesn't seem to be impressed. It's standard, all the big corporates provide this kind of working environment nowadays. When leaving, Leon says,

"Thank you, we'll stay in contact. I'll let you know about my decision by the end of next week."

When Leon leaves, Tim is already running late for his lunch appointment with Paul.

"Paul is going to kill me," he thinks. He rushes out of office to catch the next train. Paul is an old friend of Tim whom he got to know at an entrepreneurial education program they both attended in university. From time to time, they have lunch together to catch up. Since some years, the frequency of their meetings has dropped as they are not the same people they used to be. These days, they mostly argue about the differences in their careers as Paul has a corporate job where he works for the innovation department.

He sees Paul, a tall and athletic looking guy, already sitting at his favorite table in the Vietnamese restaurant they always meet.

"You look awful, Tim. What's up?" Paul greets him.

"Charming as always. Did you get a raise again?" he responds. Honesty has always been Paul's biggest strength and weakness.

"Actually, it's a bonus. But don't divert from our topic. Is it Anna? Or the startup?"

"Let's see. Anna wants 'to talk'", Tim mused out loud.

"Whatever that is supposed to mean. Startup is alright I guess."

"And what about the combination?" Paul asks with an ironic smile. Tim slowly feels the anger of the last discussions coming up again. Why does it always have to be the same? It is too obvious where this is going.

"I'm not going to work in intrapreneurship. Look, Paul, I know my job seems unfairly paid, exhausting and I also get that self-employed is close to unemployed for most of you people. But I like it and I am not afraid of failure. End of discussion."

Surprised by Tim's emotional reaction, Paul takes a step back:

"I am sorry. I just feel like you are backing the wrong horse at the moment. For example, Siemens just published a job

offer which perfectly fits you. It would be a demanding, highly paid, manageable and secure job in robot research. Remember the times at uni? Everyone used to apply to entrepreneurial programs. Yesterday, I read they cut down the financing of CDTM by 70% because there were only 57 applications. 57! We reached 400 in 2021. The bad public opinion and unattractiveness of entrepreneurship are ruining it." Tim knows Paul has a point. Becoming an entrepreneur has probably never been this unattractive since Black Thursday of 1929. After lunch, Tim leaves with an even worse mood than before and he knows it's not only because of their intense discussion. He is mainly thinking about the important issue Anna wanted to discuss. What could it be? Did he get something grossly wrong once again?

Back in his office, Tim settles down for the afternoon at work. He is done with all the meetings for the day and it's time for a stretch of work he has been meaning to do for some time. He has been stuck with working on the skeletal prototype for a week and it still doesn't look half as good as the cheapest robot pet available in the market right now. Maybe his newest effort is after all another junk startup. Is Paul right? Should Tim get the job at Siemens? But he dismisses those pessimistic thoughts with a shrug. Right now, he needs to focus on the task at hand. It is going to be a long day with his 3D printer so he pushes all other thoughts aside and completely immerses himself into his work.

Next thing he knows, it's almost 10.30 p.m. Dinner with Anna was supposed to be at six.

"Oh," he thinks, "this can get ugly." He is quite exhausted when he gets back home and pretends that he doesn't even realize he is late. The rather disappointing interview and his meeting with Paul have left him dejected and devoid of much energy and he is not really looking forward to dinner, but the gravity of the situation demands that he should appear sanguine.

They decide to have their dinner by the television. The anchor is discussing Tim's exploits from yesterday as the screen flashes: "Breaking: Serial Failed Entrepreneur raises another 23 Million Euros round." This is not exactly news for him or Anna but it still makes him queasy as he settles down for dinner. His head full of ominous thoughts about what might it be that Anna wants to discuss, he kisses her gently and asks her directly what it is that she wanted to talk about in the morning. To his surprise, Anna points to the TV and states in a rather sarcastic tone, "Wow, you made it to the news again tonight. I really do not get it. Why are you even going on with Nesco?"

Without missing a beat, Tim fires back. "I don't need this from you today. I did not exactly have a great day and I'm absolutely not in the mood for this. What is it with you today anyway?" In spite of telling himself not to lash out like that, he cannot control it. He is already doubting his choice for taking this startup forward and wants Anna to be supportive of him today.

"Nothing. Nothing is wrong. It's just that... It's almost been three weeks since we have had dinner together or spent any time together at all. The last time we went out was at the fuck-up night and I really thought it would make you change your mind about another startup. Haven't you learned that this is not your thing? I want to know why you aren't even considering getting a decent job. It would be nice to live somewhere with a terrace for a change and not in this shoe box. Besides, I'm really exhausted by your routine. For crying out loud, it's 11:30 p.m.. We are having dinner at 11:30 p.m.!" Tim does not think this is worthy of a reply so he just grunts. Anna continues.

"And Tim, I'm really worried about you running into patent battles again. It was a close call with Bosch fighting you last time and you know it wouldn't have been all good had we not spent so much money on it. We could have easily paid the down payment for a flat in Schwabing with that money."

"But that was not our money. We used the company's funds for that and nobody really cared about it," he says, "and besides we had a long discussion about how it is going to be for the next few months. We both agreed on it. I have a feeling you aren't telling me something. What was it that you wanted to talk about in the morning and why this sudden change of heart?"

"Because," Anna says, "of this." She unwraps a white plastic stick sitting on the side table and shoves it into his hands with a slight tremble. It had two blue lines on it.

Signposts

- Foreign Venture Capital funds are coming to Bavaria
- The need for security leads to increasing demand for corporate jobs
- The rise of intrapreneurship pushes the DAX companies on top of the world innovation index
- Entrepreneurs overtake politicians as "least trustworthy" professionals
- There is an increase in offshoring and outsourcing in startups
- High-risk startups get increased investments

Patrick Barin, Peter Budweiser, Alex Butts, Johannes Caprano, Chris Ittner, Alexander Schenker

The Intrapreneurial Way

A day in 2035

Gently roused by his SmartBed, Daniel gets up feeling refreshed. His wife, Mia, is still asleep, but Daniel knows that she will be woken up soon as well, depending on when her current REM cycle comes to an end. Taking advantage of his extra time, he heads toward the bathroom for his morning shower and daily health check from Perla, their digital home assistant. Considering Perla's recommendation to watch his energy consumption today, he selects the suggested Superfood breakfast and goes downstairs to meet his wife and two children at the kitchen table.

„Did you already read about Spaceship Internet?" asks Mia. She is working as a lawyer.

„After more than 10 years, the lawsuit following their bankruptcy is finally concluding today."

„Hm," mumbles Daniel, not really interested in this topic, as he never liked the founders of Spaceship Internet. „They should have realized that this whole startup bubble was going to burst. I feel luckier every day to have our secure corporate careers at Somens."

Noticing an interesting headline, he clicks on it and the article appears on the holographic display next to his bowl. The article states, that after two financial crises within the last 20 years, the EU will implement stricter regulations on the banking sector, as well as on the capital flows in between countries.

„Finally, the European Union learns from the past," he says.

„As long as they keep the Schengen Agreement, they can do whatever they want," adds Emma, his 17-year-old daughter.

„Well, that's pretty unlikely," replies Daniel. „The EU seems to be more discordant than when I was your age. And Ben," he adds, grabbing the attention of his 6-year-old, „hurry up, I just received notification from the car that due to heavy traffic, we need to leave immediately."

The whole family hops in the car to head to the Somens Campus. Thanks to the Somens Family Employment Program, all of Daniel's immediate family members have the opportunity to study and/or work at Somens. As the car navigates its familiar route, Daniel stares out at the extensive fields of solar panels and windmills, remembering the landscape ten years ago, when it looked much emptier. Meanwhile, Emma tells her family that today is her first day in the Somens prototyping department, phase two of the internship program she started after finishing high school.

„And the best part is," she brags, „I will get a new guitar because they allow me to build whatever I want during our first week!"

Indeed, Emma already designed a guitar in the 3D-modelling class at her school.

„Maybe you should finally drop the rockstar fantasy and start thinking seriously about the dual work-study program at Somens," Daniel cautions. „I really think it would meet your skills and interests."

Arriving at the campus, Ben and Mia hop out of the car first, since Mia's legal department and Ben's kindergarden are both near the entrance of the campus.

Daniel and Emma ride further and arrive at a building nicknamed the „catapult center". While the car drives to an elevator to be stored underground, Daniel and Emma say goodbye and Daniel hurries off to check if his favorite workspace (near the foosball table is still available. The catapult center is designed for mobility; a project can always move to a place where its needs, such as equipment and space, are best met. Therefore, Daniel does not have a fixed office, but can choose where he wants to work each day. There are also plenty of possibilities to pursue your hobbies on campus and

remembering Perla's recommendation to work out, he decides to go for a swim at the Olympic-size pool before lunch.

Daniel reaches his preferred workspace and puts on his AR-glasses. Monica, his virtual assistant, pops up.

„Hello Dan," she says. „Here is your agenda for the day. You have your IP meeting at 10:00a.m., followed by your AUPIPEX (Autonomous Pipe System Exploration Unit) project pitch to both Somens and external investors."

Looking at the time Daniel decides to leave for the meeting, since he as the project leader should not be late.

Daniel makes his way to the closest holographic meeting room, one of many Somens installed when the new campus was built five years ago. Daniel sits down at a large interactive table, where all the relevant files are already on display. Three-dimensional avatars of Markus Huber, the head of Somens' law department, and of other lawyers, appear around the table. Today's meeting is about IP protection for AUPIPEX, Daniel's current project at the innovation center. He has been leading the project for two years now, developing industrial nano robots that can autonomously move through industrial pipe systems in order to check for defects and potential risks.

Due to the strengthened intellectual property regulation laws in the last couple of years, Somens needs to prove that all intellectual property regarding the new technology is in their possession in order to receive GPRC (Governmental Product Release Clearance). In the past, this always proved to be extremely aggravating for everyone involved. Not only does it consume weeks, sometimes even months of valuable time, it costs a fortune and requires a large team of very experienced lawyers when preparing the release of a new product. It is no wonder all innovation occurs inside the large conglomerate corporations. However, this procedure ensures that patent lawsuits, which Daniel still remembers well from his youth, are now a thing of the past.

Due to the very high technological dependencies of this particular project, the meeting reveals that it is even more important to file the documentation and IP possession papers carefully. Daniel begins to worry about the project timeline as the internal production start date is nearing. After the exhausting meeting, Daniel is happy for the midday break, where he will meet his family again for a swim at the Somens Aquatic Center. He takes the next elevator to the spa and locker room area, where Mia and Emma are already dressed and waiting, wondering what took him so long. Mia decides to rather go to Pilates class today, so she tells Daniel and Emma that she will pick up Ben afterwards and meet them for lunch. Daniel however, is meeting an old friend today, so he will not be joining his family for lunch as he normally does.

Emma is so excited about her first morning in the prototyping department that she can hardly wait to tell her dad all about it.

„Dad, you won't believe what I did today!" she bursts out.

„It can't have anything to do with the guitar you mentioned this morning," Daniel jokes.

„Oh, right, I told you about the idea already. Well, it's being printed right now on one of those huge 3D printers they also use to print cars! The machinery, the possibilities! Oh dad, it's so exciting!"

„I'm glad to hear. Do you still consider becoming a rockstar your only career option?" He asks with a wink.

Although it is hard to admit, Emma indeed starts to consider enrolling in a dual work-study program with Somens.

„You know, Dad, I always thought that playing music was the only thing that would fulfill me," she sighs, „but modeling and prototyping are actually so much fun. I can be really creative! Let's see how the rest of my internship goes though. After all, I still want to see what it is like to work in the innovations department like you."

With a smile on her face, she challenges her dad to a 10 lap race in the pool and they jump into the water.

After changing clothes and tossing his swimming trunks in a Somens quick dryer, he walks to the food court to meet Alex, an old friend from university, whom he has not seen in years. He passes many open office spaces and recreational areas on the way, like the climbing gym and virtual reality sports arena.

Upon arriving at the Somens food court, Daniel spots Alex. The two studied together over twenty years ago and once shared a dream of starting a tech company together, but eventually ended up in very different places. While Daniel decided to join Somens, Alex mostly worked as a freelance consultant and tried to start a few companies, all of which eventually failed. Today, Daniel wants to hear about Alex's latest project. They glance at the extensive food choices, but

quickly agree on pizza and proceed to the station to grab their meal from the robotic pizza oven.

At a table with exquisite view of the Somens campus, Alex begins talking about his project enthusiastically.

„During my last consulting projects, I realized that the Industry 4.0 hype in the 2010s made SMEs collect all kinds of data without ever creating value from it. That's why I wrote an algorithm that automatically analyzes it for them."

The idea sounds convincing to Daniel, but he feels that Alex was somehow depressed. It does not take him long to figure out the reason, as Alex elaborates all the difficulties and barriers that he encounters while starting his company.

„No one takes me seriously when I tell them I'm not from a large corporation," Alex complains. „During the last weeks things only got worse. We finally found our first customer, but I just found out about the new GPRC requirements and apart from lacking money to pay a professional IP firm, we will never be able to make the delivery date we agreed upon."

Daniel remembers the meeting he had with the IP department in the morning and sympathizes with Alex, knowing it will be nearly impossible for him to get through all the paperwork necessary for a GPRC.

„I really admire your persistence to found something," Daniel says. „But should you ever get tired of fighting the system, let me know and I am sure there is a position for you at Somens. You could even submit your idea as a project for the Somens Growth Track."

Daniel receives notice from Monica that he should move to his next meeting. Feeling sorry for Alex, Daniel hastily says goodbye and that they should meet again soon.

Daniel rushes back to his office for his next appointment. As the production of the AUPIPEX nears, he needs to secure funding for the next project phase. Somens' corporate guidelines require that any project within the Growth Track has to be evaluated by an external investor and offered funding, before internal funding can be granted. Therefore, he set up a meeting with Jordan Bauer, an investment manager at Horowatz Inc., a global risk capital investor. They had been very successful during the startup boom of the 2010s and managed to survive the big bang in 2023. After giving a convincing presentation on AUPIPEX to Mr. Bauer, his thoughts drift to his conversation with Alex.

„So Mr. Bauer," Daniel inquires. „Why don't investors invest in startups anymore?"

„Ever since governments removed tax incentives for high-risk investments in startups, there is just no money to be made," Mr. Bauer replies. „Plus, most of the innovation is happening right here in the corporations anyway."

After the meeting, Daniel takes a mental break by looking at photos from the recent family vacation on Maui through his AR-glasses. A discrete notification appears in his sight notifying him that Joyce, a marketing guru helping out with the AUPIPEX launch, requested a chat with him and is already waiting in the coffee lounge.

Daniel arrives and Joyce cuts to the chase. She is currently dedicating 50% of her time to AUPIPEX and the other 50% to her position in the Somens corporate marketing department. However, she would like to dedicate more time to the corporate marketing job. Daniel wishes Joyce would continue splitting her time 50-50, but all employees at Somens can freely choose how much time they want to dedicate to project work and how much time they want to spend on corporate functions. After a short chat, Daniel convinces her to stay with his project, now that they will proceed to the next phase of the Growth Track.

Back at his workplace, Daniel continues working out the IP issues from this morning's meeting. An hour later, he is interrupted by an incoming video call from Sophia, his current student mentee. Sophia studies electrical engineering and innovation management. Daniel is Sophia's assigned mentor in the Somens Student Mentorship program. Mentors give advice to students on their career options and help put them on the right track.

„Hi, Daniel! Do you have five minutes? I'm about to finish a project proposal and I could use your advice." Sophia explains the product idea she has been working on. „I will submit it to upcoming business plan competitions to see if I find support."

„Great idea!" Dan replies. „But let me give you some advice: only corporation-backed competitions are worth the effort. Don't waste your time on private, money-for-equity, competitions. If you win, the corporation will offer to adopt your project and to hire you as project leader."

„I definitely want to be hired to execute the project within a corporation. What if I fail? If I fail at Somens, I can fall back into a corporate job and not be labeled a failure. It seems crazy to build a product without corporate structures, such as service departments for prototyping, IP, legal, and sales!"

Dan recalls his encounter with Alex and his past startup attempts.

„I completely agree. Also, developing your product as a startup means jeopardizing your own and your employees' future. It is hard to be taken seriously in the industry after your startup fails. It is safest to go the corporate route."

Dan explains all the additional hurdles that startups nowadays face: The strengthened labor laws make it difficult to hire people for new companies when long-term funding is not secured. Suitable employees are generally hard to find because startups cannot guarantee the job security, benefits, and the work-life balance provided by corporations. Privacy regulations are also difficult to implement in small businesses. The plethora of lawsuits shows that young companies often act irresponsibly and fail to set up the costly but mandatory consumer privacy measures. Sophia thanks Daniel for the advice and ends the call. Daniel ponders the countless issues contributing to the fall of the startup scene. He shrugs and continues his work on AUPIPEX.

Shortly before 6:00 p.m., the iconic Somens „ding" notification sounds and Daniel knows he has received his personalized end-of-the-day message. Dan always enjoys these as they encourage separating work and leisure time. Each message contains a personal wrap-up of the employees' daily work, summing up his progress and recent achievements. Sometimes there is even a motivational message from the CEO. Dan quickly finishes some last emails before watching the message. Looking forward to an evening with his family, he calls for the self-driving car and turns off his interactive screens.

Signposts

- Corporate organizations in Bavaria successfully introduce intrapreneurial-friendly structures
- Job security and work-life balance become increasingly important for career choice; corporate jobs become more attractive
- Venture Capital funds in Bavaria and Germany shrink due to removal of tax incentives for investing in new ventures
- Entrepreneurial education shifts focus to innovation education and takes place in close cooperation with established industries
- Government reduces incentives for startups and SMEs and makes labor laws, tax laws, data privacy regulations, and IP enforcement stricter
- Foreign investment in startups becomes increasingly difficult
- The valuation of technology startups decreases dramatically
- EU integration slows down or even reverses, making capital and labor flow between states difficult

Michaela Grädener, Victoria Hauzeneder, Magnus Jahnen, Felix Naser, Julian Nast-Kolb, Kevin Probst, Felix Wolf

Idealistic Drive

A day in 2035

As the alarm goes off at 8:00 a.m., Lilli is already wide awake. Not only because of her roommates making a lot of noise while getting ready, but because her mind is revolving around the conversation with Frank. Frank is a consultant and entrepreneur, who held an inspiring speech at her former university's fuck-up event yesterday night. For Lilli these events are always an indispensable experience, as founders share stories of ideas which failed, but nevertheless left a footprint. It nurtures her believe, that it's not always about succeeding financially but mainly about believing in a great idea. Furthermore, she thinks that in Frank she has finally found someone with the experience and the economic overview to help her pursue her big dream. This dream revolves around her startup, which she is currently founding. Her vision is to bring families together in a globalized world, where children often leave to study or work abroad. She is in the middle of developing a holographic dining room, where families are able to share their meals together and thus experience closeness despite large distances. However, she does not want to focus on profit but mainly help people overcome their homesickness and distance. A few weeks ago she pitched her idea at a networking event in Munich. Since that day, she found two people willing to participate in the project. Lilli finances their co-working space by working part time at Siemens, a common step within the entrepreneurial society. Only large corporates can actually afford to pay sufficiently for work. So far her progress has been great, but now she wants to take it to a more professional level. Hence, after Frank's presentation she took the initiative and talked to him about her plans. Having sparked his interest, they exchanged numbers and agreed to meet up soon.

After getting up, Lilli checks the latest entrepreneurship-news. Several startups are currently on the rise and everyone is hoping that one of them will be a success within the next years. Even though ventures in the last decades were highly innovative, important in forming the current society and improving the world, they failed tremendously in sustaining financial success. Consequently, investors moved to more lucrative investments, especially as interest rates have been on a high level for a long time and the stock market is booming. The sudden re-rise of the Asian startup scene then brought the end to the Bavarian venture capital scene. Although the founding situation is tense, Lilli is optimistic about her future as an entrepreneur. Even if she goes broke, she will be able to rely on the government for financing her living essentials. In the 2010s, Switzerland was the first country to introduce a basic income. Seeing its tremendous success in terms of a flourishing SME scene and increasing private consumption, Germany decided to adopt the concept in 2030. The resulting financial security enabled people to pursue their fundamental interests and among other beneficial effects, increased the societal and environmental engagement. Consequently, many new startups with a social focus were founded and everyone wanted to be part of an impactful project. That led to the situation where Lilli was receiving dozens of job requests and suggestions since she pitched her startup idea. Picking through the messages was hard work, but she cannot meet up with all of them. In the end she picked an applicant with a witty and creative cover-letter and an interesting CV. She wants to interview him later this day.

Lilli is torn out of her thoughts by her personal A.I. assistant Jeff telling her that Frank requested to meet her in a few hours at a millenium-style burger place.

On her way to her appointment with Frank, Lilli recaps what she knows about the former entrepreneur. Frank was born in 1990 as part of Generation Y, which had a major impact on shaping the entrepreneurial landscape in Bavaria. During his studies, he joined the Center for Digital Technology & Management in Munich. This is also the place where he got

inspired to found his first company and met his co-founders. His timing was great. He started his company in 2015 when financial support, relatively to 2035, was easily accessible from either the government or the numerous venture capitalists. Back then, they did not know they were inflating a huge bubble with high-value investment marathons. But interest rates were at an all-time low and money had to be spent. Frank and his friends developed a deep-learning algorithm, which was able to identify almost every object within a picture with great accuracy. Their business model, focusing on the B2B market and building customized applications for online retailers, worked initially. Hence he built a prototype, got seed money, went to market, got Series A funding, expanded, even got a Series B funding to internationalize. At the turning-point, he employed 180 people. But he just never met the high expectations he was projecting and never became sufficiently profitable. So his company went bankrupt in 2025. It was one of many that did not survive the burst of the German startup bubble. Too many companies had been overvalued and overfunded. As the venture capital funds lost a lot of money during this period, most of them shut down. Some people saw Frank's break down as a failure, but they did not realize how much value Frank had created in these ten years of growth. The acceptance of failure had since then matured together with the definition of success. Although profitability was eventually not achieved, Frank's research and development in the field of computer vision lead to a major breakthrough in the robotic industry and he gave work to a lot of people. By now their algorithm can be used as a base for other companies all over the world, since every code is, enforced by the 2020 IP laws, open source. Ventures like his are therefore considered a success nevertheless. Leading a company for ten years made him a valuable asset, so it was not long until he got convinced to start as a corporate technology consultant. Corporate jobs were better paid than ever before, as the corporate sector was highly successful and had hard times finding qualified employees.

When Lilli listened to Frank at the seminar last night, she felt that she should not only ask Frank for advice. She also wants to persuade him to start the company with her as co-founder. The combination of his experience and her thrive would be exactly what her startup needs.

All she needs to do now is make him believe in her vision and eventually convince him to join forces.

When Lilli enters the burger place she is awed by the retro design. Unfortunately she does not have much time to inspect the place as Frank is already waiting. The greeting is awkward, as Lilli goes for the established hug while Frank offers her his hand, very year 2000. As he is a talkative person, she nevertheless soon finds herself listening to his stories concerning the last two decades in entrepreneurship. As their burgers finally arrive, Lilli cannot retain herself and asks Frank if he is interested in joining her.

"Honestly, your experience mixed with my thrive and creativity would be perfect complements! Besides, it seems you would be happier working in a startup again..." Lilli stops as she notices the frown in Frank's face. After another bite of his burger he says,

"I'm not entirely convinced, I hardly know your idea. But let's for now assume I would be interested, do you have any kind of business plan you could show me? See, if we really want to do this, we should not fail bevor we achieved at least something". Lilli smiles, at least she was right and he might be interested. After finishing her burger, she pulls out her hologram presenter. She starts a presentation with interactive graphics, nicely animated information and a revolving 3D-model of the planned dining room.

"Ok, so this is how you learn it nowadays," Frank laughs as he watches the almost artistic hologram show. As Lilli opens her mouth to justify herself Frank adds,

"Honestly I like it. It's just a bit too much, at least for me. However I don't see how your idea will bring in money." Lilli had expected he would come up with this,

"But that's not the point, I don't see financial success as primary goal. I want to make the world a better place and I'm sure we can by bringing families closer together again. Besides if you follow my projections the project will support itself after a while." Frank nods thoughtfully,

"That's true, I noticed that change in the startup-landscape. I will have to overcome my old-fashioned mindset! Your idea makes sense. We might adjust some points though. But I can see how everything fits together. Just one question, you need some tech guys, right? How do you want to pay them?" Lilli smiles perkily and responds,

"Well, honestly I already had a lot of applications. See, applicants know that startups currently don't have the funding to pay their employees. But most of them have just finished university and the basic income is enough for them. I also offer to work three days per week, so they can spend the rest of the week working as a freelancer, earning some money. Most employees are usually fine with that, since they will get a fair amount of company shares as well."

"I see you have done your homework..."

"Actually, I already have a tech-girl in Korea and another guy working with us in the co-working office and I have an interview later today with a great guy from India, with good references," Lilli replies.

"Sounds pretty interesting. So let's assume I would give it a try, when and where do we start?", Frank asks.

"I have this co-working space, it's pretty crowded, but the atmosphere is so inspiring, you really have to see it. We can start tomorrow at 9:00 a.m., if you like, I can switch my shift and be available the whole day." Lilli barely can hold herself back from sputtering on. She is so excited that it might really happen. With Frank on board, what could go wrong? He has the money to give the startup a well-needed boost and the experience to develop the idea. Still she can hear some doubts in his voice as he speaks.

"Fortunately I just finished a project, so I am free. I am a bit skeptical, also about the co-working space. Maybe I can find something more appropriate. I will text you later." With those words he finishes his burger, puts some money on the table and walks Lilli to the door. On her way to the subway, Lilli finds herself smiling. Frank payed by cash and not by auto-identification, working with him might need some habituation. A.I.-Jeff reminds her that she is running late. She really needs to hurry up to be on time for the interview with the tech-guy Rajeed.

Shortly after Lilli arrives at the co-working space Rajeed calls her up and asks her where to go. The co-working space is quite big and crowded and it is sometimes hard to find the right table. Ranjeed studied computer science in the UK and

was working as a freelancer for several years. He has already collaborated with some startups in Europe and has a great feeling for usability and design. As Lilli spots Rajeed, she already feels a great connection between them. After a short welcome, Lilli asks,

"So, why did you choose Munich to live and work?"

"I just love the way of living in Bavaria," he explains.

"Munich has an amazing quality of life and Bavaria is just beautiful. I love to spend my free time in the mountains and drink beer at one of the nice lakes you have around."

"Yeah we definitely do have some very nice places." Lilli adds and continues, "So the startup scene was not your main reason for moving here?" "Actually the startup scene all over Europe is quite interesting, but the concentration of qualified and motivated people in and around Munich is special." "Well, we already spoke about what we are currently working on and I could infer from your CV that you are already quite experienced. What is it that interests you in our project? You know that you would not get paid in the beginning."

"Yeah of course I know that," Rajeed answers, "but to be honest, for me it is very important to give something back. I have the privilege to have a good education and I am earning money with projects for corporates. With the rest of my time I want to create true values and I think your project will have a huge social impact and I definitely want to be a part of this! I really know what it feels like to leave home and work abroad and the idea of the holographic dining room is just so great." Lilli smiles as she realizes that Rajeed has a very similar understanding regarding idealistic ideas. They spend the rest of the time getting to know each other better on a more personal level and they agree on meeting with Frank tomorrow afternoon to start working. The weakened labour laws introduced in 2028 reduced legal hurdles substantially, so companies are able to employ and deploy workers at fast pace. Therefore, Lilli is very flexible with her human resources. After Rajeed left, Lilli calls Kim in Korea to ask about her outcome of today's work. Lilli is glad that collaboration software has improved so dramatically over the last years and that she can hire people from all over the world. Putting on her hololenses, their avatars can interact and virtually see each other's work in a realistic environment. How great would it be if this software was not only used in working environments but by families to share special moments together.

As Lilli gets home, she cannot wait for tomorrow. The meeting with Frank and the interview with Rajeed went very well and she thinks that with these people, her startup is on a great track. Lilli reflects her situation and how lucky she is. The decreasing funding possibilities are a heavy burden for the entrepreneurial scene. Founding startups and raising them successfully has become a challenging task. Only because of the broad motivation within society, the idealistic spirit of her generation and the new labour and IP laws, she can now pursue her idea and have an impact that lasts. And after a quick check on the new location Frank has found for them, Lilli's day is finally done.

Signposts

- Collaboration tools expand rapidly
- More entrepreneurs start a new business after they failed for the first time
- Entrepreneurially favourable laws and education are introduced and extended
- There is a startup boom in emerging markets
- Social and environmental crisis nourishes idealistic mindsets
- Worldwide IP agreements "open source" almost everything
- Weak privacy regulations simplify the handling of private data
- Immigration and labour laws were loosened towards open boarder policy and easy hiring
- Basic income is introduced
- Senior entrepreneurs form a large portion of the entrepreneurial landscape

Ideation

The following chapter describes five novel concepts to foster the entrepreneurial environment in Bavaria. Every concept has a corresponding business model that is described using the Osterwalder Business Model Canvas.

An exhaustive description can be found in the Chapter Methodology.

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CLIPS

The Customized Legal Information Platform for Startups

Finding a suitable way through the jungle of legal regulations in Germany is a huge obstacle for startups at any stage. Early-stage entrepreneurs lack financial and human resources to deal with legal issues sufficiently. In later-stage startups, on the one hand, legal issues can grow faster than the organization is able to keep up with and founders need to get an overview of those issues quickly. On the other hand, legal professionals such as lawyers and tax consultants search for possibilities to show their expertise and acquire new clients. The solution to fulfill the needs of the three customer segments mentioned above is an innovative concept called CLIPS.

Clips stands for Customized Legal Information Platform for Startups. It is an online platform where startups can access a legal knowledge database providing them with general information on legal issues. The key feature of the CLIPS database is a personalized filter. Startups easily find information related to their core characteristics and stay updated about changes in legislation that are relevant to them. CLIPS collects these changes and notifies the startups about them instantly. CLIPS is set up, financed and operated by the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology. The content, however, is generated decentrally by associated lawyers to keep the operation as efficient as possible. The topics of the articles are issued by internal lawyers, but the research, writing and peer review is carried out by the external partners.

Furthermore, CLIPS employs a small inhouse team of legal professionals that is responsible for content planning and quality assurance. To efficiently market the platform and its features, key partners are incubators, accelerators, local lawyer associations, and governmental support programs. To lower the costs for the Bavarian state, startups have to pay membership fees depending on their size, location, and required service.

Illustrated by the Institute for Innovation and Change Methodologies

Business Model

Key Partners

- Lawyers and tax consultants: content generation
- Lawyer and tax consultant associations: to reach and educate legal professionals
- Accelerators, incubators and other start-up support institutions: for marketing purposes
- Local, state, federal, and European governments: provide legislation in a structured way

Key Activities

- Automated crawler searches government & court publications for legal changes to create list of topics
- Legal professionals write and peer-review articles
- CLIPS team reviews categorization and publishes article

Key Resources

- Legal knowledge database
- Internal lawyers to edit and ensure quality
- Article tagging structure
- Filter mechanism
- Database of legal professionals

Value Proposition

Startups

Nascent/early stage:

- Free, reliable legal knowledge base
- Overview of most relevant legal topics
- Contact to lawyers

Later stage:

- Alerts about legal developments relevant to individual startup
- Possibility for founder to stay updated and challenge lawyer opinion
- Inexpensive compared to own legal team

Legal professionals

- Professional profile on trustworthy platform
- Brand awareness through published articles & membership tiers
- New customers from pre-selected customer base

Customer Relationships

Startups

- Impersonal through web app & mobile app
- Customer service: technical issues only
- Legal support through professionals

Legal professionals

- Individual account manager (phone)
- Mailings & web app

Channels

Start-ups

- Content delivery through web & mobile app
- Marketing through incubators, startup support programs, startup events, etc.

Legal professionals

- Personal service next to web & mobile app
- Cooperation with associations

Customer Segments

Startups

Nascent/early stage:

- Lack financial & human resources
- Are concerned about legal topics, but do not/cannot focus on them

Later stage:

- Have own legal team or external lawyers
- Abundance of legal issues, need quick overview

Legal professionals

- Lawyers, tax consultants, auditors
- Deep legal knowledge
- Conservative, often lack prominent online presence
- Want to increase their brand awareness & find new customers

Cost Structure

Setup costs:
- Development of website & filter mechanism
- First content creation

Fixed costs:
- Salaries: internal legal team, small account management team

Variable costs:
- Marketing expenses (outsourced)
- IT hardware infrastructure

Revenue Streams

- Basic knowlege base product is provided for free
- Filter feature is only included in the premium version:
  - 25€ per month < 30 employees
  - 100€ per month >=31 employees
- First year premium access for free for Bavarian startups
- Group licenses available (e.g., for incubators or government support programs)

Customer Segments

CLIPS is a multi-sided platform which tackles the needs of startups as well as legal professionals consulting startups. The online platform targets nascent entrepreneurs, early and later-stage startups. In each phase the startup is provided with relevant legal information, based on characteristics of their business such as size, legal form or industry. Lawyers and tax consultants form the counterpart of the platform by providing the content. As legal professionals they use CLIPS as a marketing instrument to show their expertise by publishing articles that are relevant for their target audience.

Nascent entrepreneurs and early-stage startups usually lack financial and human resources. Therefore, they have to focus on their business idea and first prototypes rather than researching legal topics. In this early phase they are concerned about legal traps, but, as it is not their top priority, tend to omit further research on legal topics. Furthermore, their limited funding allows no external legal support from professional legal consultants. The resulting lack of knowledge about the legal risks involved in starting an own business might hinder entrepreneurial activity, especially for people with a high need for security. They are missing a comprehensive and credible source of information covering all relevant legal aspects that matter to them in the initial phase of their venture.

Even if entrepreneurs pass the hurdle of starting a company, mistakes done in the beginning might lead to complications in the future. For example, data privacy issues or other legal concerns might interfere with the chosen business model. Legal traps caused by missing or unprofessionally drafted contracts among the founders or with external parties might cause serious problems in the future of the startup, for example when carrying out fund-raising rounds. Therefore, legal knowledge is crucial for startups, even if it usually is not one of their top priorities in daily work. Especially in the early phase, startups are not willing or able to dedicate their very limited resources to legal topics. Thus they need relevant, reliable, easily accessible and comprehensible legal information in one place. Having a centralized source of information is of crucial importance because scanning several resources consumes more time and poses questions regarding the credibility of each.

Later-stage startups usually have the necessary resources to employ their own legal team or to hire external lawyers for detailed research on legal topics. However, as the variety of their legal topics grows steeply with their business, it becomes hard to keep track of all relevant topics. Later-stage entrepreneurs need to stay up-to-date regarding all changes in law or trend-setting court decisions to then give instructions to their internal or external legal staff. Since the management only has a very limited amount of time to spare, all information has to be highly relevant. Therefore, legal news have to be matched to the needs and profile of the startup.

Professionals, such as lawyers and tax consultants, are highly specialized consultants. Their focus on certain areas of expertise ensures profound and up-to-date knowledge, but also makes it harder for them to reach a critical mass of customers with legal issues in these areas. They market their expertise by measures such as publishing legal articles online or giving talks at conferences to potential clients. However, as marketing is not their corecompetence, they are often dependent on external marketing channels to attract new clients outside their established networks. When choosing their marketing channels, credibility and quality are the main criteria.

Customer Relationships

Combining a loyal user base and a strong community of contributing professionals on the platform is crucial for the success of CLIPS. Therefore there is a strong emphasis on creating and maintaining strong relationships with both customer groups. In order to keep the required human resources at a minimum, CLIPS leverages technology as much as possible to do so.

Startups

In general, the relationship with startups will be mostly impersonal through the application and a regular personalized newsletter. Startups have a company account and subaccounts for each user, which enables the tracking of their usage and the delivery of personalized contents. The users find explanations and support articles for all functionalities online. For all requests regarding legal topics, CLIPS redirects customers to the affiliated professionals. Consequently, personal support for startups through a telephone hotline and support email-account will only be offered for questions regarding the usage of the platform and only when online resources are not sufficient.

Professionals

The affiliated professionals have higher expectations regarding a personal interaction with CLIPS. They are assigned to a contact person within the CLIPS team, that will help them with all questions regarding the platform. This includes advice on how to best position their firm on CLIPS, making use of its professional features such as analytics on the relevance of legal topics for startups. Similar to the online support resources for startups, there is a dedicated area on the professional's platform to help with typical issues. There is also a high amount of automated yet personalized communication such as mailings to notify the professionals about new legislation within their field of expertise that they could cover with an article.

Channels

CLIPS aims at providing high quality resources for legal research to all startups in Bavaria and therefore focuses on highly efficient distribution channels that require the lowest possible personal interaction.

Startups

The main channel through which CLIPS delivers its content to startups is an interactive platform available on all mobile and desktop interfaces. Initial registration on the platform can be performed entirely online, including payments for larger startups. Startups can then create their profile, based on which relevant legal information is selected for them. Platforms on which the native versions of the application are distributed (such as the Apple App Store) serve as a marketing instrument and distribution channel at the same time. Awareness for CLIPS among startups is created in various ways: Initially, cooperation with entrepreneurship-support institutions, for example state operated programs such as "Flügge", can help to create an initial user base by offering CLIPS-accounts to all startups they support. Institutions that support later-stage startups (above 50 employees), can also purchase multi-startup licenses and offer the service free of charge, thereby creating an additional benefit for their program. Events such as "Bits & Pretzels" will be another major channel through which CLIPS creates awareness. Booths with information material and live demos of the portal and sessions on legal topics, jointly run by partner lawyers and CLIPS employees will attract new potential users to the platform. In these sessions, professionals of the CLIPS platform could give coachings on frequent questions of startups. In a later stage CLIPS will also be promoted through online and offline advertisement. Sponsored links in search engines on queries related to legal issues will be complemented by ads in relevant print magazines such as "Starting up".

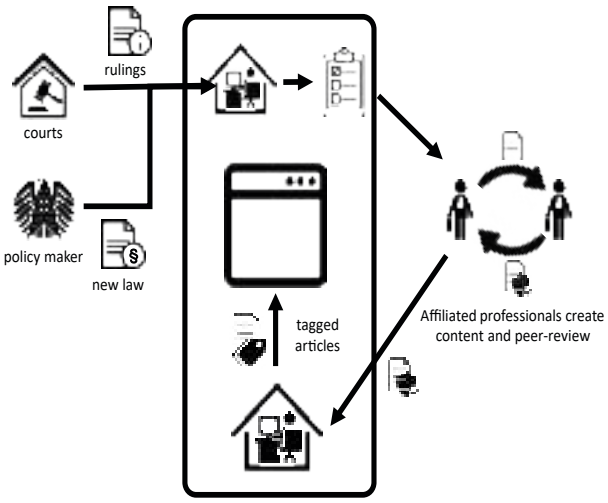
Professionals
Interaction with the second user group of CLIPS, professional consulting firms, does also happen on the multi platform application. Through a special access, all standard processes such as submitting and editing new content, retrieving access statistics and administering the account can be carried out online. However, there is a stronger emphasis on complementary personal service, especially for firms in the premium segments which will have a personal key account service provided by CLIPS. Awareness for the platform among professional service firms is created through online marketing, mailings and telesales. Regional sales-teams will identify and proactively approach relevant law-firms. Another major multiplier in this context are professional associations, such as lawyer associations (in German: Anwaltskammern), through which a large number of professionals can be addressed. CLIPS as a marketing platform for legal professionals will be promoted on events hosted by such associations or advertised in mailings to its members.

Value Proposition

Early-stage startups
CLIPS efficiently tackles key issues for each of its three core customers. At first, pre-founding or early-stage startups have limited resources and want to inform themselves about legal issues in an efficient and transparent way. As a solution for this problem CLIPS offers a free online legal knowledge base including the most relevant questions and possible solutions for early-stage or nascent entrepreneurs. Startups can inform themselves about the optimal legal form, profit from legal best practices during the founding process and get an overview on the most relevant legal topics. CLIPS provides legal guidance in the first weeks and months of a startup on general topics and makes it possible to contact a lawyer if necessary.

Later-stage startups
As startups grow, their key problems concerning legal issues change. Most later-stage startups already have a legal department dealing with their regular issues, but often this is still perceived as cumbersome. At the same time, they are afraid of missing out on important issues that could lead to problems for their business. They also want to be able to challenge their internal and external legal experts. In contrast to early-stage startups, it is not important that the overview is provided for free since startups at this stage usually already received funding or create revenue. They experienced dealing with legal issues as expensive and exhaustive. To assist this customer group, CLIPS provides a truly innovative legal dashboard for startups. To stay updated about legal developments that could impact the venture, CLIPS notifies its customers about existing and new laws, regulations and relevant court decisions. CLIPS key feature is the customized selection of incoming information about changes from governmental authorities or courts. It collects and filters important information such as new legal decisions depending on business area, location and size of the company. Additionally, CLIPS keeps track of the legal environment of the startup because even if the legislation does not change, new regulations can apply to startups after reaching a certain size. All in all, CLIPS represents the legal consciousness of startups at any stage. It helps them to be informed about and keep track of legal developments in the jungle of rules and regulations in the EU, Germany and Bavaria and offers basic information about the implications of these developments.

Legal professionals
As legal professionals want a platform to demonstrate their expertise in their focus areas, they are interested in gaining clients with high growth prospects and issues in these areas. CLIPS serves this by offering the possibility to write articles and showing presence on the platform with a professional profile. The profile is their online presence on the platform and describes their company and its expertise. Depending on the number of articles published, they can reach a higher tier in CLIPS. The status as bronze publisher is unlocked after 5 articles, silver after 20 and gold after 50. The current stage is shown in the profile and signals the expertise and commitment of the lawyer. This pre-selection of potential customers causes an exceptional marketing opportunity directly aimed at key target groups. The generation of many high potential leads strongly incentivizes the legal professionals and is the key advantage of CLIPS for them.



Key Activities

To initially set up the CLIPS platform, some significant one-time investments are necessary. This includes the development and implementation of the filter technology for legal articles on the one side as well as the categorization criteria for startups on the other side. Furthermore, an automated crawling software, which enables automatically scanning the internet for relevant legal changes, the structure of the knowledge base as well as tagging standards for the individual articles have to be defined and developed. Once the initial setup is completed, the creation and maintenance of CLIPS content follows a structured three-step process which ensures quality and relevance of the contributions. At the same time it minimizes the use of resources.

Crawling of legal change
At first, an automated crawler scans relevant websites of public authorities for information. Sources such as the Bundesgesetzblatt or similar publications are used to capture news about new or changing laws. Next to legal decisions of the executive, especially trendsetting rulings by courts are an important second source for the web crawler. Additionally, administrative regulations and other potentially relevant decisions will complement the collected information. Afterwards, legal professionals in the CLIPS staff review the generated list of topics including the automatic categorization and assigned tagging. At this point, manual input from legal professionals is used to complement the machine-generated list. The final result of the first step is a categorized long list of legal topics in any potentially important area, reaching from city to EU level.

Decentralized content generation
The second step involves the content creation by the external providers, which are mostly law firms and registered lawyers. The CLIPS staff release the long list with topics on the professional site of the CLIPS platform, where all registered professional members can see it according to their filter criteria. Each

registered professional can chose topics to which he wants to contribute an article. If multiple lawyers are interested in one topic, the CLIPS staff choose which member is allowed to contribute. Members with a higher membership status (expressed through the bronze, silver and gold badges) are more likely to be assigned the topics they prefer. To ensure a high quality of all published articles, the "four eyes principle" is integrated: After the submission of an article, a second member of the legal community is assigned to peer-review the article. This means that every draft has to be verified by at least two legal professionals who have to approve its quality and correctness. To incentivize professionals to peer-review, reviewers are listed next to the authors for each article and professionals are only allowed to submit a new article once they have reviewed one article of someone else.

Filters and publication
In the third step, the finalized content is sent back to the CLIPS staff and checked before publication on the platform. While legal accuracy is ensured by the peer-review principle, the CLIPS staff finalize the tagging to ensure that startups only see content that is relevant to them and check the quality of the submission with regards to understandability, style and relevance. Once an article has been approved, the CLIPS staff take care of the publishing. Startups which might be interested in this topic need to be informed of the release, which creates the need for an appropriate categorization. Besides the main process for content creation, the CLIPS team also continuously improves the platform and the underlying filtering system based on feedback from startups and legal professionals. For example, further activities including new legal fields could include account management.

Key Resources

Legal knowledge base
The main resource of CLIPS is the legal knowledge base. As most articles are provided by external lawyers, internal content generation is kept at a minimum. The main task of the internal lawyers is to keep track of legal trends and the integrity of the knowledge base. They also proofread the provided articles to ensure high quality and compliance to the guidelines of the CLIPS platform. Therefore, the lawyers working for CLIPS need to have a broad overview of startup relevant topics, rather than a deep specialization. They clearly focus on the needs and perspectives of startups and are equipped with good writing skills.

Filtering mechanism
The second key resource of CLIPS concerns the accessibility of its content. As startups are only provided with relevant information, the filter for information is crucial. The filter mechanism combined with well-structured keyword tagging guarantees good matching results. Besides the initial setup, the structure has to be updated and adopt to changes. Thus, an expert in filtering and structuring data is needed. For startups actively searching for information, a search engine provides results.

Database of legal professionals
The quality of the content is highly dependent on the expertise of the lawyers. For getting the right lawyers, the database of suitable legal professionals is a key resource. It helps the internal lawyers to choose the right specialist for each topic and to record the experience of former cooperations with external lawyers. CLIPS inhouse team: While the content generation and review is largely outsourced to external legal professionals in order to minimize costs, CLIPS will employ a small inhouse team to facilitate a smooth operation of the platform and the associated network. On the technical side, we expect one IT professional to continuously improve the filtering algorithm and further develop the CLIPS platform. Furthermore, CLIPS would employ three to four legal professionals that are in charge of content planning, ensure correct use of the content filters, check and publish the content generated by externals and also function as account managers for the external legal professionals.

Key Partners

Legal professionals
The key partners of CLIPS are lawyers and tax consultants. As specialists in their legal areas, they add content by writing articles. The topics of the articles are issued by the internal lawyers, but the research and writing is done by the external partners. Guidelines set the general framework for all articles, including the style of writing.

Associations
The local lawyer associations (in German: Anwaltskammern) help the CLIPS team to reach the relevant lawyers. With them handing over the information, interested lawyers are contacted via mail, phone calls and letters. Combined with the internal database of existing partners, the network offers experts in every legal area. This ensures profound knowledge in all legal areas and high quality of the articles on the CLIPS platform.

Startup support institutions
Accelerators and incubators are distribution partners to connect CLIPS with nascent entrepreneurs and early-stage startups. As partner associations they are offered a special company package to cover the CLIPS expenses for all startups they support. With CLIPS providing them access to a broad range of legal information, their startups can answer most early-stage legal questions themselves without legal consultation. Furthermore, incubators, accelerators and other startup support institutions are acquired to host workshops where startups learn how to get the most out of CLIPS. The institutions support the startups in setting up their individual profiles, as this is crucial for a good match between the needs of startups and the relevant legal information.

Governments
The local, state, federal and European governments are important partners for CLIPS as their legislative changes actually constitute the content for the platform in the first place. With the help of the Bavarian government, CLIPS needs to ensure that all relevant legislation can be utilized by the automated crawling mechanisms. Therefore government bodies have to publish changes in legislation in a standardized way. It is in their own best interest that their decisions and laws are made public and explained on the CLIPS platform. This increases awareness, transparency and consequently adherence of the legislation.

Cost Structure

The costs of CLIPS are split up in three major parts. The initial costs to set up the business, the fixed costs, mainly HR expenses, and the variable costs.

Setup costs
The initial costs include the initial development of the website and the definition of a future-proof content structure. Especially the development of the filter concept needs experienced professionals for the technical implementation as well as startup affine lawyers for extracting the significant attributes. Additionally, the basic legal content to start with has to be created by internal or external lawyers. The network of skilled lawyers has to be identified to create an initial database. All

these components contribute to significant initial setup costs of the CLIPS project.

Fixed costs

Once the platform is running the main fixed costs are generated by HR and administration expenses such as salaries, office and technology rent. A team of lawyers is needed for the quality check of the submitted articles as well as to issue new topics for legal articles. Furthermore, they check the integrity of the knowledge base and introduce and tag keywords for all articles. For customer relations with lawyers and tax-consultants, a small sales division is needed. It maintains the database of professionals, acquires new memberships and stays in contact with the professionals.

Variable costs

Next to the initial setup costs and ongoing fixed costs, variable costs are mainly driven by marketing expenses like online advertising and social network activities. To keep the company structure small and flexible, marketing activities should be outsourced to a specialized agency. The IT hardware infrastructure is hosted by the Bavarian government.

Revenue Streams

The business model of CLIPS is non-profit and the use of free external resources for content creation minimizes the expenses. Still, this lean structure needs financing for salary and technical infrastructure. To keep CLIPS as self-sustaining as possible, utilization of professional law-firms as a free external resource for creating content and subscription fees from mature startups as an additional revenue stream back up the financing of the platform. To keep the knowledge base attractive for nascent entrepreneurs, access to the knowledge base is free. However, the filter feature provides an additional monetary benefit to the startups as they can likely replace an internal legal resource or an external lawyer who would otherwise be responsible for keeping track of legal changes by this feature. Startups will be willing to pay a premium fee for the filter feature which starts at 25€ per month for early-stage startups. Once they exceed 30 employees, startups can afford a monthly fee of 100€. For startups located in Bavaria, the first year of access to the CLIPS filter is free. There is also the opportunity to get a licence as part of a group package, which are given out to partners and state programs supporting entrepreneurship (e.g., "Flügge"). As a state-supported institution, CLIPS is very restricted in the ways it can charge legal professionals for products sold to it. Consequently it is not possible to offer lawyers a premium listing feature, charge for leads and referrals to lawyers or recommend them in any way to possible clients. Direct advertisement for legal services is also not allowed for state financed institutions. Charging lawyers for the possibility of writing articles might lead to a decrease of quality and of content submitted. CLIPS therefore offers no advertising space to legal professionals, does not recommend legal professionals to startups and solely gives the authors of contents the chance to show their expertise through their contributions to the knowledge base.

Challenges

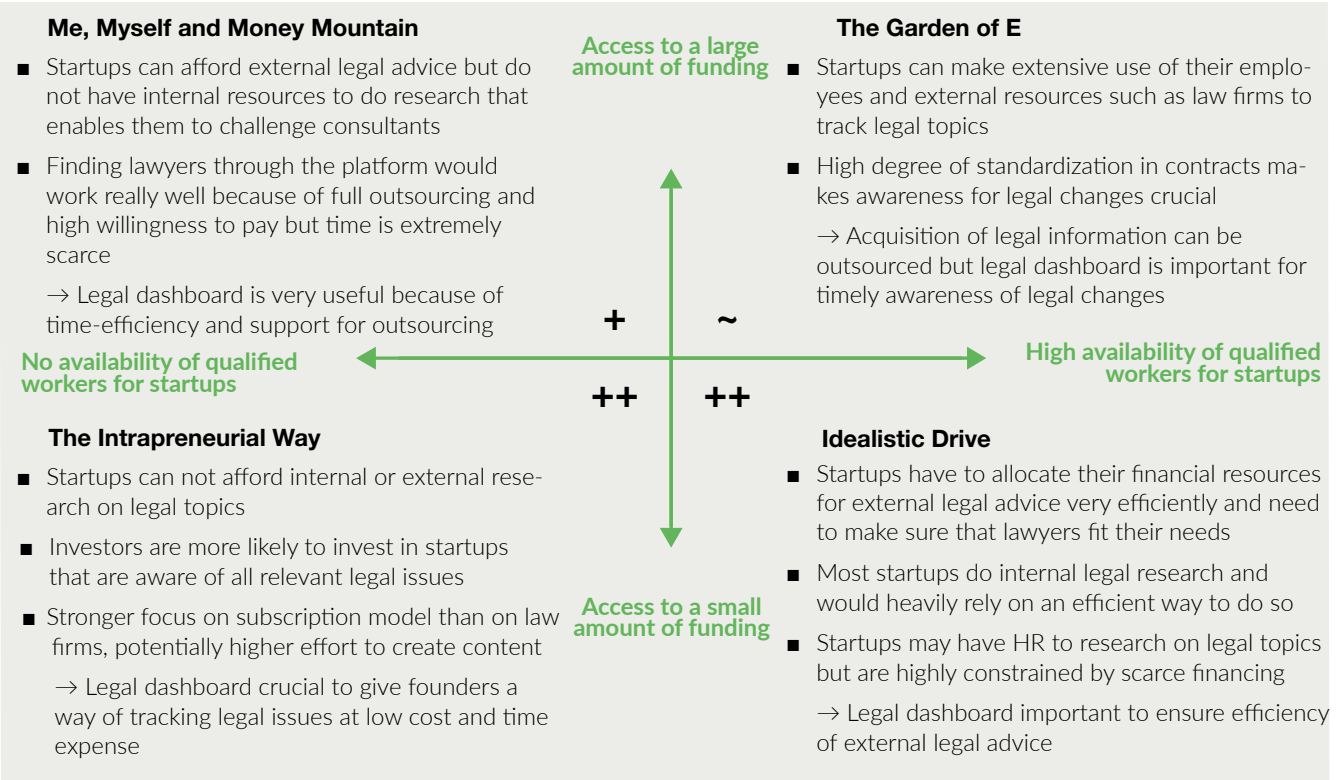
- Create suitable profiles and filter algorithms
- Find lawyers with startup affinity to work at CLIPS
- Create the basic content to start with
- Obtain long-term financial support by the government

Scenario Fit

The Garden of E

Many motivated and skilled employees and easy access to funding will lead to a large number of startups employing a large number of employees. Many employees would enable these startups to conduct extensive research regarding legal topics themselves. However, due to great funding possibilities and the availability of financial resources to hire lawyers and pay for professional legal advice, they are more likely to outsource this work. Therefore, they are less likely to use the knowledge base of CLIPS since they do not have to care about a summary of legal topics and information.

In the assumed scenario, however, employees can be hired for small amounts of time. For this reason, standardized hiring contracts are often used instead of individual ones. Since changes in court decisions might have a great influence on the interpretation of these contracts, the filter and dashboard part of CLIPS is of high importance in this specific case. Startups



will benefit from the news section and always be informed on how legal changes and new court decisions might impact their contracts and daily business. As stated before, however, they could also get this information from external legal counselors as money is not an issue.

Me, Myself and Money Mountain

When funding is easily available, startups are more likely to hire lawyers for legal advice and contract generation. When it is furthermore difficult to find qualified workers this will happen even more often, since employees need to conduct internal work (e.g., the development of the company) and cannot spare time for legal research. The willingness of entrepreneurs to simply pay for legal knowledge and professional legal consultation is therefore likely to be very high.

The knowledge base of CLIPS would hold great potential, since it simplifies legal research. Nevertheless, it would probably not find great use due to missing manpower. It is more likely that entrepreneurs will rather rely on professional help instead of taking the risk of managing legal issues on their own. This means that finding the right point of contact for legal issues is critical. On CLIPS, articles treating important legal topics are published by reputable lawyers, which can be great first points of contacts when a startup encounters troubles with a specific subject. CLIPS enables lawyers to spread their knowledge on a theme and improve their reputation and awareness level. This is also of great value for the startups, since they can strongly benefit from a suitable contact person. With CLIPS, finding the right lawyer is simple, efficient and saves time.

Furthermore, the dashboard providing the entrepreneurs with updates concerning alterations in legal topics provides a quick overview on changes. CLIPS provides immediate knowledge about important changes in any legal affairs, allowing entrepreneurs to react instantly. This is crucial to efficiently deal with legal topics.

The Intrapreneurial Way

In a scenario where neither skilled employees nor funding is available, startups face huge difficulties in general. CLIPS, especially the knowledge base, is of great importance and has high impact on the entrepreneurial scene.

Since funding is not easily available, startups struggle to afford lawyers and any kind of legal consultation. At the same time manpower is rare, because it is hard to find suitable employees. This results in startups often neglecting legal topics and underestimating their importance. If they can afford to spend resources on legal issues this has to be done in a very efficient way, which is why CLIPS is of great relevance. The database facilitates gaining knowledge about legal topics. Therefore, important information can be collected easily and efficiently without great costs.

A huge benefit of gathering at least some basic legal knowledge is the increase in attractiveness of a legally informed startup for investors. CLIPS can help entrepreneurs to avoid serious mistakes concerning their contracts, taxes and other issues. A startup making use of the knowledge database and the dashboard has a much higher chance to be successful and avoid legal traps. CLIPS therefore is an important asset and will be immensely used by all startups.

Idealistic Drive

In case of little or even no funding possibilities, CLIPS is, as mentioned above, of great importance. In this scenario, where many skilled employees are available, entrepreneurs follow their idealistic beliefs. Most startups struggle to finance themselves, but nevertheless keep pursuing their ideas.

Since money is a critical issue, startups can hardly afford lawyers and professional advice. Startups often have to deal with legal topics on their own and will appreciate the broad knowledge base CLIPS offers. It helps them to inform themselves about legal topics on their own without having to spend money on external advice.

If startups decide to contact professionals for their legal issues, they want to make sure that they spend their money wisely. A good, reliable lawyer who exactly fits their needs is crucial. The published articles on CLIPS will help to find the perfect point of contact and therefore deliver great benefit.

Outlook

After the implementation of the knowledge base and the filter algorithm, there is further potential for CLIPS beyond the key features. As the goal is to simplify dealing with legal issues for startups, one can think of various features enhancing CLIPS.

One possibility is a contract generator for founding a company. After completing an extensive questionnaire the tool generates a customized founding contract, covering the most important aspects. Even on a more basic level, this tool could raise important questions and force the founding team to discuss not so obvious topics, such as inheritage of shares in case of death. Second, a legal platform operated by the Bavarian government provides huge potential in the area of e-government, which describes the digitalization of government activities and interactions between businesses or individuals and government authorities. Elster, the online platform for tax declaration which originally was a Bavarian initiative, is a good example for the opportunities of e-government. A goal for the future could be to utilize the CLIPS platform to digitize as many administrative procedures as possible, for example the legal incubation of a company or facilitating changes in the commercial register.

Another direction for further development of CLIPS could be to foster knowledge exchange, not only between startups and professionals, but also between legal professionals themselves. One example could be discussions about the relevance and implications of legal changes with other professionals who share a focus area. These are only some examples for opportunities that could be seized after the setup and spread of CLIPS. Naturally, there is also the possibility that CLIPS needs to react to unforeseen challenges or shifts in requirements of its core customers. However, for the moment it generates a clear value for all stakeholders involved and fosters entrepreneurship in Bavaria.

Julian Nast-Kolb, Areeb Kamran, Alexander Schenker, Kevin Probst, Sabine Kaupp

E-Trinity

Turning Students into Entrepreneurs

One of the reasons Germany still lags behind countries like the U.S. or Israel in terms of a startup scene is the lower entrepreneurial awareness in society and the education system. As the Bavarian State can directly influence education, the educational aspect can be changed. This is where "E-Trinity" comes into play. It is a state-run education framework focusing on entrepreneurship and practical experience. Its main target groups are high school and university students and apprentices. At the core of the framework is the "Startup Year" program, in which young people take part in several three-month internships in startups from different stages and areas. The pool of participating startups is as large and diverse as possible to allow for variation and a broadly targeted program. As an additional incentive for students to participate, the third internship can be replaced by either social activities or traveling.

Additional components of the framework distinguish among the three different tiers of the young population to achieve maximum impact. First, university students between their bachelor's and master's degree can take part in the Startup Year. Through their participation, they are in extension prepared for more degrees at universities through the existing entrepreneurship centers. This group is already of great value to the startups due to their previous experiences in academia and business.

Second, high school graduates are targeted the year before starting their higher education. By introducing mandatory internships at high school level, which can be completed in startups, and entrepreneurial electives, they learn important skills and gain an entrepreneurial mindset even before participating in the Startup Year.

Finally, entrepreneurial electives in middle school lead up to a new, government-run, three-year entrepreneurial apprenticeship. In this case, the Startup Year serves as an optional entry and orientation point for selected apprentices. It is preceded by entrepreneurial basics and followed by two years working in a startup. The broad mass will follow the conventionally structured apprenticeship program. This new initiative opens opportunities for additional demographic groups and further broadens the human resource base.

These three pillars form E-Trinity, the perfect tool for increasing entrepreneurial awareness in society while creating the founders of tomorrow. Students broaden their horizon by experiencing startup culture, taking responsibility, and discovering the startup scene as a possible career option. Startups benefit by subsequently recruiting from a greater amount of potentially interested employees.

Illustrated by the Institute for Innovation and Change Methodologies

Business Model

Key Partners

- Startups
- Schools:
  - Middle Schools
  - High Schools
  - Berufsoberschule
  - University
- Entrepreneurship Education Institutes

Key Activities

- Pre-selection and matching via online-tool
- Organizing of interview days
- Coordination and support of framework and internships
- Co-creation and organization of academic curriculum
- Derivation and running of apprenticeship program
- Maintaining social alternatives

Key Resources

- Startup and academic networks
- HR for teaching and coordination
- Online Select & Match Tool

Value Proposition

Students:

- Practical experience
- Networking
- Career orientation
- Entrepreneurial education
- Social impact
- Brand of program

Startups:

- Employer branding
- Entrepreneurial awareness
- Cheap and skilled labor
- Recognition as career option
- Program brand
- Government relations

Customer Relationships

- Intermediary role between startups and students
- Co-creation with education institutions on education program
- Communication and coordination with mentors

Channels

Students:

- Mandatory internships for school students
- Letters to top 10%

Startups:

- Direct contact at fairs and events
- Incentive system for P2P
- Promotion via support, accelerator, etc.

Customer Segments

Students:

- School students
- Apprentices
- University students

Startups:

- Early-stage startups
- Later-stage startups

Cost Structure

Initial:

- Creating tool and website awareness campaign
- Creating educational content

Recurring:

- Organizing interview days/events
- Cost of personnel (support & education)
- Marketing expenses

Revenue Streams

- Tax money
- EU funds (e.g., “Entrepreneurship in Education”)
- National funds (e.g., “Unternehmergeist in Schulen”)

Customer Segments

E-Trinity relies on an effective business model that fosters entrepreneurship within the different parts of education. The framework therefore primarily targets two segments of customers: students and apprentices on one side and startups as major stakeholders on the other.

Students and apprentices
To keep up with the pace of innovation and to succeed in a vibrant and technology-driven future, entrepreneurs of tomorrow need to be equipped with the necessary mindset. Since young people with entrepreneurship education are more likely to found a company, it is crucial to take a broad approach. E-Trinity is composed of three different initiatives that attempt to fully cover the various education paths in the Bavarian education system. First, the possibility of mini-internships in startups and entrepreneurship elective courses are introduced in high and middle schools. Students are equipped with the basics of innovative thinking and hands-on skills, complementing their theoretical studies. Second, the possibility to do an apprenticeship in a startup opens up an entirely new career path and integrates apprentices into the entrepreneurship education system for the first time. Last, the Startup Year, where participants run through a period of internships at different startups, is targeted at both university students between their bachelor and master, as well as graduates.

Startups
The second customer segment targeted by E-Trinity consists of startups with their headquarters located in Bavaria. This ensures a regional impact and supports the development of Bavaria into a startup hub. However, internships at abroad branches are also possible if desired by participants and startups. Participating startups will vary in their fields of action, ranging from high-tech and e-commerce to social ventures. Startups will also vary in their stages of development to ensure a variety of options. The resulting diversity in requirements and offered knowledge is necessary to attract a great number of diverse participants, providing more value to the startups. Ultimately the startups, while showcasing themselves as attractive employers to create bonds with potential employees early, will also function as means of motivation and inspiration for aspiring entrepreneurs. This in turn benefits the whole entrepreneurial scene in Bavaria.

Customer Relationships

Relationship management is critical for non-profit projects. To ensure the success of the initiative and also to retain beneficiaries in the long run, different types of relationships are defined to best cater to the stakeholders' needs.

Intermediary
The government as the driver of the program takes on an intermediary role between startups and students. The goverment sets up the rules underlying E-Trinity to ensure quality and mutual benefits on both sides. The framework incorporates the maintenance and enlargement of the network, the process of matching students with startups, the assignment of the mentors, and finally the general administration. Based on preceding, half-automated screening processes for students, as well as preferences listed by both parties, a matching algorithm brings together students and startups. Particularly in the beginning of the initiative, the state is dependent on support from incubators, entrepreneurship centers, as well as school staff to generate a first pool of suitable startups and applicants.

Co-creation
In order to prepare students for their work in a startup and to establish an entrepreneurial mindset, lectures for the innovation/entrepreneurship elective courses at high school and middle-school level and the curriculum for the apprenticeship need to be set up. The government thereby also draws on the expertise of educational institutions such as entrepreneurship centers and existing materials. Working together with existing institutions, which have already been teaching entrepreneurship for a while, ensures that the content is valuable and proven in practice. It also improves the acceptance of the syllabus and the roles the institutions take in the program. This co-creation process leads to a first basic blueprint of the education program, which then needs to be continuously updated and further refined. As a by-product, the awareness for the startup culture in society will increase through the credibility of acknowledged school subjects.

Communication
To maintain strong ties with all stakeholders, a steady stream of communication and predefined contact persons are crucial. While this can be carried out by existing contacts in the case of startups, such as public accelerators, the contact to students is more complicated due to sheer numbers. Apart from administrative questions participating students have concerning the Startup Year, E-Trinity will only communicate via the startup provided mentors to keep the requirement for human and financial resources at a minimum.

Key Partners

E-Trinity aims to connect young to-be entrepreneurs with startups and to spread awareness in society. To achieve this in the best possible manner, E-Trinity needs a broad network of different institutions.

Startups
Startups are a key component of E-Trinity. Since the core is the Startup Year where students can do two to three internships in different startups, having a broad variation of partners from which students can choose is crucial for the success of the program. Furthermore, the more startups on board, the more students can take part in the Startup Year. The participants also have mentors who guide them throughout their year. The mentors, experienced entrepreneurs and experts supplied by the startups, will be knowledgable about the startup scene and can help advise students on options. As an incentive for startups to provide mentors, active startups will get a "first pick" right when selecting students for the interviews. As E-Trinity aims at growing the entire entrepreneurial scene, every individual startup benefits from the program's success so that motivations overlap. An affordable and motivated labor force and potential future employees are additional benefits startups receive from E-Trinity.

Schools
Another set of important partners are middle and high schools. Since one pillar of E-Trinity is focused on school students, it benefits from a large network of schools. This means that apart from integrating the 2-3 week mandatory internship and entrepreneurial electives in their curriculum, they also promote the program, for instance on the school website and in classes. The application process requires the schools' help since school officials read individual motivation letters of other school's students to further assess candidates' suitability. BOS (higher vocational school) teachers further the cause by providing some of the elective lectures at schools to capitalize on their existing expertise. The third pillar requires cooperation from universities because the Startup Year can also be conduc-

ted in between bachelor's and master's degrees. Apart from extending entrepreneurial education to additional degrees, universities need to grant holiday semesters to people taking part in the program, so that they can maintain their student status. The Startup Year could also count for a certain amount of ECTS points in suitable degrees. Schools and universities benefit from E-Trinity through the additional experience and knowledge students accumulate. Additional funds for the program also flow back to institutions so that necessary additions to the curriculum do not have to be self-funded but rather will be covered through the program. E-Trinity ultimately gives students a holistic view of future careers by showing them the entrepreneurial option.

Entrepreneurship Centers

A third ensemble of partners are existing entrepreneurship centers, such as the Center for Digital Technology Management (CDTM), UnternehmerTUM, or the LMU Entrepreneurship Center. These institutions will continue with their specific programs, while expanding their lectures with more courses and to high schools. Additionally, they can help with initially designing and later improving the outline of the electives in schools and BOS.

Furthermore, they can use their substantial startup network to spread the word and promote the program in order to get more startups on board for the Startup Year.

Revenue Streams

E-Trinity is an educational initiative and will therefore pursue a not-for-profit framework. As it faces large costs, especially in the setup, different sources of funding are crucial for the feasibility of the program. As education should not be influenced by investors' motives, the main focus lies on public funds. Ultimately, deficits and financial gaps should be financed by the state government from tax revenues. However E-Trinity has many goals in common with existing public support programs by Germany and the European Union and is thus entitled to apply for respective funding.

The European Commission started several projects to promote entrepreneurial education in schools and higher education institutions, such as the Entrepreneurship in Education program, which is an umbrella for initiatives like Erasmus+, Rethinking Education, and the Entrepreneurship2020 Action Plan. There are also non-governmental European programs calling for integrating entrepreneurship in education, such as the European Entrepreneurship Education NETwork (EE-HUB). Furthermore, the German government has its own initiatives. The Bundesministerium für Wirtschaft und Energie for example started the project Unternehmergeist in Schulen. This initiative is mostly aimed at teachers, showing them how to best convey the entrepreneurial mindset in schools with methods like business games; this is then also a possible source of funding.

Key Resources

E-Trinity aims to match students with startups, while providing supplementary education. Three different key resources are essential in order to run the program smoothly and successfully:

Startup and academic networks

One of the key activities of the program is to match as many qualified students as possible with startups, which necessitates vibrant networks to fulfill both.

On one side, students can easily be accessed directly through multiple channels if the academic networks are intact. A reliable connection to all schools, universities, and entrepreneurship centers must therefore be established to guarantee that all relevant students are reached. Furthermore, a good academic network can ensure that enhancements to the entrepreneurial curriculum are instantly and correctly applied.

On the other side, the startups can be easily accessed if governmental networks to incubators and accelerators and support schemes, such as EXIST, are intact. In that case, newsletters and events can be used for promotional purposes. Furthermore, personal connections of entrepreneurship centers or public research institutions to previously supported startups can be part of the network. As obtaining a large pool of diverse startups is the more limiting factor, the introduction of a peer-to-peer-marketing incentivization scheme is promising. A "first-pick" right is given out as a bonus for successful word-of-mouth marketing.

HR for teaching and coordination

Since the aim is to address the broad mass, a lot of different startups and participants will be involved. This makes coordination essential, especially during the recruiting period because a proper match is one of the main purposes of the program. Both interests and quality of participating startups and students need to be ensured. After recruiting, the calendar slots for the multiple internships within the students' and startups' years have to align with each other.

Furthermore, the program comes with entrepreneurship electives in high school and lectures at university that teach the students the basics of entrepreneurship, creative thinking, and IT. To use existing and additional resources as efficiently as possible, teachers at entrepreneurship centers and BOS will also provide elective classes at school level. Where none of these teachers are available, new entrepreneurial school teachers need to be hired or current teachers educated.

Algorithmic Application and Matching Tool

The goal of the web-based application tool is to automatically filter out the most qualified students for the interviews. After a student has entered all necessary information, the tool sifts through the applications. The parameters and valuations on which the tool is based can be adjusted to meet a predefined number of applicants and to meet empirical evidence on the importance of certain criteria. Apart from this initial sifting, the tool also provides startups with a list of all interested students according to their top five priorities. After the startups choose their interviewees, the algorithm matches them with interview partners, taking relevant quotas into account. It also ensures that only the students in between their bachelor's and master's do not get a selective advantage and that students who have completed their Abitur and the apprentices also receive spots.

Moreover, it takes unmatched startups and students into account to maximize their matching outcome. If necessary, additional preferences are obtained from both parties. After the selection days, the tool then displays the final allocation based on the startup decisions and shows potentials for follow-up interviews. By utilizing this resource, the complicated matching process is strongly facilitated in terms of necessary human resources and the attainable allocation is qualitatively and quantitatively maximized.

Cost Structure

E-Trinity faces several different cost factors, which are broadly divided into initial and recurring costs:

Initial Costs

Due to a large number of aspiring participants, E-Trinity relies to a great part on efficiently matching students and startups without relying too strongly on human resources. One option is having a smart web-based application tool as central ele-

ment. Several solutions exist on the market which could be used as a foundation, but due to the special requirements alterations are inevitable. Thus employing a specialized external software developer is necessary. In the same instance an integrating web-platform has to be developed for the program, which is also outsourced for higher efficiency.

Consequently a large share of initial costs will be incurred by employing third-party web and software development teams and buying third-party solutions. Additional educational content for the elective and university courses has to be derived to meet the newest standards by Ministry of Education's employees; this is time-consuming and might necessitate additional hires. As the program itself depends on a strong reputation and publicity, several initial awareness campaigns should be run in educational institutions, on Facebook and/or other social media channels, and within startup circles.

The second important block of initial costs therefore goes to occupying internal employees and new hires for the setup and marketing of the program.

Recurring Costs

E-Trinity requires several new full-time employees. These employees organize the interview days, structure the internships to avoid overlap, and coordinate the network of startups, drawing on other ministries' resources. Additional employees are needed for the coordination of the apprenticeship program, for which startups generally lack experience and resources. In an early stage, most entrepreneurial electives can be taught by entrepreneurship centers and BOS-teachers, but later on additional teachers need to be employed for scaling and/or current teachers have to be educated. Most advertising can be channeled through school and university websites, their respective teachers, and existing connections to startups such as accelerators. Additional infrequent advertising campaigns at startup fairs and on social media channels like Facebook could be necessary. As a cheap on-top cyclic measure, the top 10% of high school and university students could receive promotional letters. Advertising expenditures and additional personnel thus make up the largest part recurring costs. Generally, these costs could be kept at a low level if unutilized resources already exist in the state government's service and can be re-assigned to running E-Trinity. Furthermore, competences and capacities of entrepreneurship centers and high school teachers can be utilized for the education component.

Value Proposition

E-Trinity's mission is to foster entrepreneurship in society by targeting students and matching them with startups for apprenticeships or internships. The main customers of E-Trinity are therefore startups and students at different stages of their education on the other hand, since E-Trinity covers three different forms of practical experience. The first is an internship for high school students and is meant to cover three weeks. The second targets students before and after their bachelor's studies and is meant to cover three to four months. The last applies to middle school students in form of an apprenticeship. The value propositions generally differ for the respective segments.

Students

Students in general have the opportunity to gain practical work experience. Depending on the respective age, the work experiences differ in the value they provide. High school students rather get a sneak peek into entrepreneurial work life during their two to three week program. This gives them the chance to experience the work atmosphere in a startup with regards to the general climate, the working methods, and values that drive the startup. The goal is to discover a fit between high school students and startups for possible later employment. University students, high school graduates, and apprentices can gain deeper insights into the startup work environment during the Startup Year. All students in the Startup Year learn about possible career opportunities and receive general and individual orientation by mentors before making decisions regarding their own future. These mentors are provided by startups and act as go-to persons whom students can address regarding their personal development, but also for problems they might encounter along the way.

The networking within E-Trinity, which consists of events with partnered startups as well as active students, alumni and mentors, provides additional value because students establish their first business contacts. A broad network is highly beneficial when it comes to finding the first full-time job or even starting a venture. E-Trinity aims to equip participants not only with the tools and frameworks necessary for founding a company, but also with the entrepreneurial mindset and way of thinking. Prepared through electives at school and counseled by their mentors, students are able to actively participate in the startups' daily business and possibly even found their own venture. For an increasing amount of students today, it becomes important to have a social impact, either through their main work or the way they spend their leisure time. For this reason, students can proactively choose a social startup or NGO for the third part of the Startup Year.

Lastly students will likely benefit from the reputation and the brand of the program. Initiated by the government and in cooperation with well-known partner institutions and startups, the program will be known as a qualitative instrument in entrepreneurial and business education.

Startups

Startups as second customer segment benefit from the program through employer branding, qualified interns, and increased general awareness for the startup scene. As for employer branding, startups not only profit from the participating students' opinions, but also from the public opinion that E-Trinity-partners are good employers. Cooperating closely with government institutions and taking part in public education fosters an image of trust and consolidates the recognition of entrepreneurship as a career choice. The general awareness and trust provided by partnering with the government leads to more potential customers choosing startups as business partners. It also impacts startups' access to financial support, for example by building trust with investors. As the internships are long-term and matched according to startups' HR needs, participants are also valued labor resources. The network provided through E-Trinity does not only grant access to high potentials, but also connects startups among themselves. This effect further facilitates the emergence of a nationally and eventually internationally accepted Bavarian startup scene.

Even though educational partner institutions are not direct customers, they clearly profit from the program as well. The innovative education proposal allows the public to draw conclusions about Bavaria's general educational landscape and hence promotes the excellence of Bavarian education.

Channels

In order to reach the different customer segments, i.e., students and startups, E-Trinity uses different channels to raise awareness for the program.

By creating comprehensive mandatory internships in Bavaria, students are positioned to deal with the subject of career choice at an early point in time. These two to three week internships typically take place during Year 10. They do not have

to be completed in startups unless respective electives with an entrepreneurial and innovative background were chosen beforehand.

The aim is to inspire students early and prepare them for either the Startup Year before or during their studies or apprenticeships.

To approach the high-potential and soon to be graduating students explicitly, the best 10% of Year 12 students and final bachelor's studies classes receive an information letter about the Startup Year and the top middle school students receive apprenticeship program information. As the startup scene is very challenging for founders, it is a main goal to attract especially, but not only, the best students and a direct approach typically increases conversion rates.

Additionally, as educational institutes are among E-Trinity's key partners, teachers and lecturers at schools and universities will promote the program in relevant classes and electives.

Startups have to be addressed differently since the entrepreneurial landscape is less institutionalized. Besides direct correspondence, information booths at fairs and events such as Bits & Pretzels help to spread the idea quickly within the Bavarian startup scene. Also, existing support structures, such as EXIST or incubators and accelerators, can be used to promote E-Trinity directly.

In addition to proactively finding participating startups, it is beneficial to incentivize additional volunteer engagement and peer-to-peer marketing in E-Trinity. By allowing committed startups to make use of a privileged draft right when picking students for internships, the program motivates them to spread the word in the well interconnected entrepreneurial community and convince fellow startups to join the program. Providing clear benefits to them, E-Trinity can help as an initial growth factor.

Key Activities

The goal of E-Trinity is to foster entrepreneurship and entrepreneurial awareness among students by connecting startups and their potential next generation employees at an early stage. For this purpose, E-Trinity is comprised of five key activities, which guarantee the availability and matching of internships, the maintainance of important relationships and the derivation and organization of the supporting academic curriculum and apprenticeship program.

Pre-selection, matching and interview days

A lean and mostly automated matching process for applications is key to the success of the program.

In the first step qualified students will be selected with minimal human effort to keep costs in check. Therefore, an algorithmic web tool sifts through students' applications. The rating of the students' motivation, however, requires input from university and school staff who read other schools' and universities' students letters and then enter the grade into the tool. The letters are anonymized to make sure all ratings are unbiased.

In the next step, using the students' previously chosen list of their top five startups, startups receive relevant applications and pick the students they find most interesting for interviews.

In the final step, the algorithm makes sure all startups and students are served. These „matched" pairs then finally get to know each other during central Selection Days in Munich, which are events with workshops functioning as a networking instrument. Therefore a further incentive for attendance and participation is provided while the networking effect benefits the entire Bavarian startup scene.

Throughout the entire process, the final matching quotas for the three respective student groups, meaning apprentices, newly high school graduates and students in between bachelor's and master's studies, have to be met depending on the startup size. The algorithm makes sure all groups are served. Follow-up individual interviews can be arranged for late matches where initial staffing failed. Through this elaborate process, quality and satisfaction among both participating groups is ensured.

Coordination and support of framework and internships

Apart from the complicated matching process, E-Trinity has to be coordinated throughout the year. One of the tasks is to ensure all internships and the transitions between them run smoothly, by keeping in touch with mentors and by answering administrative queries. On the other hand it is essential that relations to startups and mentors but also schools and other key partners are maintained. Affiliated startups need to be contacted far in advance to make sure one or more internships are available for the next year and to clarify whether the startup wants to provide mentors.

Since students should have the possibility to complete their third internship with a social focus as a further incentive and to rival "FSJ's" (a current voluntary social year program), a pool of social opportunities has to be kept available. In this context using existing relations to NGOs and social startups and checking them for minimum professional requirements facilitates the process. Again, yearly contact to secure the following year's placements is very important.

Marketing the program

Since E-Trinity has to connect to many partners at the same time and utilize the network effect, it is vital to the success of the program that as many stakeholders as possible know about it. In particular, students who are still in the early phases of their educational development tend to not look independently for further education opportunities. Startups generally also have other more pending issues in mind than internships or education, particularly in early stages. Hence, a proactive marketing strategy is necessary.

E-Trinity can easily reach students as a key stakeholder group via announcements by school teachers. Additionally, recommendation letters for participating can be sent to high potential students. For startups, the primary function of marketing is not only to recruit, but also to convey the benefits of the program. Ultimately the goal is to offer as many internship possibilities as possible, as students are likely to follow supply. Channels include existing governmental support relationships, incubators, and contacts through entrepreneurship centers. Furthermore, visiting a government-sponsored startup fair or event is another way to efficiently market the opportunity.

Co-creation and organization of academic curriculum

The initial development of the electives and the university curriculum is a major one time activity. However, periodic revisions to the curriculum will be necessary. These activities have to involve educational institutions like the BOS, entrepreneurship centers, and the Ministry of Education and Cultural Affairs. Ultimately this cooperation will ensure the delivery of appropriate and applicable educational material and therefore a high quality study program. The provision of the lectures and electives themselves have to be centrally coordinated because the BOS and entrepreneurship centers jointly take on a major role outside their current jurisdiction. Furthermore, current or new teachers have to be trained and provided in more remote areas to serve high schools where neither BOS nor entrepreneurship centers are accessible.

Regular evaluations of the content and curriculum itself ensure that the academic side of the program prepares students adequately for the Startup Year and the entrepreneurial scene itself. Special emphasis is given to spreading entrepreneurial awareness during mandatory school education.

Derivation and running of apprenticeship program
An entrepreneurial apprenticeship program does not exist, so it has to be developed from scratch. Drawing on expertise from the entrepreneurship centers and the Chambers of Craft, as well as using existing business and legal lectures already held by the BOS, could facilitate the process of deriving a syllabus for the lectures. All lectures supplementing the three-year program should then be provided in the respective BOS, as well as existing apprentice programs. The effort of training staff to fulfill the requirements apprenticeship programs currently have for companies would exceed startups' motivation and capabilities. E-Trinity will hence provide staff to coordinate the apprentice program and stay in close touch with participating startups, who take an apprentice for the full three years, together with BOS. The Startup Year is integrated as an optional module for excellent apprentices after an initial block of BOS lectures. It facilitates orientation and the choice of startup for the permanent apprenticeship placement.

Challenges

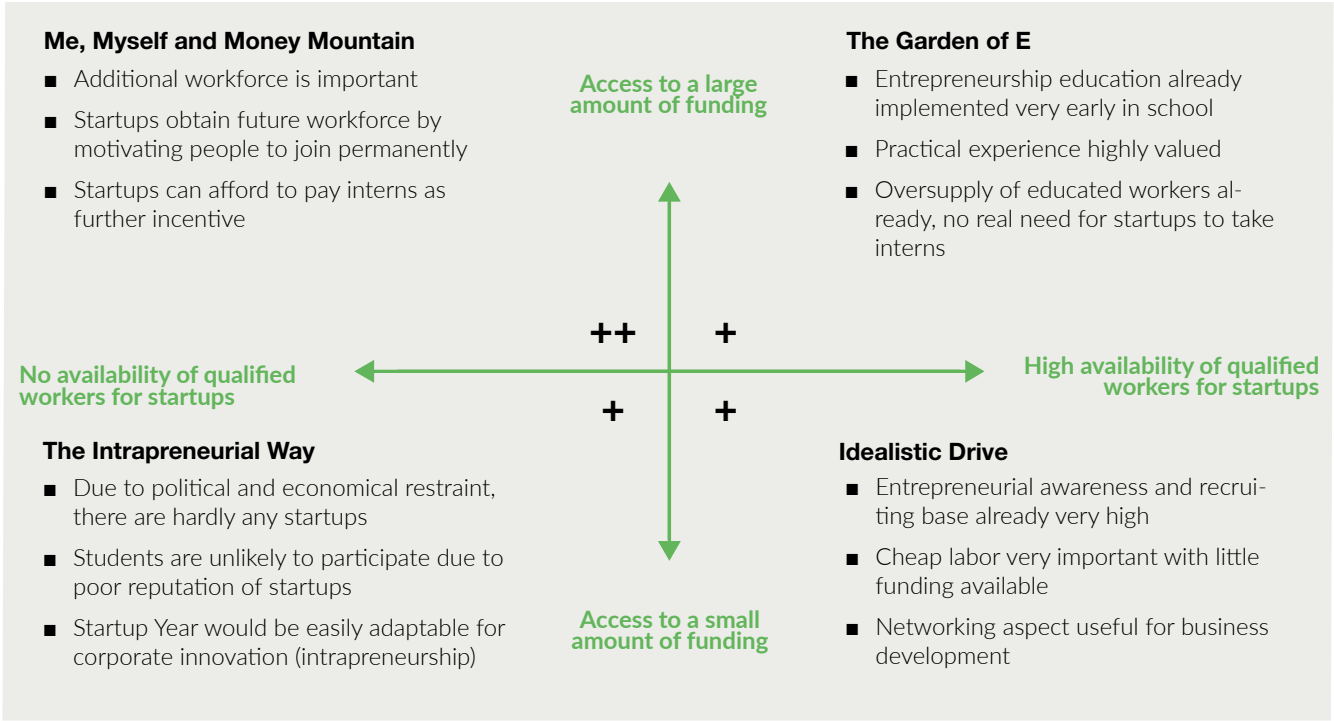
- Getting startups and students on board and developing the network
- Marketing the program
- Changing the school curriculum and creating a schedule for entrepreneurial electives in schools and universities
- Educating teachers
- Getting the European Commission support and funding
- Overcoming bureaucracy

Scenario Fit

The Garden of E
The plan to integrate entrepreneurial education as electives into high schools, BOS and universities is already given. In this scenario, the entrepreneurial spirit is high and startups are the favorite career choice. Financing the program would not be a problem, since fostering entrepreneurial growth is one of the main goals of the state. Next to the already existing schools and universities for entrepreneurship, a program like this raising awareness would receive financing from the state and potentially also donations from private investors. However, there is already an oversupply of qualified workers from which the startups can choose. Taking interns would be solely for the purpose of spreading the awareness of entrepreneurship even further as their labor force is not really needed. Nevertheless, startups would be likely to participate.

In this scenario, social aspects are highly valued and spreading the word about entrepreneurship is a goal not only for the state, but also for the individual. So startups and schools, as well as the government, are eager to promote entrepreneurship in the earliest stage and in as many ways as possible. Therefore, approaching students in various phases of their education and in every school level fits the scenario. However, there is no Bavarian or German government anymore, since the scenario has a European State. Due to this connection the Bavarian administration could expect more applications from all over Europe, since Munich is already known as a startup hub. In search of an internship, people might prefer those hubs over other areas and also take the attractiveness of the city into account. E-Trinity provides a convenient first step for moving to a startup hub and hereby fulfills the goal to promote Bavaria as a startup hub.

Idealistic Drive
In a world with high entrepreneurial awareness and the idealistically driven desire to work in startups and have an impact on society, the need for additional measures is not pressing. However, E-Trinity would perfectly suit the spirit of this scenario and thus be widely accepted among the population. The entrepreneurial apprenticeship would be especially successful as it opens up opportunities for students who before had difficulties accessing startups and relevant education. As there is little or no funding available for startups, the program would rely even more on public funds and not just tax money. However, the attractiveness of E-Trinity to startups would further increase as the possibility to obtain motivated and cheap labor is crucial for their survival in this scenario. The program provides both, as entrepreneurial education is already on a very high level and students are thus very well-suited to perform challenging tasks. In this favourable scenario, it would be a fitting step to introduce a mandatory startup internship in high schools. Growth and survival of startups is only possible by increasing revenue, thus expanding personal networks for sales and business partners is very important. The networking



aspect of E-Trinity could be emphasized to better suit this scenario by offering additional entrepreneurial events and a social platform component.

Me, Myself and Money Mountain

The scenario implies a general lack of employees only for startups which may not be the case for the corporate sector. In this scenario, the image of startups is not positive amongst the general population due to the failure of many startups in the previous two decades. Therefore, the lack of employees is primarily due to a perception problem and not a general lack of skilled workforce. Through E-Trinity, startups can directly expand their workforce through the internships, which can ease some pressure and improve the image. Indirectly, however, it will also help improving the perception of startups. However, since these interns are not fully trained in the beginning, they cannot perform all necessary duties to the extent that a full-time hire could. By offering students the possibility to work in the startup scene before they even make their final career choice, it is possible to attract them to the scene and direct their general career orientation towards startups. As they see the benefits of a startup work culture and the diversity of the tasks, it is likely this will have a positive impact. Through the apprenticeship program, a specially trained labor pool is created from which startups can source talent in the future. As startups do not face any major financial constraints, they can even pay interns and in the future employees, making the program more attractive to students. For this scenario it would therefore be benevolent to make paying wages mandatory and including additional incentives, such as sponsorships for social projects and travelling. This is how the main problem of startups in this scenario - finding skilled employees - can be solved.

The Intrapreneurial Way

The scenario assumes a strong anti-startup environment. Due to previous failures of startups on a large scal, startups are rare and unreputatable. Very strict IP regulations and anti-angel laws prevent larger investments, while increasing risk at the same time.

Simultaneously, corporations opened up to new administrative structures and took over the startup scene's role in innovation. As this "intrapreneurship" requires the same attitude and out-of-the-box thinking as the original E-Trinity program, the program could be adapted to the scenario by relatively simple means. Corporate innovation departments would take the place of startups, while the students and the overall aim of establishing Bavaria as an innovation hub would stay the same. The presence of corporate funds and HR departments would even facilitate the undertaking.

Outlook

In the future, E-Trinity could also expand to people who are already working. Different sectors could be specifically targeted, such as corporations through an entrepreneurial sabbatical or governmental positions through a one-year leave. This would further spread awareness of the program by fostering senior entrepreneurship, reaching out to entirely new demographic segments.

As a second direction of expansion, entrepreneurial education could take a key role in curriculums at schools and universities, as opposted to now where it is typically an elective. E-Trinity will lay the foundation by drafting a curriculum and beginning to educate teachers. Once the resources and the demand are established, entrepreneurship could first become a complementary subject in high schools that students can choose as an elective and later become mandatory. Similarly, a mandatory startup internship could also be introduced. This would further increase the quality of startups through comprehensive education and help access the full potential of entrepreneurs in Bavaria.

The efforts of European and German governmental institutions to increase the supply of available entrepreneurial education are already apparent and awareness of the startup scene is growing in German society. E-Trinity is well-aligned with the entrepreneurial mindset and will contribute in important ways to creating a new generation of entrepreneurs and further increasing the perception of entrepreneurship.

Peter Budweiser, Alex Butts, Florian Ettlinger,
Christopher Helm, Felix Naser

BAVARIAN STARTUP CERTIFICATE

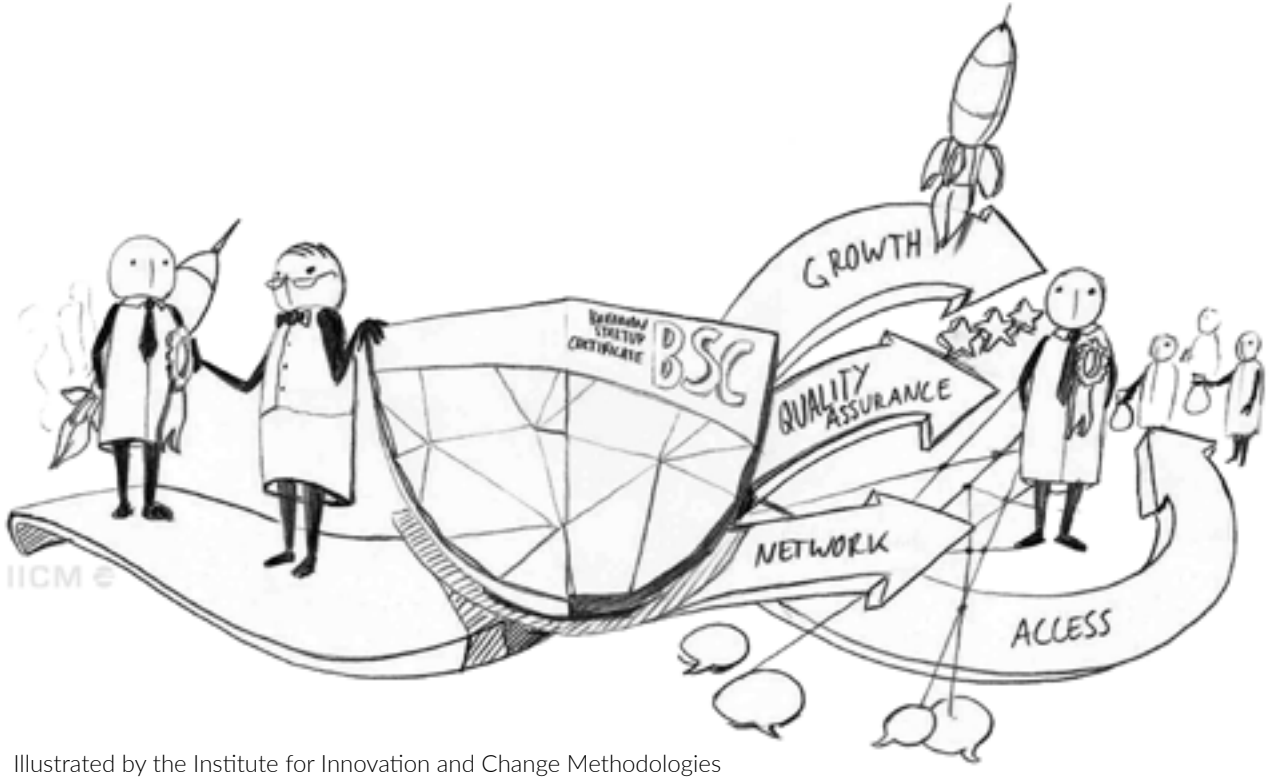
Identify High-Potential Startups

The Bavarian Startup Certificate (BSC) is a quality seal of approval issued to high-potential, high-tech startups. It is awarded by an entrepreneurship institution in cooperation with the Bavarian Ministry of Economic Affairs and Media. It is a reputable certificate for which every Bavarian high-tech startup with a sustainable business model can apply.

Startups are chosen through an application process. Applications are judged every half year a rotating review board comprised mostly of members of state startup support institutions (e.g., ZD.B, BayStartUP, Bayern Kapital), but also investors and corporations. Jury members dedicate one week to the process and are motivated to serve by 1) access to insider knowledge, 2) a sneak peek at new innovations, and 3) an exclusive invitation to the award ceremony and other BSC networking events.

Once a startup receives the certificate, it becomes part of the umbrella brand Bavarian Startup Certificate (BSC) and network. Selected startups benefit from an improved brand image from the innate trust that comes with the BSC and decreased bureaucracy, i.e., easier access to Bavarian state startup support programs. The latter also benefits the Bavarian state by reducing costs and time commitments. In the case of an application rejection, startups will receive personalized feedback about how they can improve and apply again. This will eventually lead to higher quality throughout the overall startup environment in Bavaria.

As part of the BSC network, startups must renew their certificate yearly. In order to make this process as painless as possible, an online self-evaluation tool will be introduced for monthly tracking. The BSC will have access to the data, while it will also benefit the startup. The tool is able to monitor the startups' activities and track the problems and challenges with which startups have to deal.



Illustrated by the Institute for Innovation and Change Methodologies

Business Model

Key Partners

- ZD.B is key partner: promotes and hands out the certificate
- Bavarian Startup Support Institutions: existing public/state players/sources of knowledge (e.g., ZD.B, BayStartUP, Bayern Kapital, WERK.1, Gründerland. Bayern, FLÜGGE)
- Successful startups may serve as jury members
- Key resources we acquire from our partners are jury members & easier access to their programs
- Possibility of forming synergies regarding marketing, bureaucracy, and offers of the programs
- Jury gets opportunity to get in contact with startups and other jury members

Key Activities

- Manage judge panel selection
- Knowledge management, ongoing improvement
- Develop/maintain online monitoring platform
- Organize networking events
- Get startup support programs (public/private) involved
- Marketing campaign to raise awareness of brand (BSC)

Key Resources

- Startup support institutions/programs
- Jury
- Website/Online monitoring tool
- Office space
- Management team

Value Proposition

- Establishes trust in Bavarian startups amongst stakeholders by signaling quality to potential business partners, investors, and customers
- Solves the problem of little reputation of new businesses → more customers
- Reduces bureaucracy for future startup programs and initiatives due to unification of application procedures
- Opens up easier access for certified startups to programs requiring validation (co-working space, advertising space, mentoring, training, events, trade fairs, Bayern Kapital, BayStartUP, Entrepreneurship Centers, delegation trips, etc.)
- Connects to other certificated startups (e.g., network events, online community)
- Entrepreneurial awareness in society

Customer Relationships

Startups:

- Newsletter to let them know what BSC is good for and new developments
- Explicit suggestion of suitable events/programs
- Networking events

Support Programs:

- Expect personal relationship
- Early involvement in the development of the BSC

Channels

- Own website
- Startup events (business plan competitions, networking events, etc.)
- Gründerland.Bayern website
- Entrepreneurship centers
- Startup support institutions (application process: “don’t apply for us, apply for the Bavarian Startup Certificate (BSC) for access to our programs”)

Customer Segments

Customer:

- Bavarian startups

Value also created for:

- Startup support programs
- Customers
- Investors

Cost Structure

Variable Costs

- Marketing
- Events
- Pay the jury allowance expense
- Personnel costs (Management team)
- Website maintenance

Fixed Costs

- Creating program structure
- Office space
- Website creation

Revenue Streams

- Government funds
- Cost savings due to reduced bureaucracy in Bavarian Startup Support Institutions, they can reduce costs and personnel (alternatively charge a renewal application fee after one year)
- No industrial sponsorships, because the BSC should be as neutral as possible

Customer Segments

The two main goals of the BSC are to foster trust towards certified startups and to decrease bureaucracy. In order to fulfill these objectives and to successfully implement the BSC, the benchmark quality of certified startups has to be sufficiently high. Therefore, startups must fulfill certain criteria.

Based in Bavaria
The certificate is only applicable for startups whose headquarters are situated in Bavaria at the time of the application. In order to apply for the certificate, the startup does not necessarily have to be founded in Bavaria. This encourages startups not founded in Bavaria to relocate their offices.

Early stage startups only
The BSC is most suitable for early stage startups. Within the early stage the BSC has the largest impact, as primarily young startups apply for different startup support programs, such as BayStartUP or incubators with free office space. Qualified applicants must have at least an established prototype. Additionally, they may have already closed deals with their first customers or business partners.

The selected startups also benefit from decreased bureaucracy when applying for startup support programs, because the BSC automatically fills out standard application questions and works as prescreening process evaluation committee. This helps redirect startups' efforts back to their product and business development, while still granting them support from various programs.

Furthermore, the BSC helps establish trust among potential corporate business partners, who may be skeptical to do business with a young startup. This fear stems from concern over order fulfillment as well as concern over long-term stability. The BSC will speed up the process of finding new business partners by signaling the startup's quality, thereby diminishing initial concerns held by established businesses.

In addition to having an established prototype, the startup should have been founded less than five years prior to applying. The startup should also fulfill the European Union's criteria for small enterprises (SMEs). The definition of a small business includes having less than 50 employees and a maximum annual turnover of 10 million Euros.

These criteria were selected because the BSC does not benefit large startups sufficiently since they have already established legitimacy with funding, employee retention, and visible growth.

High-tech
In order to receive certification, a startup should be innovative within the high-tech sector. Innovativeness will be judged upon newness of concept, value, process, and/or impact. It should have a clear competitive advantage and demonstrate sustainable market and growth opportunities. Scalability is also considered.

Management team
The management team should have a background in the high-tech field and provide profound knowledge, both within commercial and technological areas. A founding team with a mixture of business and technology backgrounds is ideal. Prior entrepreneurial experience is considered a bonus, but is not mandatory. In order to ensure high motivation within the startups, the BSC requires that all startups' management teams still own majority of the company.

It is the task of the jury to evaluate the startups against these qualitative and quantitative criteria. The assessment (i.e., the application process) is based on this framework and the individual outcome of the application is the result of thorough consideration of the aforementioned criteria.

Value Proposition

The Bavarian Startup Certificate (BSC) provides high potential, technology-oriented startups in an early stage with a valuable trademark. The BSC will work as signal for customers, business partners, employees, and investors that encourages trust in the startup. In addition, BSC certified startups get easier access to Bavarian startup support programs by facilitating the application process, and are part of the exclusive BSC community.

Three side effects of the BSC are increased entrepreneurial awareness in society due to a more present trademark, new motivation for national or foreign startups to move to Bavaria, and an incentive for startups to refine their individual processes in order to get accepted to the BSC.

Value of the BSC trademark
Reaching and persuading the first major customers is critical, but extremely challenging for early stage startups, especially in a B2B context. The high requirements to obtain the BSC will lead to a higher willingness of business partners and customers to cooperate with certified a startup, as its processes and technology are approved by the BSC.

Furthermore, the BSC aims to decrease the failure rate of approved startups. Due to the thorough selection process, the reputation, and the easier access to support programs, BSC approved startups are expected to be more successful and durable in comparison to non-BSC startups. However, the risk of a BSC-approved startup failing cannot entirely be eliminated.

Help to grow in early stage
The BSC trademark labels certified startups as trustworthy. This makes it easier for startups to find new business partners, especially in an early stage where they usually have not yet managed to build up a strong reputation. Thus, selling products or services to customers is facilitated which leads to higher revenue streams and boosts the growth of the startup.

In addition, high reliability, as signaled by the BSC, is also important when it comes to cooperation with business partners. Reliability is pivotal for high-tech startups and technology-intense products. The BSC makes it easier for certified startups to reach and collaborate with key business partners.

Furthermore, early stage startups on the brink of rapid growth require the availability of qualified employees to hire, which is a key success factor. Through the enhanced reputation of the certified startups, they become more appealing to potential employees. This also makes Bavaria in general more attractive to highly qualified workers.

Finally, the BSC trademark does not only help startups by gaining reputation among business partners and customers, but also among investors. Therefore, the BSC can also aid in finding suitable early stage investors.

Easier access to support programs
The BSC provides easier access to startup support programs that cooperate with the certificate. The Bavarian state offers support programs that are very valuable to early stage startups. These programs, for example, contain: delegation trips, coaching, office space at entrepreneurial centers, and/or contacts to business angels and venture capitalists. Easier access to private support programs will enhance this positive impact. In the long term, cooperation with private programs is also aspired to offer more possibilities.

Simplified access to many different programs reduces the

bureaucracy and application effort for both sides, startups and support programs. As early stage startups in particular need to allocate their resources efficiently, they can significantly benefit from this facilitated access.

BSC community
Once granted the BSC, startups automatically become members of an exclusive network. By hosting networking events with industry partners, investors, and influential entrepreneurs, startups become part of a community and are given the chance to seek help, exchange their experiences, gain access to trade shows, and gather new insights. Access to this network is also an important incentive for judges' participation and the cooperation with private startup support programs.

Side effects
First, the introduction and marketing campaign of the BSC will increase entrepreneurial awareness in Bavaria. This will indirectly help all startups, not only the BSC certified ones.

Second, with the certification Bavaria will become more attractive to startups that are not yet domiciled here.

Third and lastly, the BSC enhances the motivation to improve a startup's own processes and quality in order to get the BSC stamp of approval.

Channels

To maximize the value for both the state of Bavaria and its entrepreneurs, the BSC will be rolled out through distinct administrative and marketing channels.

Online presence and partnerships
Everything related to the BSC will be hosted on the BSC homepage, as well as on partner websites. Online information sources, particularly those of partners, are pivotal for informing startups, recruiting participants, and establishing the legitimization of the BSC. The partnerships must be initially forged and later maintained.

The BSC partners are other Bavarian startup support programs that will allow BSC certified startups to apply to their various programs with drastically reduced paperwork and quicker procedures. This will save both the partner organizations and startups significant amounts of time, money, and resources. The official BSC website will list all partnership organizations that accept the BSC for simplified application procedures.

These partners will in promote the BSC for efficient and "better chance" approvals.

Award ceremony
An official award ceremony will occur after every application round to formally present freshly certified startups. This award ceremony will also serve as press day, which media outlets and all (current and former) BSC jury members will be invited to, followed by networking possibilities. This recurring event will serve as a valuable stage for startups to promote their product/service, as well as an incentive for jury members' participation.

Entrepreneurship centers
Entrepreneurship centers will also play an important role in spreading the word about the BSC. Founders seeking advice from centers will be advised by the informed staff about the benefits and the criteria required for application to the BSC.

It is especially critical that young startups see the value of the BSC in order to ensure a sufficient application stream.

Customer Relationships

Startups want to be as flexible as possible when it comes to online services provided by the BSC. This makes it necessary to enable as much self-service as possible.

Time-saving processes
All information related to the startup certificate will be available on the BSC website so that it is easily accessible to all startups and interested parties. Communication with startups will be conducted in an efficient and time-saving manner. Administrative hurdles are cut to a minimum, so that being short on time does not prevent startups from applying. Application forms, as well as the self-monitoring tool, are available online. For questions, there is a point of contact via phone and email.

Transparent criteria and processes
Startups expect transparency throughout the process. Selection criteria will be fully and comprehensibly disclosed. The application process will be explained on the website by a concise summary and a detailed explanation. During the application process, regular status updates are provided via the system. Unsuccessful applicants receive feedback on their general business idea, their shortcomings, and/or process optimization opportunities, so that they can reapply after adjustments.

Targeted information through a newsletter
After the application process and before the renewal of the certificate, communication with the BSC community is sustained through a monthly newsletter. The newsletter shares information about new developments and opportunities for certified startups, events, success stories and personal profiles. In the future, information on suitable events and support programs will be customized to the individual startup.

Community built around BSC
Certified startups are members of a tight-knit community of high-quality startups. Therefore, the relationship with startups is intensified through networking events where all stakeholders of the BSC meet and exchange experiences.

Relationship to support programs
Startup support programs are expected to offer certified startups simplified application processes when seeking admission. Thus, they expect to be involved in internal BSC processes from an early phase on. This is necessary to make these programs more willing to accept the BSC as a valid proof of quality in their own application processes.

Key Resources

In order to offer the proposed values and successfully conduct the associated key activities, three resources are particularly important: the selection and participation of jury members for the selection process, the BSC management team, and partnerships with startup support programs that already cooperate with the Bavarian state or the main partner entrepreneurship institution.

Jury members
In order to obtain a qualified, rotating jury for each half-yearly selection process, a pool of jury members needs to be acquired, managed and available. This pool consists of employees of the partner entrepreneurship institution (e.g., ZD.B), associated parties (e.g., startups holding the BSC) and other non-governmental members, such as corporations and investors.

Management team
The management team is responsible for the organization of the application and selection process as well as for the assembly of the jury. Comprised of employees of the entrepreneurship institution, they are also in charge of promoting the certifi-

cate and maintaining the website and other online tools, such as the monitoring and the application tool.

State programs
Already established state startup support programs are key resources because their goals are aligned with those of the BSC. Hence, the BSC grants easier access to these programs for certified startups. Partnerships with these programs will allow startups to grow their business by obtaining hassle-free sponsorship by helpful support programs. Relying on state affiliated programs removes the necessity for strenuous setting up of partnerships and collaborations with outside organizations.

Key Activities

As the Bavarian Startup Certificate (BSC) intends to offer a valuable trademark for high-tech startups, a significant portion of the key activities revolve around selection in order to pick only startups that fulfill the challenging set of criteria. Certified startups then receive easier access to other startup support programs. Hence, both collaboration with these programs and promotion of the trademark itself are further key activities.

Application process
Applying to the BSC is possible every half year. This is a reasonable compromise between bureaucratic effort and convenience for the fast-paced startup scene. In order to make the process as efficient as possible, the application can be submitted online, where information on topics such as high-tech context, stage of the startup, funding, and facts about the startup's management team is entered. After a first revision of this data by the BSC management team, startups that fulfill these hard criteria get invited to the next selection round.

Additionally, verification has to be handed in. Once accepted to the program by the jury, startups have to request a renewal every year. This ensures that each startup still fulfills the obligatory criteria in order to maintain the reputation of the BSC. The renewal process is a more streamlined and simple than the application process due to the self-evaluation tool.

Jury composition
The jury that selects the startups based on the BSC criteria will consist of ten members from three different groups. A new jury will be selected for every selection round in order to grow the BSC community and to prevent bias.

The majority of the jury members, six, will come from the entrepreneurship institution that sponsors the BSC. Since employed by an entrepreneurship institution, the judges are motivated by their contribution to a qualitative Bavarian startup scene, as well as by their own influence on the selection.

The next two judges will come from Bavarian-based corporations and investors, including both business angels and venture capitalists. Through their participation, they gain insights into innovations and new ventures and can increase their influence in the startup scene while adding a different point of view to the jury.

The final two judges will consist of startup founders who received the BSC in a prior application round. Due to the BSC's yearly renewal requirements, startups can only receive renewal by being a member of the extended jury pool for the BSC selection process. Besides their own interest in keeping the quality of accepted BSC startups high, they also offer experience regarding the problems startups face.

Selection sessions
The selection sessions are the key to success of the BSC. Hosted in different places all over Bavaria over the course of one week, the jury selects early stage startups with a high potential of growth in a high-tech context to be granted the BSC. Additionally, their technology should be approved, they should have at least an established prototype, and first customers and/or partners. Further requirements are that the company is domiciled in Bavaria and fulfills the criteria for small and medium sized businesses by the European Union, as well as majority ownership by the management team. The quality of the company and its processes is ensured by evaluating its maturity level on the basis of Capability Maturity Model Integration (CMMI) models.

Monitoring of the startups that hold the certificate
As certified startups will have to request renewal of the certificate yearly, the renewal process itself is streamlined and as simple as possible to keep bureaucracy for startups and the BSC management team at a low level. Thus, startups are obliged to use an online self-evaluation tool monthly that will be introduced by the entrepreneurship institution. This ensures insights in to the startups' development, as well as helping the startups keep track of their problems and challenges. A positive side effect is that startups are forced to reflect on their current situation which helps improving their overall competitiveness.

Marketing campaign to raise awareness of brand (BSC)
In order to enhance the startups' reputations in the eyes of the customer, the BSC brand needs to be nurtured. Since a large number of Bavarian high-tech startups focus on B2B sales, the marketing campaign will focus on resident corporations and highlight the high quality of the startups that are approved by the BSC. Secondary target groups like investors and other non-governmental startup support programs should also be addressed.

Collaboration with partners
As easier access to other startup support programs is another benefit for certified startups, partnerships and collaborations with both governmental and non-governmental programs need to be set up and maintained. Industry representatives, who are potential judges, should also be acquired and supported.

Ongoing improvement of the selection process
The criteria for the selection of the startups follow defined models used to evaluate mature companies (e.g., CMMI). Thus, these criteria, as well as the whole selection and application process, need to be adapted to the circumstances of the startup scene and weighed according to their impact.

Key Partners

Main partner
The Bavarian Startup Certificate (BSC) is a collaboration between the state of Bavaria and a state-funded entrepreneurship institution. In order to provide a suitable foundation for the BSC, this entrepreneurship institution should have certain characteristics, including an existing network going beyond the entrepreneurial scene, and the goal of fostering progress within the (digital) technology area. A positive public reputation would be ideal.

The BSC takes advantage of existing infrastructure of the entrepreneurial institution. Furthermore, the institution also provides key resources, such as potential jury members and knowledge on existing technologies and the startup environment in general. As its aim is to function as a hub for technological entrepreneurship in Bavaria, the Zentrum Digitalisierung. Bayern (ZD.B) represents a good key partner for the implementation and issuing of the BSC. Of course, other entrepreneurship institutions would be suitable main partners, too.

Bavarian startup support institutions
Other key partners can be divided into two groups: the Bavarian startup support institutions and startups that have already received a BSC certification.

Support institutions include BayStartUP, Gründerland.Bayern, WERK.1, and others, as well as the Bavarian venture capitalist Bayern Kapital. Close cooperation with these institutions is vital to maximize the value of the BSC for all parties involved. Only if processes are pooled, bureaucracy can be reduced to a minimum and thus application time and effort for these programs can be diminished. Additionally, jury members mostly consist of representatives of these partners. By promoting the BSC, key partners further help growing the brand.

Successful startups
Startups that were already granted certification in a prior application round play an essential role as well. They are the face of the BSC and add value by both enlarging the BSC network as well as being a quality landmark for the certificate.

Revenue Streams

Government funds
The main source of funding for the Bavarian Startup Certificate (BSC) comes from the Bavarian government through other government-funded institutions like Bayern Kapital or the "Zentrum für Digitalisierung Bayern". Some funding for the cooperating entrepreneurship institution can be reallocated to the BSC. The required administrative work for the BSC can be done by employees of the cooperating entrepreneurship institution to generate synergies. To avoid conflicting objectives, industry sponsorships should be avoided to ensure the neutrality of the BSC. The BSC fits into the Bavarian government's goal to make Bavaria the most attractive startup hub in Germany with world recognition.

Increased tax income due to more successful startups
The BSC helps to both elevate startups to a profitable stage and attract startups to Bavaria. The BSC will thus increase tax income and generate indirect revenue to the government. Also, more and larger startups will result in a higher amount of jobs for qualified employees. This can contribute to lower unemployment, as well as an increase in income tax revenue.

Indirect cost savings due to reduced bureaucracy
The BSC reduces bureaucracy for other state-owned startup support programs like BayStartUP. Instead of having to manage their own full application process, they can pre-select startups based on the BSC. This reduces administrative costs and thereby indirectly saves money and time, which could be reallocated to the BSC.

"Friends of the BSC" Association
A "Friends of the BSC" Association can be formed for successful startups to stay connected to the BSC and pass on their knowledge and experience to new startups. This can be helpful especially in organizing networking events or for hosting the award ceremonies. Additional financial support through sponsoring of networking events could also come from BSC alumni, since they have an interest in sustaining the value of the BSC trademark.

Cost Structure

This section describes the cost structure for the BSC, categorized into fixed and variable costs.

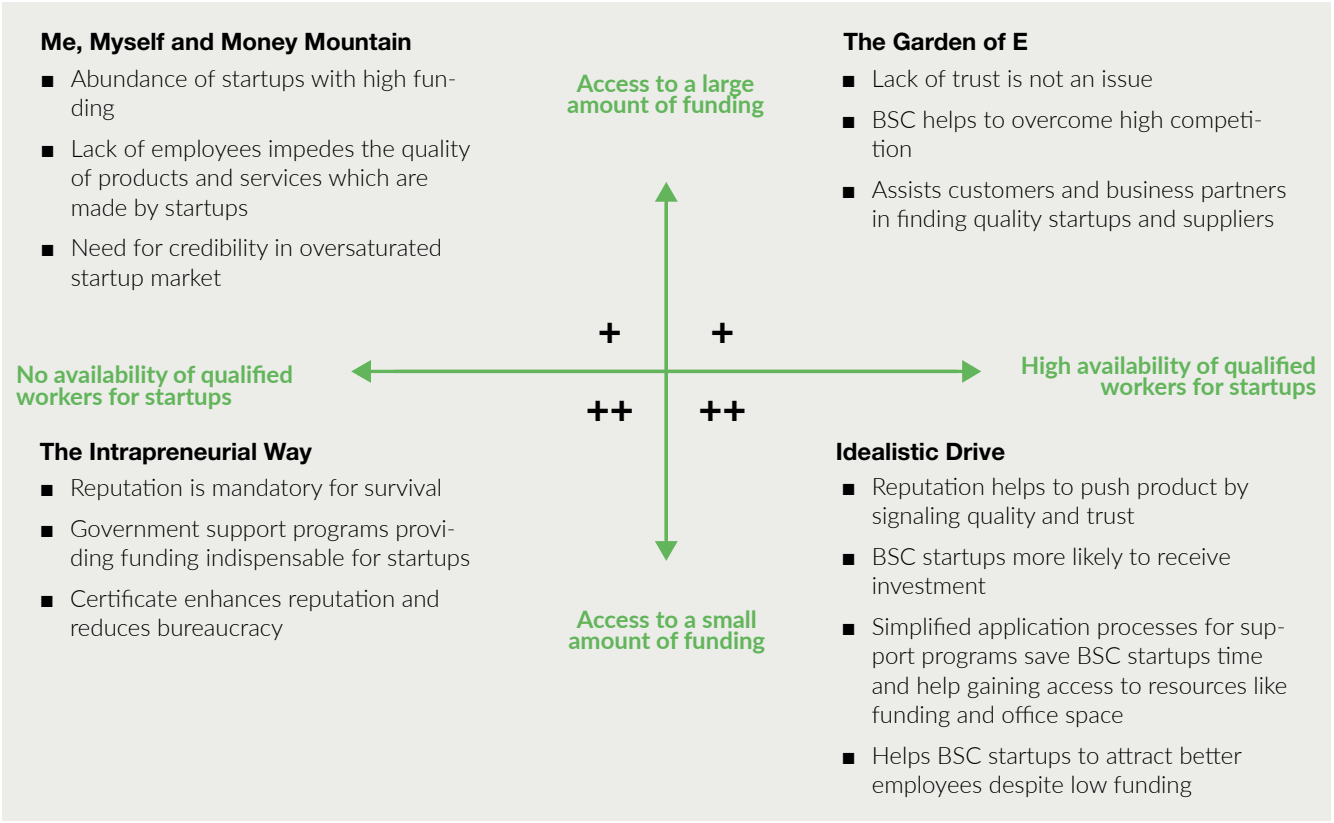
Variable costs
Variable costs consist mostly of costs related to the key activities. Since many of the key activities revolve around the half-yearly selection and incentivizing of the jury, this is the largest expense of the BSC. In terms of both time and money, the jury selection and application process consume most resources. First, there will be a management team set up by the entrepreneurship institution to oversee BSC-related tasks, including managing the jury pool, selecting jurors, granting renewals, and maintaining relationships with partner organizations. Thus, the operative effort during the year is expected to be rather low so that it can be done by one employee, whereas the amount of work during the application and selection processes increases. In these times, the management team needs to be expanded. The judges, although not paid for their service, will receive an expense stipend for their dedicated, one week, group application review. Additionally, the initial marketing campaign to launch the BSC will also form a large expense, but costs will decrease significantly over time as more startups gain the certificate and recognition increases. In contrast, the award ceremony/press event costs will increase as the BSC gains recognition and the event draws more members and attention. Other variable costs include the website, assisting new partners with BSC integration, new project personnel with growth of the brand, and communication with partners.

Fixed costs
The fixed costs are comparably low and occur primarily during the launch of the Bavarian Startup Certificate (BSC). Structuring, staffing, marketing, and launching the program will require a unified effort within the Bavarian Ministry of Economic Affairs and Media, as well as within other governmental organizations that have similar goals to help regional startups. This will require a launch team to define the evaluation criteria, check the criteria and structure with the legal department, define roles, and manage the launch itself. There will be an initial brand setup cost to hire a design agency to create the website, logo, and certificate design. These brand materials will be distributed to every certified startup. The entrepreneurship institution will also need to work with a software developer to create the system that will monitor certified startups for their yearly renewals. Furthermore, there dedicated office space is needed, ideally located with the entrepreneurship institution.

Challenges

- Getting other startup support institutions on board
- Marketing and building a strong BSC brand
- Maintaining quality among startups while keeping the selection process efficient
- Obtaining an unbiased and knowledgeable jury
- Finding agreement among startup support institutions about common requirements and a minimum level of bureaucracy needed

Scenario Fit



Garden of E

Since both funding and qualified employees are abundant in this scenario, the startup landscape is defined by best possible prerequisites. Many highly skilled people want to work for startups and investors are lining up to provide venture capital. Startups are omnipresent and customers and business partners are used to interacting with them, so a lack of trust is not an issue either.

Despite this ideal scenario the BSC still has a positive impact. The favorable conditions of this scenario lead to the foundation of many startups, resulting in high competition. Potential business partners and employees, investors and customers will struggle to sift through the large number of and distinguish between high and low quality startups.

As the BSC signals quality, it helps BSC startups stand out amongst the competition, improving their position and competitiveness in the international environment, ultimately leading to accelerated growth.

In the Garden of E, the BSC positively affects startups and their stakeholders.

Idealistic Drive

A scenario in which many qualified employees want to work for startups, but funding is difficult to access, would be favorable for the BSC. Due to their idealistic drive, the young graduates of the universities are highly skilled and want to work for startups, but the startups still need access to funding. The BSC can open up funding opportunities; the increased trust and simplified access to startup support programs help grow the Bavarian startup ecosystem.

With the BSC, startups can better sell their products with their enhanced reputation. Large corporations, which have a lot of money and power in this scenario, are more willing to cooperate with BSC startups due to the quality assurance. This will increase the revenue streams of the startups and enable them to grow. Together, the trust and increased revenue will encourage investors to invest in Bavarian startups.

The BSC also simplifies the application process for Bavarian startup support programs providing access to necessary aid (e.g., funding and co-working space), saving time and money.

The BSC would be a highly reasonable political measure that contributes to making Bavaria a startup hub in the Idealistic Drive scenario.

Me, Myself, and Money Mountain

In this scenario, there is a lack of qualified employees to work for startups, despite the large amount of funding available to them. With easier access to funding, even the most unpromising ideas and teams receive money, hence leading to a high failure rate. This casts a dark shadow on the startup landscape, making it difficult to gain customers' trust, even for successful startups. Granted to only qualified startups, the BSC helps trustworthy startups to improve their credibility and foster relationships with new customers by helping them stand out in the crowded market.

Additionally, employees prefer working for large corporations because they provide stable and secure jobs. The BSC legitimizes startups with strong potential, enabling them to find employees who would otherwise perceive startup jobs as insecure and unattractive.

Implementing the BSC is reasonable in this scenario to help distinguish quality startups from the rest. However, it does not help reduce bureaucracy nor provide easier access to support programs because there already is easy access to funding.

The Intrapreneurial Way

In the scenario where both funding and qualified employees for startups are nearly unavailable, startups have a poor reputation. Corporations push innovations and offer employees the freedom and environment that was once unique among startups, while still providing the job security that qualified employees appreciate. Investors have other attractive ways to invest their money and even seek opportunities to invest in corporate-owned projects.

By introducing the BSC, the reputation of startups will be enhanced, thus becoming more attractive for qualified employees who are now looking for secure jobs that also offer autonomy. The enhanced reputation also signals credibility to potential customers, thus reducing resources that otherwise need to be spent on sales and marketing.

Funding for startups would need to come from the state in this scenario. Hence, easy access to state-funded startup support programs can be decisive for the success of a startup which makes the BSC a highly appreciated political measure in this scenario. The BSC can reduce startups' bureaucratic effort and opens up important sources of funding. As the certificate also improves the image startups portray to potential investors, it would also be an advantage for the rare private investments still available.

Outlook

In the future, the Bavarian Startup Certificate has the potential to grow into a reputable brand that is known for helping startups grow. Its aim is to create a quality trademark that businesses and customers can trust, whilst also gradually cutting down on bureaucratic procedures for both startups and their support organizations. As more startups are becoming certified, the BSC will also develop into a strong network of entrepreneurially-minded people living in Bavaria.

Once the brand and the network are established, the BSC can expand and use its trademark to help startups through new channels. For example, the BSC-branded traveling public exhibitions could display startups' technologies to the public to further increase brand recognition and provide a unique marketing platform for BSC startups.

Startups are popping up all over the world and governments are spending more than ever to encourage entrepreneurship. Bavaria has all the prerequisites for a thriving startup scene: a strong corporate and industrial presence and good universities, as well as the Bavarian Alps and exceptional quality of life. These elements, in combination with state startup support programs, serve as a worthy launchpad for the BSC and will lead to a more powerful startup scene in Bavaria.

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Felix Wolf, Magnus Jahnen

TechCity

Boosting Innovation & Entrepreneurship in Bavaria

When it comes to entrepreneurship and innovation one always hears the same names – Silicon Valley, Tel Aviv, London. However, despite many highly innovative companies from various industries, such as BMW, Audi, and Bosch, being from Germany, the name hardly comes up. This is due to the fact that Germany is highly regulated in terms of legislation and bureaucracy. This is, to some extent, destroying innovative new technologies before their validity can even be tested. We want to tackle this problem by introducing TechCity, an area within Bavaria designated to boost innovation and entrepreneurship, eventually transforming Bavaria into an entrepreneurial hub.

Technically, all prerequisites for becoming the entrepreneurial country of the 21st century are given: many global leaders from various industries, such as the automotive sector, aviation, aircraft, steel, medicine, pharmacy, and construction, are based in Germany. In addition, we have young, bright people with entrepreneurial spirit growing up in our country. However, the legislative barrier significantly hinders entrepreneurial spirit and innovation in our country, which limits Germany from establishing itself as a hub for entrepreneurship.

The concept of TechCity aims at solving this issue by creating a city-like, urban environment that fosters innovation and entrepreneurship through various drivers. First of all, the area of TechCity will have legislation that differs in various aspects from the general German law, and residents as well as visitors will have to accept the terms and conditions before entering the city. The goal is to establish a prototyping playground for high-tech startups and innovative corporations where new products and technologies can be tested in terms of feasibility as well as market acceptance.

Starting off with a campus-style community of a few startups, TechCity will continuously grow into a state-of-the-art metropolis full of entrepreneurially-minded people. The environment of innovative corporations, high-tech startups, accelerators, research institutions, and educational organizations will create a perfect environment for innovation and technical progress.

TechCity will boost the development of new products and technologies within the city's boundaries so valid concepts can be transferred to the outside world, turning Bavaria into an even more innovative and entrepreneurial state.

Illustrated by the Institute for Innovation and Change Methodologies

Business Model

Key Partners

- Startups (mainly tech start-ups, but also traditional startups with an innovative approach, e.g., a grocery store without packaging - bring own containers)
- Corporations and SMEs
- Universities and research institutions
- Suppliers of infrastructure
- Social enterprises (Social Entrepreneurs)
- Accelerators/Incubators

Key Activities

- Find suitable location
- Attract institutions
- Aggressive marketing
- Select startups
- Develop self-sustaining financial plan
- Set up the legal structure

Key Resources

- Area/Plot
- Infrastructure
- Housing
- Staff of department

Value Proposition

Startups

- Network
- Prototyping playground
- Tourist customers
- BM validity testing

Corporations

- Insights into new technologies
- Network
- Prototyping playground
- Connection to lead users
- Innovative reputation

Government

- Innovative image
- Become a tech hub
- Attracting and fostering talent

Residents

- Live in futuristic city

Customer Relationships

- Lock-in
- Special treatment
- Long term cooperation
- Create tech community
- Government acts in a supporting and assisting role
- Public digital fair every year organized in the area

Channels

- Media and press
- Governmental push
- Fairs
- Direct approaching
- Being approached
- State channels

Customer Segments

- High tech startups
- Corporations & SMEs
- Traditional businesses
- Research institutions
- Universities
- Public institutions (hospitals, libraries etc.)
- Financial institutions
- Tourists
- Residents

Cost Structure

- Cost driven
- Department
- Area/Plot
- Infrastructure
- Supply & Maintenance
- Insurance (risks when testing new technology, especially with autonomous cars and robotics in medical facilities)
- Housing
- Legal department/advisory

Revenue Streams

- Taxes
- Rents
- Profit sharing
- Licensing
- Long-term evolvement of companies and products
- Jobs → also in the supply chain etc.

Customer Segments

TechCity focuses on two major segments in order to foster entrepreneurship and push startups in Bavaria: young, innovative, high-tech startups and established corporations involved in the high-tech field. TechCity brings these two segments together and fosters cooperation between them. In addition, there are various other parties, such as universities, research institutions, and financial institutions (e.g., seed funds and venture capitalists) included.

Startups

The main purpose of TechCity is to build a startup hub in Bavaria. Therefore, it implements various features that allow startups to be productive in a creative environment. First, startups can benefit from prototyping playgrounds, which are a result of the legal framework that makes it easy for new technologies and prototypes to be tested. In addition, the city provides a network and community of entrepreneurial people. TechCity creates a conductive and concentrated hub for open-mindedness, change, technology, and innovation. As a result, it will make Bavaria more attractive for startups and raise the awareness of innovation, high-tech technology, and entrepreneurship in general within the society. Startups located in TechCity will benefit from direct connections to corporations, small and medium-sized companies (SMEs), research institutions, and other startups. The emerging cooperation and collaboration will not just be valuable for the startups, but also for the other participants, thus fostering entrepreneurship on a meta-level.

Corporations

Another important segment of customers of TechCity are established corporations. Through their size, financial strength and experience, they are important partners of TechCity that enable knowledge spillovers and cooperation opportunities for startups, but also research institutions. On the other hand, corporations will also benefit from experiencing the innovative startup mindset and gathering insights into emerging technologies, which could potentially disrupt the current market or even their own businesses. This is a great incentive for these established companies to collaborate with startups. As a result of such collaboration, they can become more innovative and stay ahead of their competitors. Furthermore, corporations could find and enter new niche markets by working together with startups.

Others

In addition to the two major segments, there are different smaller segments being served, such as universities and research institutions, financial institutions (e.g., venture capital firms, real estate investors), residents, and even tourists in a later stage of TechCity. Anyone can profit from the innovative high-tech environment of TechCity.

Value Proposition

General

As mentioned before, TechCity will be a pre-defined area with a looser legislation that brings startups and established corporations together in an innovative environment. The combination of prototyping facilities and the special legal framework offers extraordinary opportunities for startups. New technologies have little-to-no restrictions for testing in a realistic setting. Technologies that are suitable for the market entrance under the regular legislation, in terms of safety, acceptance and feasibility, can be transferred after the validation in TechCity. High-tech companies, but also other startups, can benefit from this opportunity as it provides an opportunity to become more innovative without having to introduce a new product to the entire German market. A second key value is the knowledge spillover that will inherently happen through the dense development of new technologies in the city.

Startups

An environment like TechCity provides startups great networking opportunities with established companies. The exchange of knowledge in such a creative and close-knitted community will happen much faster. An emerging feedback culture combined with the opportunity to test prototypes in fast cycles will lead to high-speed and top-notch development of products and technologies. Furthermore, by moving to TechCity startups will be able to profit from immense recognition opportunities, which will be beneficial in order to establish their brand. Startups that are growing within TechCity's ecosystem will have a greater chance to gain access to corporations and SMEs, which can be key partners, lead customers, and/or role models. Connecting with other businesses in TechCity is a door-opener for startups and could also help them in developing and finalizing their product with input from other, more experienced companies in their field or research institutions. TechCity will be a center of attention to the whole high-tech startup scene and therefore inherently attract potential customers. Additional events, fairs, and competitions will attract more investors and the opportunity of being recognized by potential investors delivers value to any young company settling in TechCity. As a result, TechCity will be an attractive destination for national and international startups that generates tremendous value to Bavaria as a high-tech habitat in the upcoming decades.

Corporations

Corporations that decide to establish a settlement in TechCity will experience constant exposure to cutting-edge technology. Staying up-to-date with state-of-the-art developments will keep large corporations innovative and protect them from being disrupted by young and emerging startups. Companies will have the opportunity to cooperate with startups and co-develop products and technologies. This will prevent them from disruption by more innovative startups, which could happen in a scenario without cooperation and collaboration between the two. TechCity will be an appealing space for talent, so corporations will also have the opportunity to recruit bright people with an entrepreneurial mindset. If a corporation wants to not only recruit people, but also build companies themselves, they can set up corporate accelerators or corporate venture capital funds within the city to combine all these positive aspects. Bavaria is an optimal location since many big industrial players already have settlements in Bavaria, so raising their innovation potential through TechCity will be an additional advantage. If TechCity is able to have partners and startups from outside Bavaria, or even outside of Germany, moving to Bavaria, additional value is added. TechCity will contribute significantly to the long-term economic development of the state.

Government

The Bavarian government is not a direct customer of TechCity, so the delivered core values for the government are mainly second-tier values. These originate from the fact that TechCity creates value propositions for startups and established companies as elaborated on previously in this section. The main goal of TechCity will be to attract startups to Bavaria and foster entrepreneurship, subsequently making Bavaria a hub for entrepreneurship in Germany and worldwide. As a consequence, this will strengthen the Bavarian economy in the short run, since companies will move to Bavaria; and even further in the long run, as these companies will develop new products and technologies that emerge into larger, and even new, companies. This will then lead to job creation within these companies as well as adherent job creation through supply chains.

Channels

Awareness Phase

As mentioned earlier, the main goal of TechCity consists of promoting entrepreneurship by bringing together young and innovative startups with renown, experienced corporations. In order to maximize the benefit for all participants, the project will be realized in a specifically chosen area that will be developed into a dense, city-like area step by step. The greater vision is to become a metropolis of innovation in Bavaria, where high-tech startups, research centers, universities, and corporations can collaborate and flourish together. As a result of the cooperation and collaboration in such an innovation-friendly, high-tech environment, new and innovative products and services will evolve. In order to achieve this vision and to create such an entrepreneurial hub that will be valuable for the state of Bavaria and for all participating parties, TechCity will make use of a wide range of channels. The initial focus will be to reach out to potential partners. This will be done through traditional media and press, direct approaches, and government channels like ministries and chambers of commerce.

Since startups and SMEs will play a key role in TechCity's ecosystem, during the initial phase it will be inevitable to also reach out to entrepreneurship centers due to their strong affiliations with startups. Moreover, TechCity will also target universities and other academic institutions, traditional and new media, as well as fairs, exhibitions, and other events will be used to raise awareness about the project.

Evaluation Phase

TechCity's task force will be the first point of contact for all communication related to partnerships. As an appropriate choice of partners is essential for the success of TechCity, initial partnerships will only be offered to established corporations that fulfill the criteria described in the legal framework. All other institutions that wish to participate in the project will have to apply.

The Task Force will be responsible for administering all applications. In the early stages these will mainly come from startups, whose application process is divided into a two-step selection procedure. In the first step the task force members will perform an initial filtering of the applicants. After this a selection committee, composed of representatives from the partnering corporates will vote for the best applicants. By splitting this process up into two sub-processes, it is ensured that the TechCity administration and the corporations have a say in the final decision, which makes the process fairer. In a last step the task force will contact successful applicants and maintain a waiting list, in case any startup opts out from participating in the project.

Delivery Phase

TechCity aims to become a place where innovation is fostered and nurtured through close collaboration between startups, research centers, universities, and corporations.

To ensure that the residents of TechCity exchange ideas and share knowledge, the task force will arrange events, seminars, and workshops, as well as encouraging and incentivizing residents to do the same. Having such a connected and open environment can help all partners, specifically corporations and startups, to identify areas of mutual interest or knowledge that could lead to proliferous cooperation and collaboration.

Later Phase

An online system will be in place to connect the residents with the administration, mainly the TechCity task force and the legal team. The feedback collected via the online system will not just be used to improve minor tasks, but will also function as a tool to gather feedback related to legal regulations. If necessary, the legal team will be able to change and refine legal terms accordingly and thus provide an optimal environment for innovation.

Customer Relationships

As TechCity will have a broad variety of customers (e.g., startups, corporations, residents, etc.) it is important to bundle communication into one contact point, which will be the task force. Besides handling all internal and external communications, they will also work closely with the legal team to ensure that the proposition of making TechCity an innovation-friendly and attractive destination for startups, research centers, and corporations is achieved. In order to deliver the promised value to all stakeholders, the task force will stay in constant contact with the residents of the city. A special online portal that will serve as a communication center and a bridge between residents and the city administration will be accessible to the city's residents. Through this online portal, startups and corporations will be able to give feedback on various matters. Residents will also be able to reach the legal team through a special section in the online portal. In addition, the portal will also include a wiki, where users will be able to interact with each other, as well as a crowd-sourced Q&A section, which will help the residents to answer each other's questions.

Another duty of the task force will be the organization of events that promote interaction among residents. This will include informal social events, but also workshops and seminars where startups, research centers, universities, and companies can share their knowledge with each other. These events would not only serve as knowledge-sharing platforms, but would also give participants the chance to identify potential cooperation areas and form personal connections.

To promote a collaborative environment, TechCity will also include co-creation spaces. These spaces will, unlike office or housing units, be provided for free and offer residents the opportunity to gather in an informal setting (e.g., meeting of clubs and associations). By being available at all times and offering the chance to interact with other residents, the co-creation spaces will be an important tool to increase the connected and open spirit in TechCity.

Last, the residents will also be able to reach the administration of TechCity at their offices seven days a week. This ensures that the human component of personal interaction does not get lost in a city designed to be as digitalized and progressive as possible.

Key Resources

Real Estate

In order to realize TechCity, the first requirement is to find and acquire a suitable area. Real estate is thus one of the primary key resources, especially in the early planning stages. As residents of the city will be mainly academics and employees of startups and corporations, connectivity and easy convenient transportation to and from the city will be highly important in their everyday life. The city will therefore be built in an area that is close to a major city in Bavaria, but far enough to still allow an expansion in the long term future. Moreover, TechCity will have easy access to highways, nearby airports, and allow easy and convenient travel to and from the city via public transport (e.g., trains and commuter railway system).

Infrastructure

Once the land for successfully building TechCity has been allocated, the second step will consist of building the necessary infrastructure. Building infrastructure will be a key phase as it will not only focus on the development of physical spaces, but also shape the foundation and structure of the city. Infrastruc-

ture in TechCity would include office spaces, research centers, housing units, roads, parks, electricity, and the optic fiber cable networks that would digitally connect the city.

Capital
The acquisition of land as well as the development of infrastructure are cost-intensive tasks, especially as the planned infrastructure will be highly modern and technologically forward. To achieve such an ambitious goal, copious financial means are required. Capital as a key resource will not only be required for the development of the infrastructure, but also for the routine maintenance of the city.

Legal Framework
As TechCity's main value for companies, nascent and established, is the provision of an innovation-friendly, "real world" environment, in which they can test new products and technologies, the legal framework is of utmost importance. The legal framework can be seen as one of the primary unique selling propositions (USP) for TechCity, as it differs from the otherwise restrictive and complicated laws in Germany. TechCity will thus implement a special legal framework adjusted to the needs of innovative companies. The framework will make it possible for startups and corporations alike to test new products, services, and technologies with lead users in a real life environment without much effort or cost (e.g., the testing of drones for delivery, use of autonomous cars, etc.).

In order to ensure an environment that fosters innovation to the maximum, the legal framework will continuously be refined and adapted to the current needs of companies by a team of legal experts. By doing this the regulations will stay tech-friendly, always fostering new innovations. This will not just help TechCity to be an innovative environment, but will also help the city to become an attractive destination for corporations and startups alike. Besides administering the legal regulations, the legal team will also be responsible for helping startups and corporations with matters related to the patenting of intellectual property. The legal team will also be of assistance in cases where new ventures evolve as a result of collaboration within TechCity (e.g., two companies collaborate on a project and want to found a new startup that will manage the project).

TechCity task force
TechCity will have a special task force divided into various subteams for each subject (e.g., legal team, general administration), which will be responsible for the smooth operation of the whole city. The task force will be the first contact point for all outside communication, such as cooperation requests, and will additionally work as a bridge between the residents within the city. Another area of responsibility, as mentioned earlier, will be the organization of seminars, workshops (between the different stakeholders (e.g., startups, research centers, corporations). This will help the participants to identify areas of mutual cooperation.

Key Activities

In order to successfully build TechCity and create a sustainable project, a variety of key activities need to be done in different stages. Some activities will need to be done in advance, mainly infrastructure-related, while others will happen on a continuous basis (e.g., maintenance of the city and administration of the legal framework). In the first phase the government needs to find a suitable area to build and to establish a first legal framework that will incentivize startups and corporations to participate in the project. As soon as the basis of the city is built and the first companies have moved in, the government will have to make sure to sustain the vision of TechCity.

Find suitable area
Regarding the location of TechCity, we propose to further investigate the triangle between Munich, Nuremberg, and Ingolstadt. This area is close to three major cities in Bavaria, well connected, and still offers enough free space that can be used. As a high-tech metropolis is not built within one day, but will evolve from a small campus-like area to a big city, it is important to plan for the long term. More precisely, it is important to choose a location big enough for the future expansion of the TechCampus into the actual TechCity.

Additional important factors regarding the location include the following:

- Convenient and easy access in order to make it desirable for companies to send employees to live there without losing contact to nearby major cities. Easy access will also attract tourists and visitors of the city at a later stage
  - Airport
  - Highways
  - Public transport (e.g., train and railway system)
- Attention to distance from a big, renowned university will facilitate the cooperation between the university and companies within TechCity (e.g., in form of a seminar where students work together with a company in TechCity). In addition, companies will have easy access to new generations of talent
- Use of existing infrastructure will shorten the process of setting up infrastructure and cut costs
  - Supply
  - Connectivity

Establish legal framework
In order to make TechCity attractive and innovative with regards to technology, a unique technology-friendly legal framework has to be established within TechCity. This legal framework will be developed in a way that it provides lowered restrictions with regards to technology, innovation, and prototype testing. To draft such a legal framework, the state government will have to reach out to legal experts who have the skills to create such a framework. Establishing the legal framework will be a vital task for the success of TechCity as the attractiveness of the project for stakeholders rises and falls with the conditions of the legal framework. Drafting regulations that offer flexibility could lead to the framework being misused. This will be a challenge that the legal experts designing the framework, a mixture of the TechCity legal team and external lawyers and experts, will have to overcome. The framework will also have to comply with fundamental rights of Germany or Europe. The legal framework should take the following aspects into consideration:

- Allow easy testing of new technologies within the city (e.g., autonomous cars and drones can be used without any restrictions)
- Allow easy adaption of new technologies
- Allow quick response time with regards to implementation of new laws
- Have a cohesive approach toward the existing laws of the state

Attract startups and established corporates
The most important stakeholders of TechCity will be innovative startups and open-minded corporations, which are the main enablers of an innovative environment. Therefore the government will need to attract companies, but also people who want to live in TechCity. In the first phase, the government will need to recruit established companies to open up branches in TechCity. As this will be highly complicated, small branches are sufficient for the very early stage since this will be about attracting startups with big names for potential alliance. This will subsequently attract the first startups and other institutions

that will benefit from collaborating with big corporations, such as BMW and Siemens. The aim is to generate a movement by landing the first big corporate names and up-and-coming startups. In order to attract the first batch of members, startups and corporations will be targeted through different channels, such as the media and press. This will increase the general awareness of TechCity and its attractiveness. By offering startups an innovative environment and the possibility to collaborate with corporations and educational institutions within a community of like-minded people, they will likely be interested in the project. The proximity to a major city will offer young founders the possibility to still enjoy a fun, sociable lifestyle (e.g., bars, restaurants, night clubs) while similar establishments are being developed within TechCity. Startups will benefit from the various offers, such as prototyping playgrounds, a special legal framework, governmental support, cooperation with corporations, and an innovative network and environment. By raising the awareness of TechCity within the startup scene, there will be a certain momentum that will consistently reinforce the interest in TechCity.

In a later phase the government also has to attract corporations to move to TechCity (besides the small corporate branches that are being used to attract startups in the beginning). This will be a more difficult task, as large corporations do not have the same requirements as startups; they typically have headquarters in a major city already and use existing, working structures for all of their processes (e.g., market testing and prototyping). Nevertheless, established companies will also benefit from the features Tech City offers, such as the special legal framework and the overall environment. One possibility to attract corporations will be by creating hype around the project in the media and press, but it is very likely that the government has to create additional incentives to convince established companies to move there. However, corporations will most probably be attracted by the possibility to become more innovative via the loose regulations within TechCity that allow easy prototype testing. Another possibility to attract startups will be tax advantages or government subsidies for innovative products generated within TechCity. However, these options need further analysis regarding feasibility and profitability for the government. The government will directly approach corporations and advertise TechCity.

Stimulate cooperation & collaboration

In order to guarantee knowledge spillover and a productive exchange of ideas, it is essential to have a sophisticated and valuable network that promotes cooperation and collaboration between the different stakeholders based in TechCity. The government will therefore need to implement certain stimuli to foster cooperation between all stakeholders. This can be achieved through organizing different events, such as fairs and project exhibitions, speaker series (e.g., by inviting founders from other innovation hubs, such as Silicon Valley or Tel Aviv to TechCity), innovation competitions (e.g., for nascent-stage startups that can win financing), and hackathons (i.e., one week competitions, where participants will have to develop a product/service to a certain topic). Such social events will not only foster the collaboration and cooperation between corporations and startups, but also create a sense of community within the city.

In order to maximize the benefit for all stakeholders the task force will not only act as a mediator between startups and corporations, but will also ensure ongoing progress regarding collaboration. Together with the startups and the corporations, the task force will define certain milestones in a project and develop a time schedule to achieve these milestones. In addition, it is the responsibility of the task force to make sure that these milestones are reached and that every party does their job properly. This can be achieved via weekly project meetings with both partners. In those SCRUM-like meetings the task force can review the progress, address issues of the cooperation partners and collect feedback regarding the collaboration.

The task force will also be responsible for initiating a certain cooperation scheme among corporations and startups. Startups will be able to apply for open alliance projects, pick a corporation they would like to work with – if this corporation is currently available – or offer a collaborative project themselves. Also, corporations will be able to search for interesting startups with which to work. The task force will manage all these connections, screening every application, noting the preference set of each applicant, and finally distributing the available resources fairly to the applicants.

Key Partners

Established companies

Corporations are TechCity's most important partners. To build a highly innovative and advanced environment, the government needs the cooperation of corporations from the high-tech sector. Corporations that are active in the high-tech business can help setup the initial infrastructure. Also, by partnering with established corporations TechCity will become more attractive to startups. Corporations with a larger presence in the TechCity will help keep the city alive and make it attractive, especially for startups. The networking opportunity that is available to startups and corporations alike will be one of the main reasons for them to move to TechCity. Corporations will be able to mentor, financially support, and cooperate with startups to build synergies.

Legal experts

One of the advantages of TechCity is the technology-friendly legislation that enables TechCity to be used as a testing ground for new technologies. Legal experts will be required for the formulation of pro-technology regulations. The government will need to work with the legal experts to establish a new set of regulations solely designed for the purpose of TechCity. To make these new regulations useful and to ensure that there are no discrepancies, experienced partners in the legal area are needed. The legal experts are not only needed for the initial setup of these terms, but also to guarantee an ongoing legal progress and proper adaptations to react to current changes regarding the most recent technology standards in the industry.

Real estate investors

One of the most cost intensive factors in the development of the TechCity is going to be the acquisition of land and subsequently building the office space, flats, and other facilities. Real estate investors will be brought in during the pre-financing stage of TechCity. Partnering with real estate investors will make it easy to initially finance the whole project. The real estate investors would be able to lease TechCity infrastructure in advance (for 50-100 years). Real estate investors have to agree to special terms when renting space to startups. Startups will receive rent subsidies for a period of 12 months.

Revenue Streams

Tax laws will apply in TechCity just like other cities. Therefore, the state could benefit from the residents and companies moving to TechCity. The companies that will move to TechCity will primarily be in the high-tech industry and have high growth potential. As these companies grow, it could lead to a higher tax revenue collection. The revenue collected through the taxes could be reinvested not only in TechCity, but can also benefit traditional companies as well. TechCity will also be a source of revenue for the companies involved in the supply

chain as they will benefit from the new industrial area, which will also generate tax revenue.

Territory that is declared building terrain would be given away under a long-term land leasing program to companies and real estate investors. That way, a lot of financial needs can be covered from the beginning.

One additional source of income would be charging a yearly membership fee to the corporation that decide to move to TechCity. For the first year, there will be no membership fee but it will start to incur from the second year. This fee will be based on the number of startups with which a corporation decides to work. Corporations working with more startups will incur a reduced membership fee. Moreover, this fee will be adapted accordingly to the progress within the cooperation of a startup, which will be based on predefined milestones.

Cost Structure

The cost structure of TechCity can be distinguished between initial costs and operating costs.

Initial Cost

The TechCity task force will be responsible for the planning of TechCity. Besides the costs for this department, a legal task force will be established to develop the general legal structure of TechCity. This task force will also need external experts for advisory that need to be paid. With the start of the construction of TechCity, the government will need to provide the basic infrastructure for the establishment of TechCity. This will include general urban development as well as connections to public transport.

Real estate will account for the major part of the initial expenses. Government will provide relatively small capital contribution for the acquisition of land, but the major real estate costs will be covered by real estate investment funds. These real estate funds will be able to get the land under a special lease program (terms will be decided by the state government) and they will build on this land. Moreover, as partners of the TechCity these real estate funds will be allowed to rent to the tenants of TechCity. Government will provide rent subsidies to early stage startups, whereas corporations will be offered to build their own office buildings on the city's ground, thus financing it themselves. This new building terrain sold to investors and corporations will actually provide initial revenue for the state.

Operating Cost

TechCity will operate like a typical city (with infrastructure like any other cities), so there will be general municipality costs. These costs include, among others, local authorities, utilities, and urban maintenance. TechCity will incur additional costs due to the fact that it will need the constant assistance of a team of legal experts in order to ensure that the city regulations are innovation- and entrepreneurship-friendly.

Furthermore, TechCity will have significant publicity costs as a team of marketing experts and sales people will be needed in order to establish the TechCity brand worldwide and attract startups, established companies, and investors.

Challenges

- Financing the project (land, buildings, infrastructure in the beginning; maintenance in a later stage)
- Setting up and introducing a valid legal framework
- Quickly reaching critical mass of startups and corporations
- Ensuring collaboration and cooperation between startups and corporations

Scenario Fit

Me, Myself and Money Mountain

Since a diverse and talented entrepreneurial workforce is one of the key ingredients for a thriving entrepreneurial scenery, there will be less influx of startups into TechCity due to the lack of talented employees interested in working for a startup. Nevertheless, TechCity could still be the preferred destination for members of the German high-tech scene as it provides its residents with a unique platform to test new technologies, products, and services. Collaboration with startups will still be advantageous for corporations as startups are good at producing and putting innovative ideas into action quickly due to their agility. Moreover, TechCity will be an environment with a high concentration of talent where corporations can recruit bright people that are working in the city. Startups founded and established in TechCity will have an opportunity to prosper by helping companies innovate and solve challenging business problems.

In a market where very high amounts of capital are easily accessible, venture capital firms and other investors will be attracted to TechCity due to the high quality of its startups. The startups based in TechCity will be pre-filtered by TechCity's task force and then selected by a committee of corporate partners. This selection process will give them a positive reputation that will make them interesting for investors in times when quality startup talent is hard to find. Due to the larger availability of capital, startups in general will have greater freedom to operate and develop their products. Under these circumstances, the talent concentration and shortened development and testing cycle of TechCity startups will give them a huge competitive advantage.

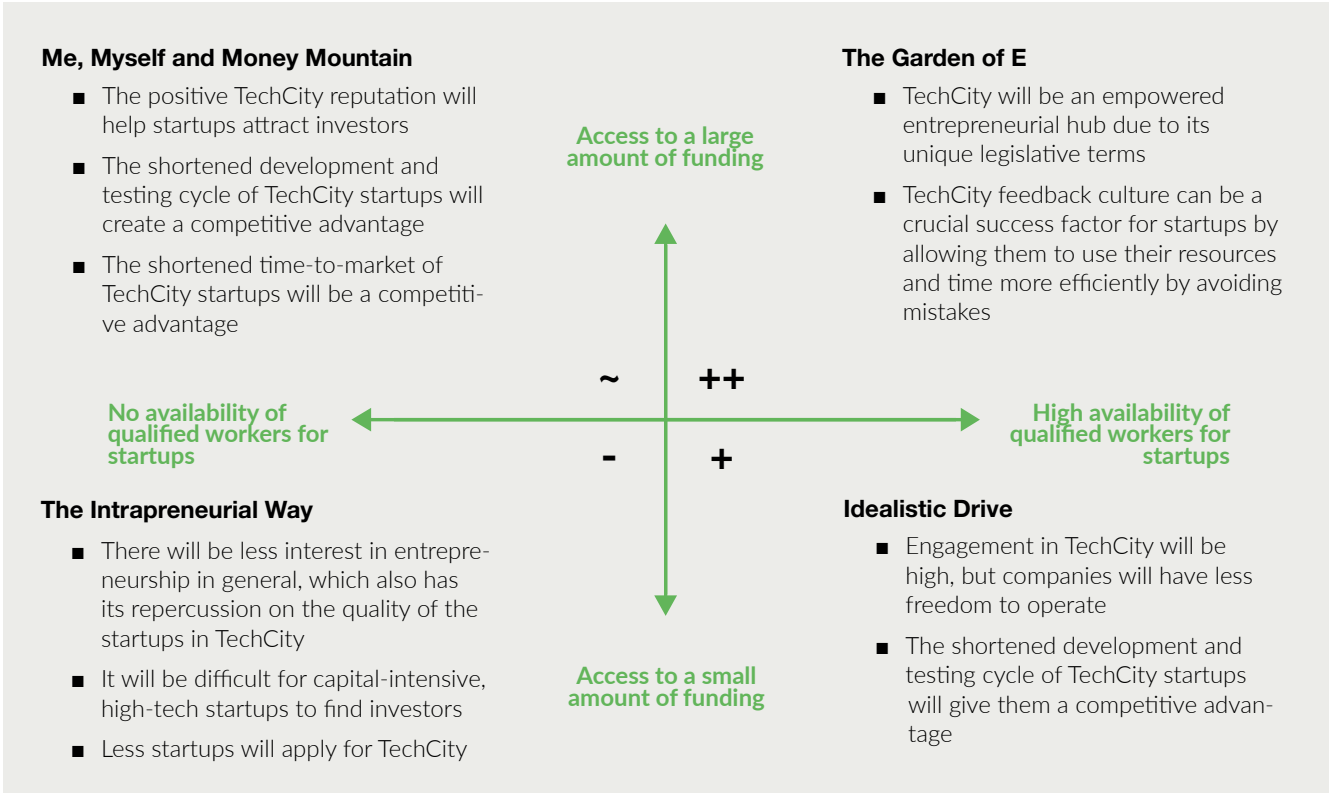
The Garden of E

Under favorable circumstances, TechCity will be an empowered entrepreneurial hub due to its unique legislative terms and ecosystem. The high availability of both capital and talent will give startups in general greater freedom to operate and develop more ambitious products. Nevertheless, the effects of the excellent conjuncture on TechCity startups will be a lot stronger than on the rest of the startup landscape due to the benefits that come with being part of TechCity. The shortened development and testing cycles due to less bureaucracy, the prototyping playground, and close collaboration with other companies will help TechCity ventures to distinguish themselves from other startups in the early stage. Also later stage startups will have an advantage over non-TechCity startups due to the fact that they can shorten their time-to-market by benefiting from the market knowledge, consolidated networks, and customer base of their established partners with which they collaborate. This will provide them with the means to launch and test their products for market fit early. Another factor that will benefit them indirectly is the increased knowledge sharing between TechCity startups due to the city's active feedback culture. This will enable them for success in times where the competition with other startups will be high.

Moreover, TechCity startups will receive preferred treatment from investors because of their quality reputation.

The Intrapreneurial Way

Under these circumstances, startups that would benefit from TechCity's infrastructure and legislation will rarely exist, so TechCity's focus would be the development of corporate technologies. As there will be less interest in entrepreneurship, less startups will apply for TechCity. Moreover, it will be much harder for startups to gain access to qualified employees and funding. Nevertheless, TechCity could still be an important



high-tech hub in Germany and therefore appealing space for talent interested in developing new technologies in a corporate setting. But the positive impact will be more on corporations and innovation within them instead of directly fostering entrepreneurship in Bavaria.

Idealistic Drive

Due to the high availability of qualified people, the engagement and number of applications to TechCity will be high. Unfortunately, companies will also have less freedom to operate due to economic constraints. Also investors will be more selective in what they invest in and the TechCity appellation of origin will be beneficial for startups when it comes to attracting investors. Collaboration between established companies and startups will flourish due to the fact that corporations will see the opportunity of letting startups assist them in solving challenging business problems in an economic way and expand into future markets by commercializing the innovative ideas and products they produce. Under these circumstances, it will be extremely important to protect the interests of startups due to their weak negotiation power as a consequence of the low availability of capital. Moreover, with little funding available, it will be challenging for capital-intensive, high-tech startups to find investors and the number of startups in TechCity will decrease.

Outlook

In the beginning, TechCity will be a small place with only a few startups, research institutions, and corporate offices. Within a short timespan, housing units will be developed to accommodate all workers. This will begin a new phase for TechCity as it will transform into a small town. Meanwhile, through the government's marketing efforts, TechCity will attract more people. After another couple of years, TechCity will grow into a city comparable to a mid-size German city. From this point on, TechCity can develop into an autonomous city with a primary focus on developing and evaluating new technologies. The government would then only do the basic maintenance as other stimuli to foster cooperation and innovation would no longer be needed. However, the government will continue its marketing efforts and will work to ensure that the environment of TechCity is pro-innovation. The government will also ensure that startups and corporations are working together. Since one of the core pillars of TechCity is to foster collaboration between the residents of the city, the government will be required keep a constant check on the level of collaboration among participants.

In the future, TechCity could make Germany, especially Bavaria, a startup and high-tech innovation hub. TechCity has the potential to foster the creation of innovative technologies and increase the awareness of entrepreneurship within the Bavarian society and at the same time add value to the German economy.

With its high concentration of highly skilled people and innovative companies, TechCity could emerge as a serious alternative to existing technology and startup hubs worldwide. This will attract entrepreneurs from around the globe and help Germany further establish itself as a technology hub.

Due to the special legal framework applied in TechCity, laws regarding new technology will have a chance to be evaluated before being applied elsewhere. This might make it easier for legislators to keep up with technological development.

After one or two decades, TechCity could become a role model for the establishment of similar projects internationally. There will be a network within these "TechCities" and due to the concentrated mass of highly skilled people, these cities could become the engines that drive innovation around the world. TechCities will have such a huge impact that nearly everyone working in the tech field will come into contact with TechCities. TechCities will be the most attractive accelerator for startups and a very attractive way for corporations to stay innovative. Research institutions are strongly involved in TechCities as well.

Alexandra Fritzen, Christian Ittner, Jaakko Nurkka,
Timothy Smith and Victoria Hauzeneder

Investor Visiting Program

Bringing Foreign Capital into Bavarian Startups

The Investor Visiting Program selectively invites foreign investors to short visits in Bavaria. It aims to familiarize them with the investment conditions in Germany and to connect them with Bavarian startups to enable investing in them. At the same time, the Investor Visiting Program allows investors to experience the Bavarian way of life (Bayerische Gemütlichkeit) through cultural events. Foreign investors profit from the comparably low valuations of Bavarian high-tech startups, while Bavarian startups profit from the improved access to funding, thus reducing the need to move abroad for funding.

Risk capital investors, such as business angels or venture capital (VC) managers, usually operate in specific investment regions. Unfamiliarity with the boundary conditions for investments, such as tax or legal structures, combined with a lack of access to international startups, prevent investors from operating internationally. At the same time, the success of large startup hubs, such as the Silicon Valley, has led to an influx of large amounts of venture capital to small regions. This inflates the valuations of startups in those regions, which in turn makes equity investments less attractive. In international comparison, the volume of venture capital in Bavaria is very small. Foreign investors would benefit from the comparatively low valuations of Bavarian high-tech startups, thus making Bavaria an attractive investment region once the initial hurdles for investors are overcome.

The Investor Visiting Program offers four-day seminars, where interested investors can attend workshops about investing in Bavaria, meet Bavarian startups and get a chance to experience Bavarian culture. After participating in one of these seminars, investors become a part of the exclusive Investor Visiting Program Member's Club, which provides them with lifelong access to the Bavarian startup scene as well as the investor network. As part of the Member's Club, the investors gain access to a portal that keeps them informed about news regarding the Bavarian startup scene and the Member's Club network.

Former participants of the Investor Visiting Program, who subsequently invested in Bavarian startups, have the chance to become ambassadors for the Investor Visiting Program. Ambassadors can issue a limited number of invitations for Investor Visiting Program events to further investors. In order to kickstart the program, a small number of initial ambassadors is identified through local networks, who then personally invite suitable foreign investors to attend the first seminars.

Illustrated by the Institute for Innovation and Change Methodologies

Business Model

Key Partners

- Ambassadors
- Investor networks (e.g., VC Club Munich, Munich Business Angel Network)
- Institutions governing a network of Bavarian startups (e.g. BayStartUP, Bayern Kapital)

Key Activities

- Acquisition of ambassadors & investors
- Administration & communication of Members' Club
- Management of portal

Key Resources

- Network of ambassadors
- Network of Bavarian startups
- Members' Club
- Portal for members
- Neutral position of government with regards to promoting startups

Value Proposition

Foreign investors:

- Make good value deals
- Meet potential investment targets in Bavaria
- Gain knowledge about Bavarian legislation
- Networking with other investors
- Experience Bavarian culture, nature, countryside

Bavarian high-tech startups:

- Gain access to more financing options
- Get insights & expert feedback

Customer Relationships

Both customer segments:

- Portal for members
- Personal contact at the event

Foreign investors:

- Ambassadors
- Members' Club

Bavarian high-tech startups:

- Institutions governing a network of Bavarian startups

Channels

Both customer segments:

- 1-on-1 meetings & office tours
- Social events
- Workshops & seminars
- Portal for members

Customer Segments

Foreign investors:

- Business angels (& VC fund managers)
- In groups according to their country of origin or main investing country

Bavarian high-tech startups:

- Early stage
- Mature (less important for them)

Cost Structure

Events (variable):

- Facilities
- Activities
- Catering

General (fixed):

- Marketing
- Organisation (Members' Club, Portal)

Revenue Streams

- Government Funds

Customer Segments

The Investor Visiting Program offers a valid value proposition to two different groups of customers: foreign investors and Bavarian startups.

Foreign Investors

Foreign Investors include business angels and venture capitalists, who are not actively investing in Bavarian startups yet. Both seek promising investment targets at low prices. Sometimes an information deficit about the regional startup scene and investment barriers, such as national tax structures and legislations, prevents them from investing outside of their usual investment region. This is despite the fact that their investment targets – high-tech startups – often operate and compete on a global scale. A lack of access to startups in promising regions, such as Bavaria, as well as worries about potential legal and taxation hurdles, prevent foreign investors from expanding their investment region.

The Investor Visiting Program primarily addresses business angels in the technology sector, but is also valuable to venture capital fund managers. Business angels invest their own capital in early-stage startups on a semi-professional level. Foreign business angels might not even be aware of the Bavarian startup scene. As a consequence they have no experience in investing in Germany and also no access to Bavarian or German startups. In addition, the German legal and tax structure is perceived as complicated and investment-unfriendly. The Investor Visiting Program is particularly beneficial for business angels, because access to international startups and an international professional network are hard for them to obtain.

Venture capital fund managers aim for larger investments than business angels. Similarly, they might either be unaware of the Bavarian startup scene or reluctant to invest into German targets due to lacking expertise about the boundary conditions for investments in Germany. Venture capital funds already have access to a high amount of promising startups within their operating regions, but with European startups being valued much lower than comparable U.S. startups, investments into Bavaria might offer some hidden bargains.

Both business angels and venture capital fund managers can benefit from a program creating awareness and spreading information about investment options in Bavaria. The Investor Visiting Program offers organized events in Bavaria to selected foreign investors that connect them with local startups. The events of the program are highly selective and participation is only possible after an invitation by the program's ambassadors. This ensures that participating investors have a clear intention to invest in Bavaria and also increases the attractiveness of the program. The events help investors to familiarize themselves with the boundary conditions for risk capital investments in Germany and to establish initial business contacts. Incorporating cultural events like the Oktoberfest may additionally motivate investors to come to Bavaria and attend the program. Access to a network of like-minded investors and an information portal provide value even after the events. Through the portal, former participants receive up-to-date information about the Bavarian startup scene.

Startups

Bavarian Startups, especially high-tech startups, require external investments from business angels and venture capital funds for product development, market entry, and business expansion. In an international comparison the volume of venture capital available to Bavarian startups is very small. Startups in Bavaria have difficulties acquiring funding and if they succeed, the funding volumes are smaller than comparable investments in, for example, U.S. startups. This is particularly disadvantageous for technology startups, as they typically operate on global markets and compete internationally against better-funded competitors. The Investor Visiting Program connects Bavarian startups with potential investors and facilitates startups' access to capital in the long term by encouraging foreign investors to also operate in Bavaria.

Value Proposition

The mission of the Investor Visiting Program is to reduce the information gap between foreign investors and Bavarian startups. One of the main reasons for the small size of the Bavarian risk capital market is the lack of foreign investors investing into Bavarian startups. The Investor Visiting Program aims to fundamentally change the way foreign investors think of Bavaria as a region and make them aware of the local investment prospects. This will ultimately lead to more foreign risk capital flowing into the Bavarian startup scene and turn Bavaria into a more attractive location for startups.

Even though Bavaria as a high-tech hub has high potential in generating innovative startups, its startup scene is vastly dependent on governmental funding because of the lack of private risk capital available to startups. Both the federal and provincial governments have addressed the lack of capital available to startups with support programs that help startups finance their ventures, especially in the earlier stages. However, in order for the Bavarian startup scene to really take off, a stronger supply of capital from the private sector is needed.

At the same time, the small size of the risk capital market in Bavaria, like anywhere in Europe, provides a great opportunity for foreign investors. Meanwhile, other regions, first and foremost the Silicon Valley, have seen the supply of capital grow enormously and as a result the valuations of startups skyrocket. Investors from such regions are thus starting to look elsewhere for better value for their money. The problems they face include restrictions in foreign investments set by governments, differences in legislation as well as their lack of networks in and knowledge of foreign markets.

This is where the Investor Visiting Program comes into play by bringing the two parties together and making them meet each other in a personal fashion. The startups gain access to new sources of financing as they get to know investors from foreign markets and have the chance to introduce their businesses to them. This will ultimately lead to better valuations and more smart capital for Bavarian startups, helping them become more successful. Besides that, startups also get the chance to receive feedback and insights from foreign experts, which is of high value to them.

The foreign investors, who are invited to visit Bavaria, get to meet startups from the region and experience the local startup scene. This provides them with information about possible investment targets and gives them easier access to the market. Through this they will ultimately be able to gain high value-for-money for the capital they invest. While Bits&Pretzels is already a well-known event that promotes the Bavarian startup scene to investors, the Investor Visiting Program will be a highly exclusive program only accessible to foreign investors and Bavarian startups. The program also makes the foreign investors familiar with the legal and cultural differences between Bavaria and their country of origin. This will make it easier for them to prepare for investing in a Bavarian startup. After their visit to Bavaria, the program provides the investors with a large network as they become part of an exclusive Members' Club. This Members' Club keeps the investors in contact with other investors they have met at the event as well as important players in the Bavarian startup scene. Finally, the investors gain personal experiences as they are taken to cultural events like the Oktoberfest and the Bavarian Alps for skiing or hiking, depending on the time of the year.

Channels

The Investor Visiting Program is a three to four day visit during which business angels and venture capital fund managers from foreign countries are invited to Bavaria to join information seminars, startup tours and events typical for Bavaria.

In order to make this event valuable, the schedule and events should be planned carefully. The main focus is on exchanging knowledge in every direction. The government is interested in the insights and feedback from investors, while the investors want to get informed about the Bavarian startup scene, the Bavarian and German legislation and possible obstacles when investing in Bavarian startups. The startups, meanwhile, would like to get the opportunity to attract investors and improve the reputation of the Bavarian startup scene. These goals will be fulfilled through the following initiatives during the visit.

Office Tours

In startup office tours, already successful startups invite the investors to their offices to present their products and business plans to them. The investors get insights into the startup scene and gain knowledge on potential investment targets. Furthermore, the startup has the chance to get advice and insights of the investors within Q&A sessions after the tour.

Workshops and Seminars

Workshops and seminars are organized where financial and legislative experts explain German legal structures as well as the taxation system and cultural differences on contracts and meetings. Those lectures are held by experts in their field, for example public officials or investors from Bavarian investor networks like the Venture Capital Club Munich. As with the office tour, there is enough time for an extended feedback session where investors can get answers to specific questions on issues they experienced or are concerned about. In addition, they can give feedback on different aspects they regard as investment barriers. It is essential that government officials, who are working on improving the Bavarian startup scene, are present during both events so they receive detailed insights and get ideas on how to improve the investment situation in Bavaria for both investors and startups.

Social Events

Social events are another important goal of the program, in order to promote cultural exchange. If the investors like Bavaria, it is more likely that they will come back and combine investment business in the area with leisure. Therefore, each part of the program should contain at least one trip to a place outside of Munich. This could be hiking to a cottage with a nice view, sailing on one of the Bavarian lakes or city trips to, for example, Nuremberg. If the program takes place in the winter, a skiing trip or a visit to the Oktoberfest seem promising. The trip should be different each time so investors have a reason to come more often to visit the social events and trips and get good connection to the Bavarian startup network. Also, startups take part in the trips to build a more personal and less business-focused relationship to investors. Lunches and dinners take place at well-known places in Bavaria, such as a fish restaurant at Starnberger See or the Hofbräuhaus in Munich.

Locations for one-on-one meetings during lunches or evening events should be provided, where investors and startups have the option to speak in private. This would allow investors that are interested in investing privacy for negotiations as well as simply the chance for them and entrepreneurs to get to know each other personally.

Online Portal

An online portal will be provided where startups and investors have the opportunity to stay in contact, get the latest information about the Bavarian startup scene and can discuss and talk about different topics or issues they faced whilst investing in Bavaria. Startups and investors have different account settings so they can also have private discussion boards. The portal is an important medium to ensure the contact that the visiting investors built to the Bavarian startup scene during their visit is maintained over a longer period of time. Only through long-term commitment to the region can the Investor Visiting Program deliver its complete value proposition to both the foreign investors and the Bavarian startups.

Customer Relationships

The success of the Investor Visiting Program highly depends on the commitment of the different stakeholders. Therefore, it is extremely important to ensure a good relationship between startups, ambassadors, and investors.

The Portal

The initial contact after an accepted invitation takes place through the Members' Club portal. At first, only limited access rights are granted to the users. This only includes communication over the portal forum. After attending the program, these rights are upgraded to full access rights and thus the users have additional information on the Bavarian startups and other investors. Furthermore, investors are directly integrated into the organization of the Investor Visiting Program events by giving them the possibility to vote for their favorite activities and preferred dates for an event. This way it can be guaranteed that investors' demands are fulfilled in order to increase the attractiveness of the program. The investors also get to choose which startups they are interested in from a list provided by institutions like BayStartUp. Later, these startups are invited to attend the event.

Personal contact at the events

After setting up the event, the participants meet in Munich, the center of Bavaria's startup scene. It is vital to ensure a pleasant and welcoming atmosphere during the whole stay. A good way to achieve this is to keep the whole event on a very direct and personal level. During the events, personal contact is constantly ensured between all stakeholders and thus the startups and investors always feel included and like they are part of something big. The members of the Investor Visiting Program Members' Club are also invited to the events, although they do not have to participate in every activity.

Ambassadors

As the ambassadors of the program invite the investors, they are the initiators of the whole meetup. Every investor, who has joined the Members' Club and invested in a bavarian startup may become an ambassador and additionally gains the right to invite further potential investors. The ambassadors will have a good relationship to other investors, so they can approach new potential investors directly and invite them to come to Bavaria.

The Members' Club

Since the visit is only a first step towards investing in Bavaria, the relationships must be maintained afterwards. After participating in the Investor Visiting Program, investors have the possibility to join the Investor Visiting Program Members' Club to exchange their thoughts and experiences about Bavaria and keep up to date on the Bavarian startup scene. If they join the club and get full access to the portal, they are invited to all further Investor Visiting Program events, and they get exclusive information about the Bavarian startup scene.

Startup networks
For Bavarian startups, the initial information about the Investor Visiting Program is provided on the homepage of supporting institutions, such as BayStartUp. However, to participate in the Investor Visiting Program, they have to be invited. After the invitation, startups obtain limited access to the Investor Visiting Program portal to inform themselves about the investors that will to join the program and thus prepare themselves individually.

For the startups that already attended the Investor Visiting Program, further contact is also assured over the portal. As this supports and lists all of the Bavarian startups which took part, it can furthermore be used for additional networking between startups and investors. Due to the great collaboration with the Investor Visiting Program Members' Club, many startups can then be brought together with suitable investors.

Key Resources

The Investor Visiting Program draws on its network of ambassadors and Bavarian startups as well as the Members' Club, the Portal for members and the government's neutral position and brand to deliver the value propositions to its customers.

Ambassador Network
The network of ambassadors is the key resource of the program, as it provides the main channel to foreign investors. The recruiting model of the program is highly exclusive and solely relies on the networks of the ambassadors for finding new investors.

Startup Network
The network of Bavarian startups is something that the Bavarian government already manages and that can be put to use for the sake of the program. It is essential for the success of the program that it gets the Bavarian startups onboard and that it has easy access to the complete ecosystem of Bavarian startups. This can be achieved through government programs, such as BayStartUp and Bayern Kapital.

Members' Club
The Members' Club is exclusive for the investors that have participated in the Investor Visiting Program. It maintains the contact between the investors by governing the network of investors and providing them with the possibility to communicate with each other and organize meetings together. It also provides them with access to information about the Bavarian startup scene all year long through the portal for members. This portal is open to both Bavarian startups, members of the Members' Club and new participants of the Investor Visiting Program. It is used to share information and to communicate.

Government Neutrality
The government's neutral position and brand with regards to promoting startups is also essential for the success of the program. In its position, the government can be seen as a neutral party that does not favor individual startups or startups from specific industries in their promotion to foreign investors. This creates trust from both customer segments, as the startups can be sure they are treated fairly and the foreign investors know that they are being presented with a holistic perspective of the Bavarian startup scene.

Key Activities

Apart from managing the visit of the investors, the three key activities of organizing the Investor Visiting Program are acquiring ambassadors and foreign investors, administering the Members' Club, and managing the portal. These activities keep the program on an exclusive but growth-oriented track and ensure reaching the most promising investors.

Acquiring ambassadors
In order to acquire investors to take part in an Investor Visiting Program event, initial ambassadors need to be identified, contacted and convinced of the program and its value and efficiency. These ambassadors could be foreign investors which have already successfully invested in Bavaria or people who are passionate and patriotic about Bavaria and want to improve the local entrepreneurial landscape. All potential ambassadors should already have personal connections to foreign investors. Initial points of contact for such ambassadors could be successful entrepreneurs or business angels abroad, the Venture Capital Club München or the heads of important Bavarian state financing tools (such as Bayern Kapital). In order to reach a large amount of investors, as many ambassadors as possible should be procured. However, for the first Investor Visiting Program event, one to five ambassadors would suffice. To be able to invite the best investors, the amount of ambassadors needs to increase. Therefore, members of the Investor Visiting Program Members' Club are allowed to become ambassadors if they invest in a Bavarian startup.

Acquiring foreign investors
Once the ambassadors have been acquired, they each use their networks (and their networks' networks) to contact foreign investors. They try to build up the investors' curiosity for the Bavarian startup scene, tell them about their own successes and the program's offerings and then invite them personally to join an Investor Visiting Program event adjusted specifically to them and their operating country. In order to further incentivize the investors to come to events and build up an initial investment of time and commitment on their side, they are also invited to hold a speech at a German university or another relevant institution. Every year (with two events per year), all ambassadors combined can give out a total of 30 invites to new investors. They therefore have to be quite selective in their invitation process.

Members' Club
The Members' Club is administered by the Investor Visiting Program. This includes encouraging alumni of the program to join, promoting ambassadorship to members and supporting Investor Visiting Program alumni meetups in the investors' countries of origin. Furthermore, in order to keep participation and commitment levels in the club high, each foreign investor will be matched with a German counterpart at the beginning of the Investor Visiting Program. They meet at the welcome dinner and can continue getting to know each other and exchanging information for as long as the foreign investor is part of the Investor Visiting Program or the Members' Club. This is meant to keep the foreign investor especially connected to Bavaria and to ensure that a strong community emerges out of the Investor Visiting Program and its Members' Club.

Administering the portal
Furthermore, the portal is set up and managed by the Investor Visiting Program. Here, startups, investors and ambassadors can exchange information and stay connected online. News on the Bavarian startup scene is published and new Investor Visiting Program events are promoted to start invitation rounds and inform alumni to save the date. New participants have to be added to the portal with different access rights - 'new' for recently invited people, 'alumni' for members that have completed the program, 'startups', and 'ambassador'. Content will be shown according to the viewing privilege of the individual members. For example, 'new' participants are updated with details on the schedule so that they can plan their arrival and be mentally prepared, whereas alumni of the program are infor-

med about dates for future planned Investor Visiting Programs in order to raise their interest in the program through word of mouth promotion. Content on the portal is administered and moderated, if necessary.

Key Partners

When offering the Investor Visiting Program, the Bavarian government has to rely on three key partners: the ambassadors, investor networks such as the Venture Capital Club Munich and institutions that govern networks of Bavarian startups such as BayStartUp.

Ambassadors

The ambassadors are the cornerstone of the program. They are the actors that the government has to rely on for marketing the program to foreign investors. Without their cooperation, it will be extremely difficult for the government to find and attract foreign investors to participate in the program. This is also why acquiring and keeping up a network of ambassadors for the program is such an essential activity for the program.

Investor Networks

Existing investor networks are key partners for the program as they help generating content for the events and finding fitting ambassadors. As the program is organized for foreign investors it is pivotal to make sure that their needs are fulfilled in the best way possible. For this, access to a network of Munich-based investors is essential for the success of the program. As the Venture Capital Club Munich has members from governmental organizations like Bayern Kapital and from international venture capital companies, it provides the natural link between the program and potential ambassadors. Similarly, the Munich Business Angel Network can provide the same benefits to the program.

Institutions

Institutions governing a network of Bavarian startups, such as BayStartUP and Bayern Kapital, are essential partners for the program. They provide networks of startups to be invited to the events, networks of business angels as well as people loving Bavaria that can be used for acquiring ambassadors. Since they govern a network of startups in Bavaria and organize business plan competitions for new ventures, they provide the Investor Visiting Program with great access to information about the startup scene as well as potential investment targets for foreign investors.

Revenue Streams

The program shall be financed with governmental funding. As it is essential for the program to be completely neutral in the way it promotes Bavarian startups and approaches foreign investors, governmental funding is the only feasible solution.

Considering the fact that the program can generate a lot of value to the Bavarian startup scene and thus the whole Bavarian, and German, economy, governmental funding is justified. Within the last years, the awareness of the importance of startups for the economy has increased a lot. Governmental institutions are constantly figuring out new ways to support entrepreneurship and the possibilities for public funding for startups are already quite developed. Public institutions like the LfA Förderbank Bayern or Bayern Kapital are supporting startups directly. Getting private funding from different countries to balance out private and public funding is therefore a very important part of supporting the startup scene.

Cost Structure

The costs of the Investor Visiting Program can be divided into two groups: general costs (fixed costs) and event costs (variable costs).

General Costs

General costs are costs to market the program to both investors and startups and to maintain the Investor Visiting Program Members' Club and the information portal. Marketing includes the recruiting of ambassadors as well as assisting them in inviting investors to the events. Additionally, costs arise from selecting and inviting suitable startups.

Further expenses include the creation, maintenance, and administration of an exclusive information and exchange portal for investors and startups that participate or have participated in the Investor Visiting Program, as well as the management of the Investor Visiting Program Members' Club. The Investor Visiting Program Members' Club and the information portal are the main points of contact with investors and startups after the event and are crucial to the success of the program.

Event Costs

Event costs comprise all expenses that are part of a specific Investor Visiting Program event, such as the rent of facilities like seminar rooms, the investors' accommodation, transportation to and from events, and catering. Startups organize their accommodation themselves and pay for their own food. Startups' travel expenses of any kind are not covered. Generally, event costs are held to a minimum. The costs may vary with the number of participants and might differ per Investor Visiting Program event, depending on the activities and location. Event costs also include organization, scheduling and content creation for an event, as well as administrative aspects, such as informing participants of changes.

Challenges

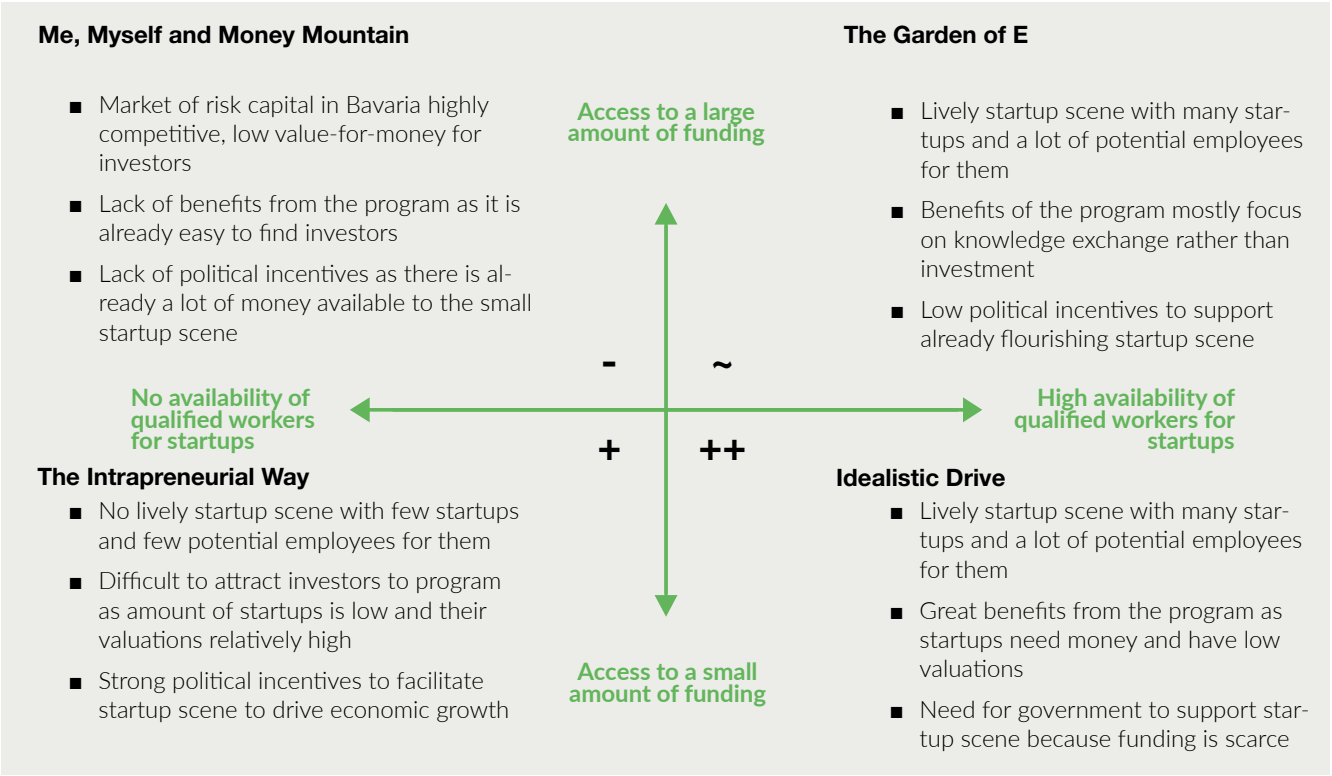
- Acquiring suitable initial ambassadors
- Generating demand for the program while keeping it on an exclusive level
- Making sure the personal relationships between startups and investors hold after the visit and lead to actual investments in Bavaria
- Finding suitable experts and speakers for seminars/workshops
- Providing actual value to foreign investors through the Members' Club
- Continuously recruiting high potential investors
- Keeping participants committed to the Bavarian startup scene

Scenario Fit

Me, Myself and Money Mountain

The scenario where funding is easily accessible to startups, but people are not fond of entrepreneurial careers is the most challenging for the Investor Visiting Program. As Bavaria does not have a lively entrepreneurship scene in this scenario and a lot of money is already available to the few startups that do exist, the benefits of the program would be limited for both Bavarian startups and foreign investors. This is why it would also be extremely difficult for the program to attract foreign investors in the first place.

Furthermore, the government in this scenario lacks political incentives to support startups as people prefer corporate careers over entrepreneurial ones even though the financial conditions for entrepreneurship are really attractive. This is why it would not be advisable to use government resources for the program and why the program would not be effective.



The Garden of E

In the scenario where the startups have easy access to both capital and employees, the Investor Visiting Program's benefits are limited. As Bavarian startups already have a lot of easily accessible capital available to them, they would not benefit that much from the program financially. At the same time, the foreign investors would probably not see Bavaria as a place for good value-for-money deals anymore.

However, the program could potentially have some benefits for both the foreign investors and Bavarian startups. The Bavarian startups could benefit from the expertise and feedback from foreign investors as well as from better valuations. Additionally, the cultural exchange could add more quality to the Bavarian startup scene with experienced investors coming to the scene and providing startups with more than just money. The investors could also still benefit from the networking provided by the program and could find startups to invest in that do not exist in their home markets.

The Intrapreneurial Way

In the scenario where employees for startups are scarce and funding is hard to obtain, the Investor Visiting Program has the potential to make more money available to startups and thus make entrepreneurial careers more attractive within the Bavarian population. Even though one might argue that the lack of people willing to work for startups implicates that the government does not need to support startups that much, supporters of more proactive government intervention would still say that it is important for the government to create a supportive environment for startups as they can really drive the economy and innovation in general forward.

In this scenario, the Investor Visiting Program could revive the Bavarian startup scene, as more money flowing to the market might motivate more people to undertake an entrepreneurial career. This would be beneficial for the government, as startups are evidentially effective in fostering economic growth. What reduces the fit of the program to the scenario, however, is the fact that it might be really challenging to attract foreign investors to come to Bavaria without an already blossoming entrepreneurial scene. This implies that in this scenario the implementation of the program might be quite difficult, even though the benefits would be great.

Idealistic Drive

The Investor Visiting Program can be most powerful in the scenario where employees are easily accessible to startups, but funding is scarce. This scenario implies that entrepreneurial careers and companies are highly attractive to the great public, leading to a great amount of startups being founded on a regular basis. At the same time, these numerous startups struggle to find funds, and could benefit a lot from meeting foreign investors through the program. The investors would also be highly interested in coming to Bavaria because of its vibrant and large entrepreneurship scene.

Because people are extremely interested in starting their own businesses and working for startups, the government does not feel that it needs to provide governmental funding to startups to facilitate entrepreneurship. This is why in this scenario programs like the Investor Visiting Program would fit really well to the government's goals of supporting its existing startup scene without having to provide incentives for becoming an entrepreneur. As the Investor Visiting Program has the potential to bring more money into Bavarian startups, it could also make the entrepreneurship scene more sustainable as startups are less likely to fail because of lack of funding.

Outlook

On the assumption that the program turns out successful, the Members' Club could be a highly exclusive group of investors that are really fond of the Bavarian startup scene. Thus, the Investor Visiting Program could become independent from governmental funding by introducing membership fees for the Members' Club. This could also serve to increase the perceived exclusivity of the Club. As the club grows, it could even organize get-togethers that are independent of the visits.

The aim of the whole program would expand from merely introducing foreign investors to the Bavarian startup scene to a holistic network of professional investors with a close relation to Bavaria. Through the success of the brand, the Investor Visiting Program could also expand its scope of objectives and aim to attract VC fund managers to come to Bavaria.

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Other Publications

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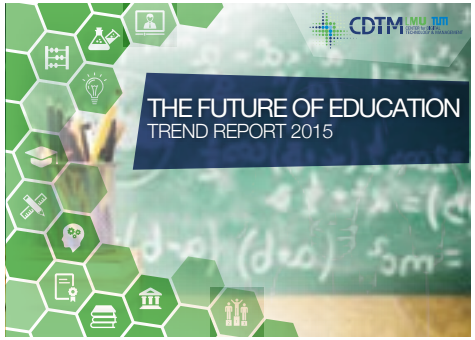

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Entrepreneurship in Bavaria

Entrepreneurship plays a crucial role in modern knowledge societies. Startup companies enter the market with novel products, services and business models, fostering innovation and economic development. A vibrant entrepreneurial ecosystem can be a major source of employment and contributes to the competitiveness of one's economy.

Acknowledging the importance of entrepreneurship, policy makers become increasingly involved in creating entrepreneurship-friendly environments. However, identifying suitable concepts for entrepreneurship support requires a thorough understanding of entrepreneurs' requirements and recent trends in the entrepreneurship ecosystem: Technology trends such as cloud computing and rapid prototyping enable novel products and services, thus acting as a catalyst for entrepreneurship. Entrepreneurship is an emerging career path and failure becomes increasingly accepted. At the same time, new financing instruments such as crowdinvesting and crowdlending are emerging, whereas incubators and accelerators funded by corporations or the public hand are proliferating. Intellectual property regulation is harmonized on a European level and global trade barriers are decreasing.

This study identifies recent trends in entrepreneurship and applies entrepreneurial means to come up with novel concepts for the creation of a more entrepreneurial-friendly ecosystem in Bavaria. The report consists of three parts. First, the authors analyze the status quo and recent trends in the entrepreneurship ecosystem of Bavaria. Building upon these findings, four scenarios are described, vividly depicting possible futures. In the third part, five novel entrepreneurship support concepts are developed and tested against these future scenarios.

The proposed concepts range from a platform for customized legal advice for founders, a Bavarian startup certificate, an investor visiting program, an experience-focused education concept for high schools, universities and apprenticeships, to "TechCity" - a visionary entrepreneurship metropolis suited for innovation and entrepreneurship.

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ISBN 978-3-9815538-9-5
9 783981 553895