The Swiss Entrepreneurial Ecosystem Report 2015/2016

The Swiss Entrepreneurship Ecosystem Report 2015/2016 is conceptualized and written by the team of the Start-up Monitor Foundation. The Start-up Monitor foundation was established by ETH Zurich, University of St.Gallen and University of Basel, and is financially supported by the Commission for Technology and Innovation (CTI). The Start-up Monitor Foundation maps, monitors and helps develop start-up ecosystems in Switzerland and beyond. Moreover, it supports start-ups during their growth phase and lets them track their own performance and benchmark themselves against their peers.
Executive Summary

THE SWISS ENTREPRENEURSHIP ECOSYSTEM

- Switzerland is one of the most competitive and innovative countries in the world. However, there is some work to be done to increase the commercialization of technological innovation, to build globally scalable high-growth ventures and to turn Switzerland into an internationally recognized Start-up Nation.

- Switzerland is a relatively small yet highly attractive market for entrepreneurs. Especially the healthy economic situation and market stability provides a solid ground for starting a business.

- The smallness of the domestic market in Switzerland causes significant scalability challenges for new ventures.

- The Swiss infrastructure and the geographical location provide young companies with an easy access to the European market and stronger trade links.

- There are various institutions that provide start-up support at all stages of the entrepreneurial process. However, even if universities have put greater emphasis on supporting start-ups in recent years, there is still a considerable need for action, especially from universities of applied sciences, field-specific and private universities, as well as research institutes as they may have the potential to further catalyze entrepreneurial activities in Switzerland.

- Visibility for Swiss start-ups mainly happens on a national level – with the exception of a few initiatives – and therefore does not sufficiently support founders in building a global reputation and an ambition to grow a locally embedded yet globally operating enterprise.

- Venture financing is generally available in Switzerland, but not equally for all stages of the entrepreneurial process. Start-ups in the seed stage have access to an abundance of different forms of financing. However, there is a clear lack of early growth-stage funding. Later stage funding, again, is more readily accessible.

- There is still room for improvement with regards to entrepreneurship education at all stages of the learning process of an individual entrepreneur.

KEY FACTS ABOUT ENTREPRENEURIAL ACTIVITIES IN SWITZERLAND

- 12,000 new firms are created each year, corresponding to 2% of the entire population of Swiss companies.

- The share of Swiss gazelles, i.e. high-growth enterprises with less than five years of age, is comparatively high. With 0.5% of the population of Swiss firms, the country lies in the mid-field with other OECD countries.

- Swiss startups have above-average survival rates.

- ICT is the most prominent sector in the Start-up Monitor and has a particularly strong basis in the Greater Zurich Area (GZAA) and Greater Geneva Bern Area (GGBA).

- Self-employment in Switzerland is comparable to the European average, with self-employment rates being in the range of 8-11%.

- Employment enterprises as a percentage of the population of active enterprises with at least one employee, is very low.
DEAR READER,

Switzerland is one of the most competitive and innovative countries in the world. The country is ranked first in the World Economic Forum’s Global Competitiveness Report for the seventh consecutive year. Switzerland owes its success to a combination of factors, which includes stable, transparent and effective institutions, healthy public finances, attractive taxes, excellent infrastructure and connectivity, a world-class education system, stable relations among social actors within a flexible and attractive labor market, the highest level of business sophistication, and an exceptional capacity for innovation. But despite all these exceptional conditions for innovation and competitive business development, Switzerland does not rank among the most entrepreneurial countries in the world.

There is still much work to be done to increase the commercialization of technological innovation and built globally scalable high-growth ventures and thus, turn Switzerland into an internationally recognized Start-up Nation. However, fostering entrepreneurship is a difficult challenge because there is no best practice to promote the successful establishment of a company. It is rather necessary to understand the underlying economic, environmental, socio-cultural and political factors that entrepreneurs face in particular regions, countries, or industries in order to establish a vibrant entrepreneurship ecosystem.

Yet, the current state of our knowledge about the Swiss entrepreneurial ecosystem is limited. We do not know what factors characterize the Swiss entrepreneurship ecosystem, how much entrepreneurship activity we have in Switzerland, and how the entrepreneurial ecosystem can be adapted to increase productive entrepreneurship. Therefore, we aim to address all of these questions in the present report.

The main purpose of the Swiss Entrepreneurship Ecosystem Report 2015 is to provide a first in-depth analysis of entrepreneurial activities in Switzerland. In this report, the concept of entrepreneurship ecosystems will be discussed and the Swiss entrepreneurial ecosystem assessed, following an established ecosystem framework. This is the second report provided by the SSM. It follows the report “The Start-up Monitor Landscape of Switzerland - First Insights from the Swiss Start-up Monitor”, which was published in 2013.

We hope that you find the report a worthwhile read. We very much look forward to engaging in a dialogue with you.

Yours sincerely,

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DEFINING THE ENTREPRENEURIAL ECOSYSTEM

Entrepreneurship is widely recognized as the engine of social and economic development. As a consequence, entrepreneurs and new ventures have become the focus of attention for policy makers and entrepreneurship scholars (e.g. Audretsch, 2002).

However, while entrepreneurs drive innovation and change, they alone cannot be held responsible for the development of an economy. It is rather the dynamic interplay between the entrepreneur and his/her environment that drives economic development (Van de Ven, 1990; Spilling, 1996). In line with these insights, the entrepreneurship ecosystem approach looks at entrepreneurship from a holistic and interactive perspective.

The term entrepreneurship ecosystem can be traced back to James Moore, who claimed that innovative businesses don’t evolve in a “vacuum”, but coevolve within a community interacting with suppliers, customers and financiers (Moore, 1993). It is argued that firms which evolve in well-functioning ecosystems can benefit from favorable economic conditions because they have better opportunities to grow and create employment (Rosted, 2012). The entrepreneurship ecosystem is defined as “an interactive community within a geographic region, composed of varied and inter-dependent actors (e.g. entrepreneurs, institutions and organizations) and factors (e.g. markets, regulatory framework, support setting, entrepreneurial culture), which evolves over time and whose actors and factors coexist and interact to promote new venture creation” (Vogel, 2013). This perspective highlights the importance of context in enabling new venture creation. More specifically, it emphasizes the crucial role of local and regional environments and the conditions required to generate and support entrepreneurship (Mason & Brown, 2014). In other words, entrepreneurship is embedded in a community of interrelated entities that are in constant interactions with one another. Consequently, successful new venture creation does not only depend on the behavior of entrepreneurs, but also on the comprehensive set of resources and actors within this community and on the way these interactions are orchestrated. In order to establish efficient entrepreneurial ecosystems it is crucial to understand the underlying economic, educational and socio-cultural conditions that entrepreneurs face in particular regions, countries, or industries (Vogel, 2013; Vogel & Grichnik, 2014).

The entrepreneurial ecosystems approach incorporates established concepts such as clusters, industrial districts, innovation systems and learning regions. What these concepts have in common is their focus on external conditions for innovation and business performance. However, the entrepreneurship ecosystem approach differentiates itself by placing the entrepreneur at the center, and not the firm. Hence, at the center of analysis is not innovation or economic development in general, but the ability of the local environments in supporting entrepreneurs. Viewed from this perspective, entrepreneurs are not simply the outcome of a healthy ecosystem but rather key players in generating and maintaining it (Stam, 2014).

CORE Pillars of the Ecosystem

According to Vogel (2013), an entrepreneurship ecosystem consists of a variety of components which strongly influence entrepreneurial activities (Figure 1).

The components can be grouped into three overarching categories: (1) the non-entrepreneurship-specific context which is formed by infrastructure, governments and regulations, markets, innovation as well as the geographic location (2) the entrepreneurship-specific context, containing elements such as financing, entrepreneurial education, culture, networks, startup support and exposure of entrepreneurs and (3) the entrepreneurial actors on an individual level.

A detailed summary of the various sub-categories and components is provided in Table 1. All these components comprise a multitude of elements which interact in complex and idiosyncratic ways.
THE SWISS ENTREPRENEURSHIP ECOSYSTEM

Having introduced the concept of entrepreneurship and the most essential components of an entrepreneurship ecosystem, this section focuses on the assessment of the Swiss ecosystem along the dimensions of the ecosystem framework, including non-entrepreneurial factors, entrepreneurial factors as well as entrepreneurial actors.

SWITZERLAND AT A GLANCE

Switzerland is a small country located in the heart of Europe. Its political system is unique and among the world’s most stable democratic systems. Switzerland is a modern market economy with a relatively high gross domestic product (GDP). The country has a strong tradition of political and military neutrality, but also of international cooperation. Table 2 provides an overview of key facts about Switzerland.

Table 2: Overview of key facts about Switzerland.

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<thead>
<tr>
<th>Market</th>
<th>Switzerland’s GDP is around USD 661 billion and represents 0.8% of the world economy. The Swiss GDP has been growing constantly over the last ten years by an average of 1.8% (FSO, 2014; World Bank, 2014). Switzerland’s GDP per capita is the fourth-largest in the world, or ninth largest (2014). Switzerland’s GDP per capita is the fourth-largest in the world, or ninth largest in the world (World Bank, 2014). Since the 1950s, the population of Switzerland has also been increasing at a rate of 0.5% per year. In 2014, Switzerland had almost five million inhabitants.</th>
<th>GDP per capita: USD 84,344. Switzerland outranks the UK by 27%, and Germany and France by 2014). Switzerland’s GDP per capita is the fourth-largest in the world, or ninth largest (2014). Since the 1950s, the population of Switzerland has also been increasing at a rate of 0.5% per year. In 2014, Switzerland had almost five million inhabitants.</th>
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<td>GDP’14 (nominal): USD 661 billion</td>
<td>Budget deficit: 0.4% (2015)</td>
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<td><strong>THE SWISS SYSTEM FOR INNOVATION</strong></td>
<td>High density of Nobel Prizes per capita</td>
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International trade has long been the key to prosperity in Switzerland since its home market is relatively small and resource scarce (SECO, 2009). Switzerland is one of the European Union’s most important partners in the trade in goods and services as well as in direct investments. Four-fifths of all imports and three-fourths of all exports are traded with the EU (FSO, 2014a). One example of a successful export-oriented branch of industry is highly specialized machinery and precision engineering, which involves providing components for areas ranging from precision and micro-mechanics to materials technology, plastics and textiles. Switzerland is a member of the World Trade Organization (WTO) and committed to the implementation of WTO agreements, and as a member of the European Free Trade Association (EFTA) and through bilateral agreements with the EU the country provides its companies with a high level of access to international markets. Due to its consistent market liberalization policy, Switzerland has become a globally significant trade center. But trading of goods and services is not the only international linkage. Thanks to its location, lack of resources and limited domestic market Switzerland has also international investment relationships. Switzerland is the sixth largest direct investor in the world and an attractive location for foreign investors, in particular from the EU (83.6%) and the USA (SHE, 2014). The economy of Switzerland is dominated by small and medium sized enterprises (SMEs). The vast majority of enterprises (99%) have less than 250 full-time employees (FSO, 2013). However, multinational companies contribute also significantly to the Swiss economy, particularly given that many international companies have the global or European headquarters in Switzerland. They account for one third of Swiss GDP and provide two thirds of all private sector jobs (SHE, 2014). These multinationals are important sources of corporate venture capital in Switzerland and hence an attractive source of late-stage funding for high-tech startups. Since the 1990s, the population of Switzerland has more than doubled, from 3.3 million (1990) to 8.1 million (2014) (FSO, 2014b) for a territory of 41,330 km². In 2014, Switzerland had almost five million employed residents. The Swiss labor market is characterized by fairly liberal labor laws – despite more recent political votes – that are putting this liberal labor market at risk – with employer-friendly regulations. The unemployment rate in Switzerland has been comparatively low (below half the average EU unemployment rate) over the past decade (2014: 4.5%) (FSO, 2014a). A primary reason for the relatively low level of unemployment in Switzerland is the overall strong aggregate demand for labor, the dual education system which equips candidates with the right skills and capabilities, an unemployment insurance program that runs effectively and therefore leads to comparatively short periods of unemployment, and a variety of re-integration schemes (including a dedicated program that helps unemployed set up their own companies) (Haas & Vogel, 2014; Vogel, 2015). In addition, a good employee/employer relationship, a lack of minimum wage as well as a low tax burden contribute to an overall strong labor market (Sheldon, 2010; 2013). Switzerland’s workforce is highly educated (both tertiary and vocational), possesses many technical skills and is oftentimes multilingual as a result of the different national languages, an asset for most employers (SHE, 2014).

Switzerland is a relatively small yet highly attractive market for entrepreneurs. Especially the healthy economic situation and market stability provides a solid ground for starting a business. Switzerland is oftentimes considered an interesting “test market” for young businesses that seek to build international operations, especially with respect to neighboring countries such as Germany, Austria, France and Italy. Yet, with Europe’s highest per capita income, tax burden contribute to an overall strong employee/employer relationship, a lack of minimum wage as well as a low tax burden contribute to an overall strong labor market (Sheldon, 2010; 2013). In addition, a good employee/employer relationship, a lack of minimum wage as well as a low tax burden contribute to an overall strong labor market (Sheldon, 2010; 2013). Switzerland’s workforce is highly educated (both tertiary and vocational), possesses many technical skills and is oftentimes multilingual as a result of the different national languages, an asset for most employers (SHE, 2014).
the best-developed and maintained infrastructures in Europe. According to the Global Competitive Index (WEF, 2015), the quality of the Swiss infrastructure ranks highest in the world. A well-developed infrastructure reduces the distance between regions by connecting regional, national and international markets with each other. It consequently not only facilitates business activities in some regions but also helps to save costs due to optimized transport routes. The dense network of roads and public transportation provides an affordable and reliable mobility and makes it easy to reach neighboring countries. Moreover, the air travel infrastructure is extraordinary given that airports are situated in all major regions (e.g. Zurich, Geneva, Basel, Bern, Agno, St. Moritz, Altenrhein). Among OECD countries, Switzerland outperforms many of its overseas competitors in transportation infrastructure investment (Figure 3). Modern and reliable telecommunications including cell phone networks, ISDN, and other broadband connections ensure high-quality coverage. Switzerland also boasts a stable energy and water supply system that covers the entire country. On top of all, Switzerland has a well-developed healthcare system that covers the entire population and ensures immediate access to medical care (SCE, 2014).

With its highly developed infrastructure, Switzerland is a very attractive location to start a business. The Swiss infrastructure provides young companies with an easy access to the European market and stronger trade links. The modern infrastructure facilitates a more effective use of capital goods and it helps start-ups to move their products quickly and affordably. Finally, a country with such well-functioning infrastructure like Switzerland is very attractive for investors.

The largest proportion of R&D in Switzerland is funded privately (Figure 5), particularly in the pharmaceutical, chemical, and engineering industries (SNF, 2012). Public R&D funding in Switzerland (federal and cantonal) made up 25% of the total sources of financial support in Switzerland in 2012, which is nearly 10% below the European average. Approximately a quarter of federal funding for R&D is distributed by the Swiss National Science Foundation (SNF) – an institution which supports research at higher education institutes and research institutions based on a competitive evaluation procedure (Figure 6) (SNF, 2012). R&D spending by the federal government fell below CHF 2 billion in 2014 (CHF 1.96 billion) a significant drop compared to 2012 (CHF 2.12 billion). This drop of 7% in R&D spending can, in part, be explained by the EU decision to stop funding research collaborations through their Horizon 2020 initiative, following the February 2014 vote to limit EU immigration (Swiss Info, 2015).

Switzerland has 60 higher education institutions, of which four universities are among the top 100 of The Times Higher Education World University Ranking, with the Swiss Federal Institute of Technology Zurich (ETH) ranking 49 in 2015 and the Swiss Federal Institutes of Technology in Lausanne (EPFL) ranking 51.

Innovation

Switzerland is consistently among the world’s most innovative countries (Table 3) (Global Innovation Index, 2015). It’s knowledge and technology output is particularly strong as compared to the other countries and it is ranking second with regards to creative output. The country invests over three percent of its GDP in research and development, placing it among the top ten countries worldwide (Figure 4).

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All these institutions have close links with the international research community, participate in scientific partnerships, and collaborate with industry through knowledge and technology transfer (SCE, 2014).

With the highest number of scientific publications per researcher, Swiss scientists are not only the most productive in the world, but they also significantly shape the scientific landscape (second place of relative Citation Index, Figure 7). Swiss publications in the fields of life sciences, agriculture, biology, environmental sciences, and clinical medicine count the highest number of citations worldwide.

In the fields of engineering, computer science, physics, chemistry, and earth sciences Switzerland also rank among the best worldwide (SER, 2011). However, according to the Global Competitiveness Report (2014-2015), businesses and research institutions may increasingly face difficulties in finding the talent they need to preserve their outstanding capacity for innovation, which poses a potential threat to Switzerland’s competitiveness. Since 2012, the country has lost 10 places (from 14th to 24th) on the indicator which measures the availability of engineers and scientists. In addition, the report points out that this problem could be exacerbated due to the recent election in which Swiss citizens have voted in favor of an
Non Entrepreneurial Factors

initiative aimed at limiting the ability of European Union workers to immigrate by reintroducing quotas.

Switzerland is also very active with regards to protecting its inventions. According to European Patent Office (EPO), nearly 8'000 patents were registered in Switzerland in 2014. Given its relatively small number of residents, Switzerland is therefore the second most productive country with regards to patents per capita, right after Japan (Figure 8). Most of the patents in Switzerland were filed by ABB (450), followed by Nestlé (442), Roche (357) and Novartis (323). But not only large multinationals are productive in filing patents. Also the Swiss universities ETH Zurich, EPFL and the University of Zurich rank among the top 25 patent applicants in Switzerland. Switzerland also has one of the highest numbers of Nobel Prize winners per capita in the world, which is another sign of the country’s world-leading research (OSEC, 2012; SGE, 2014).

Overall, Switzerland is a fruitful breeding ground for startups due to its high innovation capability. This innovative environment encourages and facilitates entrepreneurs to enter the markets with their novel products and services.

Government and regulations

Switzerland has a unique political structure with its direct democracy at all governmental levels. The federal system of Switzerland is characterized by a structure consisting of three different political levels, namely the Confederation, the cantons and the municipalities, which creates strong links between government, business, and civil society and ensures reliable governance. Referendums, initiatives and plebiscites allow Swiss citizen to actively and directly participate in the political process. The stable political situation ensures highest reliability for business and practical decisions that are well supported by the population (Linder, 2010). Switzerland has a competitive tax system with taxes being set and levied by the federal government, cantons, and municipalities. The Swiss Federation levies corporate income tax at a flat rate, while cantonal tax rates vary by location and sometimes by level of capital or profit. However, companies may be granted a full or partial tax exemption if they create jobs in Switzerland with an investment project. In addition, inter-governmental treaties with almost 60 states, including most Western industrial nations, are in place to prevent double taxation (SGE, 2014). Switzerland is known for its high standard of living. It receives excellent ratings on criteria such as climate and geography, family and social life (SGE, 2014). Switzerland has very high costs of living compared to other countries in the world. According to a recent study by the UBS (2015b), Zurich and Geneva are the most expensive cities worldwide. Despite those expenses, workers in Zurich and Geneva rank second and third behind residents of Luxembourg in terms of relative gross salaries and enjoy one of the highest purchasing power in the world, UBS said. The country is the point of intersection for many languages and different cultures. There are four official languages in Switzerland: German, French, Italian and Romansh. The co-existence of various language groups and different religions as well as the large proportion of foreign residents makes it easier for foreign companies to conduct business from Switzerland. The co-existence of various language groups and different religions, and the large proportion of foreign residents result in a high degree of openness and tolerance. However, as a result of the aforementioned acceptance of the Mass Immigration Initiative by the Swiss people, the question remains as to whether or not Switzerland can retain its openness and tolerance and therefore remain a magnet to attract international talents.

Due to its central location, Switzerland is a very attractive business location for startups. No country offers such great variety in terms of language and culture in such a small geographic setting. Because of its multilingual and multicultural setting, Switzerland is an excellent test market for new products and services especially for the heterogeneous European market (Amcham & BCG, 2006). In addition, the great diversity of language groups and cultures makes it easier for foreign start ups to conduct business from Switzerland. Finally, as the communication and transport hub between Northern and Southern Europe, a business in Switzerland facilitates the interaction with the European market. This section has assessed the five key non-entrepreneurial factors in Switzerland, namely market, infrastructure, innovation, government and regulation, and geographical location. Overall, Switzerland provides very favorable non-entrepreneurship-specific factors for starting-up a business. It has an attractive market, overarching infrastructure and an optimal geographic location for creating a new business. Nevertheless, startups in Switzerland are confronted with various scalability issues because of the smallness of the Swiss market. Although the country’s capacity to boost innovation is beneficial, due to the freeze in research collaborations with the EU following the February 2014 vote to limit EU immigration, Switzerland has experienced significant cutbacks concerning investment in research. Since this vote Switzerland is no longer able to participate in the EU Horizon 2020 research program as an associated country, and is only allowed to participate on a minimal basis (partial basis) as a third country partner until the end of 2016 while the implementation of the immigration quotas is being negotiated with the EU. Moreover, the failure of this initiative might be a potential threat for Switzerland’s competitiveness (WEF, 2015), because it enhances the difficulty in finding qualified workers and has the potential to decrease Switzerland’s appeal as a business location. Finally, the Swiss government and regulation can be considered very supportive for starting a business. However, there is growing concern about the Corporate Tax Reform II. It implies that startup financing rounds are being specifically identified in the balance-sheets. As a consequence, wealth taxes may occur for the founders as a result of funding rounds – which take a forward-looking perspective of a prospective future value of a company – instead of the current value based on the company’s financial performance (Vonplon, 2015; Startupticker, 2015).
Effective Resource Allocation and Network Building

In the early stages of a new business, entrepreneurs face a variety of challenges, including access to financial resources, knowledge, and support. The Swiss entrepreneurship ecosystem is designed to provide a range of support mechanisms that are critical for the success of new ventures. Here are some key aspects of the ecosystem and the challenges it addresses:

1. **Financial Support**
   - **Venture Capital and Angel Investors:** Switzerland has a strong network of venture capital firms and angel investors ready to invest in promising startups.
   - **Seed Funding:** Various seed funds provide initial capital for new ventures.
   - **Grants and Subsidies:** Federal and cantonal grants support startups, offering a significant upfront investment.

2. **Education and Training**
   - **Academic Institutions:** Swiss universities and research institutions provide advanced training and research grants.
   - **Incubators and Accelerators:** These programs provide mentorship, workshops, and networking opportunities to help startups develop.

3. **Networking**
   - **Industry Associations:** Membership in relevant associations can provide access to industry insights and connections.
   - **Mentorship Programs:** Experienced entrepreneurs offer guidance to new ventures.

4. **Regulatory Support**
   - **Government Programs:** Government initiatives support startups through direct funding or by offering advice.
   - **Patents and Trademarks:** Legal expertise is crucial for protecting intellectual property.

5. **Physical Infrastructure**
   - **Incubation Centers:** Dedicated spaces provide a supportive environment for startups.
   - **Business Incubators:** These centers offer resources to startups, including office space, equipment, and administrative support.

6. **Cultural Support**
   - **Entrepreneurial Culture:** Switzerland is renowned for its entrepreneurial spirit, which encourages innovation and risk-taking.
   - **Innovation Hub:** The Bionic Hub, among many others, offers a space for innovation and networking.

The Swiss entrepreneurship ecosystem is designed to provide a comprehensive support system that helps new ventures reach their full potential. It is a testament to the country’s commitment to fostering a thriving entrepreneurial environment. Through the effective allocation of resources and strategic networking, Switzerland is able to support the growth of innovative startups and turn them into successful businesses.
Entrepreneurial Factors

information, rich expertise, and different tangible resources such as infrastructure (e.g. Bruhn et al., 2001; Harlow & Saunders, 2007). Efroymson and Hults (2007) emphasize that entrepreneurs make use of strong ties to attain vital resources and weak ones for achieving legitimacy and discovering opportunities.

An entrepreneurship ecosystem typically constitutes of network clusters, bounded by a geographical concentration of interdependent business contacts (weak ties) (Rosenthal, 1997). Network clusters arise for a number of reasons, including shared inputs, skilled labor pooling, and knowledge spillovers (e.g. Audretsch & Feldman, 1996; Marshall, 1920). The proximity of these institutions ensures intensified communication and interactions, and facilitates information sharing between the institutions and start-ups located within the cluster. In addition, a well-functioning network cluster fosters entrepreneurial activity by providing effective innovation mechanisms and by facilitating the commercialization of new products or services. Entrepreneurial activity in turn leads to cluster growth through the development of new businesses and new cluster members. Network clusters and entrepreneurial activity reinforce one another, leading to a more rapid local economic development through cumulative causation (Feldman & Francis, 2004). Finally, a vibrant cluster creates an attractive hotspot for foreign players, eager to benefit from the interactions (Lundan, 2002). Thus, the choice of location is an important strategic decision for entrepreneurs.

Switzerland has several industry clusters which are not only of national but also of international significance. Chemical and pharmaceutical firms such as Novartis or Roche and a dense network of medtech, biotech, and nanotech companies form a unique industrial cluster in Northwestern Switzerland, which is also part of the international Biovalley cluster. The machinery, electrical engineering and metals industry (MEM) is the largest industrial sector in Switzerland and holds a key position in the Swiss economy with well-known names such as Saurer, Kieter, Schindler and ABB. These companies are particularly present in the regions of Zurich and Aargau, the Ticino, the Valais, in the Rhine Valley and in Central Switzerland. The Swiss financial center is an important element of the economy creating a significant cluster around Zurich and Geneva. Both cities are among the world’s top ten financial centers. In the region along the Jura from Geneva to Schaffhausen, a “precision cluster” has developed due to the geographical concentration of the traditional watchmaking industry. The cities of Geneva, Biel and La Chaux-de-Fonds are three watchmaking centers, where companies such as Swatch Group, Rolex SA, Richemont SA and the LVMH Group are headquartered. In the Zurich area well-known companies from the IT sector have settled around the ETH Zurich, its research facilities and the University of Zurich, such as IBM, Google and Microsoft (SGE, 2014). For the aforementioned reasons, many Swiss start-ups have basically been centered on these industrial clusters. The Start-up Monitor database confirms this trend, showing for example that while in Zurich and Geneva the ITC high tech start-ups are prominent, in Basel Stadt and Basel Land dominate new ventures from the Biotech & Pharma and Medtech & Diagnostics industry (Figure 12). However, with the exception of ETH and EPFL, there are hardly any regional entrepreneurship specific ecosystems (Vogel & Grichnik, 2014).

Venture financing

Obtaining adequate access to capital is a key component in the entrepreneurial process to respond to the inherent resource constraints that new firms face. Therefore, access to financial support is an important entrepreneurial framework condition. The source of financing depends on the stage of new venture development (Wu et al., 2007). In the seed stage, businesses are characterized by a lack of track record and high levels of uncertainty. Firms operating in this early stage are investing heavily in the creation of their business, but are oftentimes not generating sufficient revenues and profits to achieve a satisfying Return on Investment (ROI). At this stage, the most common sources of start-up funds are personal savings, family and friends, bootstrapping and business plan competitions. These types of financial sources are popular because they are the cheapest sources of capital and immediately available. As the firm reaches the growth stage, they generate a sales and profit history to inform investors about the potential of the business. The major source for start-ups in this stage is external investors as they have also the possibility to provide higher investments (Grichnik et al., 2010; Seidman, 2003). Analyzing the start-ups mapped in the Swiss Start-up Monitor shows that founder, family and friends were the financial source in 19% of the cases. The most frequently mentioned external financial sources are business plan competitions (33%) and business angels (17%) followed by public or government agencies (12%), venture capitalists (7%). Banks, foundations, family offices and corporate venture capitalists account for a relatively small proportion of all resource types. Founder, family, friends and money prizes from business plan competitions together account for six percent of the total investment volume, whereas venture capitalists with 58% represent the highest investment amount (Figure 13).

In Switzerland, there is a large diversification of funding for the seed phase of a new venture and several sectors such as MedTech and Biotech have a strong basis of venture capitalists and corporate venture capitalists willing to invest in later stage companies. However, there is still a certain lack of capital for the early growth phase of start-ups (Vogel & Grichnik, 2014). Despite its highly competitive position with regards to overall availability of funding, later-stage funding is less well pronounced when compared with similarly active countries such as the US, the UK or the Scandinavian countries (SECO, 2012). The Swiss Venture Capital Report (Kyora & Heinim, 2015) shows that in 2014 Swiss start-ups collected more than CHF 450 million in 92 financing rounds, of
Entrepreneurial Factors

which more than three quarters of the in-vested money (78%) went to companies in the life science sectors. The largest sum of CHF 200 million was invested in start-ups located in the canton of Vaud, followed by Zurich, where nearly CHF 130 million flowed into young companies. Taking a closer look at the financing rounds, the study reveals that out of the 92 recorded rounds eight were seed (CHF 1 million), 45 early stage (CHF 122 million) and 39 later stage investments (CHF 334 million). Although the total invested sum rose in 2014, the report highlights two problems: the funding gap, of between CHF two million and CHF ten million has become larger and the average level of investment in financing rounds has declined.

To conclude, venture financing is gener-ally available in Switzerland, but not equal-y for all stages of the entrepreneurial growth process. Start-ups in the seed stage have access to an abundance of different forms of financing. Several sectors such as MedTech and Biotech have a solid basis of venture capitalists and corporate venture capitalists willing to invest in late stage companies. However, there is a clear lack of early growth-stage funding (Vogel & Grichnik, 2014). For example, the medtech start-up NaviSwiss, founded in 2007 as a spin-off of the Swiss IFE (In- dustrielle Forschung und Entwicklun) GmbH, states in an article published in the Handelszeitung that as the firm is already in a later stage, it is confronted with considerable difficulties in obtain-ing funding which is urgently needed for the finalization and certification of their last prototype. Nascent start-ups have the possibility to access capital through business plan competitions or a variety of supporting programs. These possibilities are, however, limited for early growth stage start-ups. In the worst case, if the fundraising process is not successful, the firm needs to think about patent exploita-tion, NaviSwiss said (Steinhoff, 2014).

Furthermore, if the lack of early growth-stage funding is not taken seriously, many companies will be turning their back on Switzerland and seek support in startup hubs such as in Berlin, London, Boston or the Silicon Valley. An illustrative ex-ample for this issue is the Web of Things software company EVRYTHING, which moved from Zurich to London as they have received funding from international technology investment firm Atomico, New York-based private equity inves-tors BHLPP LLC, London-based venture capital firm Dawn Capital, and with a corporate investment by Cisco (Skinner, 2015; Startuptickter, 2014). Furthermore, the limited access to capital may also cause scalability issues. A vivid example provides the NFC gadget and marketing platform provider Pocket. The start-up received an investment of USD 2 million in 2012 in order to dramatically expand its US Sales Operations (Startuptickter, 2012). To address this concern, the ini-tiative Swiss Investment Fund (SIF) of the Swiss Private Equity & Corporate Finance Association (SECIA) aims to close this financing gap and foster innovative entrepreneurship in the Swiss innovation ecosystem. It is imperative that the Swiss entrepreneurial ecosystem players do everything in their power to retain high-growth ventures in Switzerland, or else the benefits ascribed to high-growth ventures (job creation, taxes, etc.) will flow to another economy. 

Entrepreneurial Education

Entrepreneurial education plays a central role in shaping entrepreneurs. There is an ongoing debate about whether entrepreneurs are born or made. While certain psychological traits have been asso-ciated with entrepreneurial activities, it is widely believed that entrepreneurs can be cultivated through education (at least to a large extent). According to the famous words of Peter Drucker (1986), “Most of what you hear about entrepreneurship is all wrong. It’s not magic; it’s not mysteri-ous; and it has nothing to do with genes. It’s a discipline and, like any discipline, it can be learned.” Entrepreneurship edu-ca tion can provide future entrepreneur-ship with the necessary tools and skills to start their own ventures. In addition, entrepreneur-ship education seeks to help novice entrepreneurs develop the right attitude and mindset to support economic growth. Hence, access to en-trepreneurship within educational systems is of major importance at all levels (Völkner et al., 2009). Empirical evidence suggests that entrepreneurial activity is positively influenced by entrepreneurship education programs. Summit Consulting (2009) shows that 39% of graduates who took higher education entrepreneurship classes have founded an entrepreneurial organization. This was the case only for 26% of those who had not taken such a class. Of course such findings need to be interpreted with care, given that there is a selection effect with regards to who signs up for entrepreneurship classes. Yet, it is nonetheless an insightful and promising finding. Another study conducted by Lange et al. (2011) indicates that students who take entrepreneurship courses are more likely to start a business: they bring long-standing ex-perience and expertise, a strong finan-cial position, a well-developed network and are free from family responsibilities. However, many senior people have been found to participate less in entrepreneurial activities and view self-employment less desirable than younger people (Halabisky, 2012). Hence, education and training programs that support opportunity recogni-tion are of major importance at the senior level of education. 

In Switzerland, entrepreneurship educa-tion for youth (secondary level education) is scarce. An exception is the VES-program (Young Entrepreneurs Switzerland, part of Junior Achievement), an association which develops and supports practice-oriented business training programs for high-school students in Switzerland. The majority of universities and universities of applied sciences has established chairs for entrepreneurship and now offers courses in entrepreneurship, providing profound theoretical and practice-oriented skills for being, acting, and thinking like an entrepreneur. According to a recently published study by the University of St.Gallen, 2% of Swiss students intend to start a business directly after gradua-tion, while 17.7% plan to establish their own company five years after graduation (Siegler et al., 2013). Compared to other countries, these numbers are relatively low. At the time of the survey, only 4.7% of students across all disciplines were in the process of founding their own business. In Switzerland, no education program at a senior level is offered. Due to its age-population and the trapedoidal age pyramid, Switzerland’s unmet potential of seniors is largely lying dormant.

Overall, there is significant room for im-provement in entrepreneurial education. According to Siegel et al. (2013) who found to participate less in entrepreneurial activities and view self-employment less desirable than younger people (Halabisky, 2012). Hence, education and training programs should include entrepreneurship courses in entrepreneurship, seek to increase the number of students who take entrepreneurship courses, and provide practical experience. A recent meta-analysis by Brinckman et al. (2010) found that lack of exposure to the entrepreneurial world. According to Spigel (2015) the two main cultural attributes of an entrepreneurial ecosystem are attitudes and histories of entrepreneurship. Cultural attributes shape the outlook for entrepreneurship as a viable career choice or as something to be undertaken only when no other options are available (Kibler et al., 2014). Another important aspect is the extent to which culture stigmatizes entrepreneurial fail-ures. It has been shown that in cultures characterized with collectivism and high uncertainty avoidance, the fear of stigma associated with entrepreneurial failure leads to relatively low levels of entrepre-neurial activity (Hofstede, 1980; Hofstede, 2002; Hayton et al., 2002; McGrath, 1999). In some cultures, failure is seen as positive learning experience whereas in others, it is stigmatized. The Global Entrepreneurship Monitor (GEM) looks at key predictors of entrepreneurial cul-ture around the world, including fear of failure, perceptions about entrepreneurial
opportunities and capabilities, entrepreneurship as a career choice, high status successful entrepreneurship and media attention for entrepreneurship. According to the GEM 2014 data, Switzerland expresses little fear of failing, i.e. 29% for those seeing opportunities indicate to have fear of failure, which is nearly the same as that of the USA and far below the European average. The GEM data shows that individuals in Switzerland has average perceptions about the presence of good opportunities for starting a business (43.6%), as well as the beliefs they have the skills and knowledge necessary to start an entrepreneurship in the first half of the last decade, they have increased considerably in the last few years (GEM, 2013). Another remarkable factor is the growing rate of women entrepreneurs in Switzerland. According to the Global Entrepreneurship Monitor (2014), Switzerland enjoys one of the best positions in terms of women’s entrepreneurial activity in most countries, the number of female entrepreneurs is much lower as compared to their male counterparts. This tendency can be well explained by various social, cultural, or economic factors (GEM, 2014). Prominent histories of entrepreneurship are an important cultural attribute and have the potential to shape cultural outlooks about entrepreneurship (Feldman et al., 2005). As Feld (2012) points out, stories and role models of successful local entrepreneurs can inspire younger entrepreneurs to undertake similar journeys. One prominent example of such a success story in Switzerland is Sensirion. Founded in 1998 as a spin-off from the ETH Zurich, Sensirion has become one of world’s leading manufacturers of humidity sensors and other sensor solutions. The company currently has about 350 employees in Switzerland (a total of about 600 worldwide) and generated revenues of CHF 150 million in 2013. Sensirion is based in Stäfa near Zurich, Switzerland. Whereas research, development, and production is mainly conducted at its headquarters, the company also has employees in various other countries such as the USA, South Korea, Japan, China, Taiwan, the UK, Ireland, and Germany. To sum up, the Swiss entrepreneurship culture is well on track, but there is still room for improvement. It has been observed that the Swiss entrepreneurship culture has changed toward encouraging people in their decision to start-up an enterprise and it is noteworthy that fear of failure in Switzerland is at the same level as in the US. However, Swiss experts notice a lack of entrepreneurial risk-taking in the Swiss culture (GEM, 2014). Hence, events such as the Failcon – a conference for startup founders to study their own and others’ failures and prepare for success – can be of great value to help entrepreneurs understand the concept of failure and learn from their own and other people’s failures.

This section looks at the entrepreneurial factors in Switzerland and leads to the conclusion that while some of the factors are very strong, others still need substantial improvement. While entrepreneurial support and visibility score well, culture, network, venture financing and education are below the average and have considerable potential for improvement. Next we will look at the entrepreneurial activity in Switzerland.

Figure 14: Entrepreneurial culture (Source: GEM, 2014).

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ENTREPRENEURIAL ACTIVITY IN SWITZERLAND

After this overview of non-entrepreneurial and entrepreneurial factors of the Swiss entrepreneurial ecosystem, the next step is to assess the entrepreneurial activity in Switzerland. Yet, there is an ongoing discussion with regards to which new ventures should be looked at in order to assess whether an entrepreneurial ecosystem is “productive” or “effective” and whether it yields the desired return from a macroeconomic perspective.

As Vogel (2013) puts it, there are a variety of potentially useful key performance indicators (KPIs) to assess the effectiveness of an ecosystem, “including the number of newly created ventures within the ecosystem, the number of new high-growth ventures that have been created, a number of new ventures in a specific industry or segment, the number of jobs created by the new ventures, the number of unemployed that gained employment through the new ventures, aggregated taxes paid by all new ventures in the ecosystem, etc. There is no “one-size-fits-all” KPI, instead it needs to be matched with the stakeholders’ expectations and the vision of the ecosystem.”

It has been shown that it is useful to assess high-growth, scalable businesses, given that they are the key sources of innovation, productivity growth and employment (Blank, 2010; Hathaway, 2013; WEF, 2015). Differentiating between start-ups with scalable business models and “other” young businesses is an important distinction which publicly available data has neglected so far. The Swiss Start-up Monitor database allows exploring the emergence of new high-tech and high-growth ventures. This database currently covers only a fraction of the Swiss start-up population, the database delivers a reliable reflection of the start-up landscape in Switzerland. To assess the Swiss entrepreneurial activity, this report leverages insights from the Swiss Start-up Monitor and refers to several frequently used proxy measures. The Swiss Start-up Monitor provides a real-time data collection of more than 1‘000 high-tech and high-growth ventures. This database allows exploring the emergence of new high-tech and high-growth ventures, the assessment of Swiss entrepreneurial ecosystem and the impact of these ventures on the Swiss economy as a whole. The Start-up Monitor focuses on these companies because they have the greatest impact on the national economy (GEM, 2012).

Figure 15 illustrates these companies across Switzerland with some regional hot spots highlighted. Zurich (32%) and Vaud (19%) are the most powerful cantons and include together more than 50% of the Start-up Monitor’s start-ups. Among the top five are also ranked Basel (9.7%), Geneva (8%) and Bern (5%). In addition, the database of the Swiss Start-up Monitor generates some insights into the sectoral distribution of the Swiss high-tech and high-growth ventures. The most prevalent sectors of the Start-up Monitor database are ICT (29.9%), Consulting & Services (12.3%), MedTech & Diagnostics (10.6%), Engineering (9.7%), Biotech & Pharma (8.4%), Consumer products (5.4%) and various other industries with 5% or less.

Aggregating the regions into four main areas, namely the Greater Zurich Area (GZA), the Greater Basel Area (GBA), the Greater Geneva Bern Area (GGBA) and the St.Gallen Bodensee Area (SBA), the database provides a reliable reflection of the start-up landscape in Switzerland. The most important sectors of the Start-up Monitor database are ICT (29.9%), Consulting & Services (12.3%), MedTech & Diagnostics (10.6%), Engineering (9.7%), Biotech & Pharma (8.4%), Consumer products (5.4%) and various other industries with 5% or less.

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Aggregating the regions into four main areas, namely the Greater Zurich Area (GZA), the Greater Basel Area (GBA), the Greater Geneva Bern Area (GGBA) and the St.Gallen Bodensee Area (SBA), there are several patterns discernible with regards to the distribution of the most important sectors (Figure 16). In the GZA and GGBA there is a particularly strong presence of Biotech & Pharma (26%) and MedTech (14%) firms. This is not surprising, given that Northwest Switzerland is home to a unique life sciences cluster. In this area Consulting and Services (24%) also makes up a solid basis. The St.Gallen Bodensee Area displays a strong prevalence of ICT, Consulting & Services, and Consumer Products.

A variety of proxy measures have been employed to analyze entrepreneurial activity including self-employment rates, new venture creation and the relative share of output or employment accounted for by small firms (Audretsch & Thurik, 2000). Other studies have measured firm entry and exit or the birth and death of firms (Baldwin, 1995; Bailey et al. 1996). Efforts have also been made to measure the proportion of adults who intend to or have started their own business, or to gauge entrepreneurial attitudes and perceptions (Reynolds et al., 2000). These different proxy measures will be addressed in the following sections. It has to be mentioned that each measure can be used as a viable proxy to analyze entrepreneurial activity, but are not necessarily comparable with one another.

Self-employment

A related measure of entrepreneurial activity is self-employment. Self-employment as a proportion of total employment is relatively low in Switzerland compared with other European countries. Figure 17 illustrates that Switzerland is in the mid-range of European countries with respect to the prevalence of self-employment (Eurostat, 2014).

The self-employment rate in Switzerland has not changed much over the past years: since 1991, the self-employment rate has fluctuated between 8% and 11% of the total workforce, reaching a record level of 11% between 1997 and 2001 (FSO, 2014c).
Entrepreneurial Activity in Switzerland

New venture creation
Another way to measure entrepreneurial activity is new venture creation. An important subset of new firms is young, high-growth firms which are often referred to as “gazelles”. Gazelles are companies that are not older than five years, have ten or more employees at the beginning of the measuring period and that have an average annual turnover and employment growth rate of more than 20% for a prolonged period of time. These companies often account for less than one percent of all firms in countries all over the world, but contribute a much larger share to job creation and economic growth. According to the study Entrepreneurship at a Glance (OECD, 2012) the share of gazelles in Switzerland holds a good position (Figure 19). With 0.5% of the population of Swiss firms, the country lies in the midfield with other OECD countries such as Denmark (0.5%) or Italy 0.4% and Sweden 0.4%.

However, there is certainly still room for improvement and the hope is that with improved growth-stage funding opportunities, more of these gazelle companies remain in Switzerland for the growth stage instead of moving to a more favorable ecosystem.

Figure 18 illustrates the self-employment rates in Switzerland as well as the general unemployment rate. During the early 1990s, unemployment rose due to poor economic conditions. As a consequence, many people fled into self-employment, peaking around 1999. It was also in 1996 that the Swiss government had launched a dedicated Active Labor Market Policy (ALMP) that helps unemployed transition to self-employment (Haas & Vogel, 2014), which further explains the rise in self-employment. Over the past 15 years, however, self-employment has become less prevalent as compared to other forms of activities, more specifically entrepreneurship.

New firm entry and exit
New firm entry and exit is a common proxy to measure entrepreneurial activity. According to the Federal Statistical Office (FSO), 12,000 new firms have been created on average per year since 2001. Over the past decade, new firm creation (and registration) has remained at a constant level (2001-2013) with a record low in 2002 (10,260) and an all-time high in 2013 (12,400). New ventures account for 2% of the entire population of Swiss companies (FSO, 2013b). A similar pattern is observed regarding the number of commenced insolvency proceedings in Switzerland, which remained fairly stable on average at 7,900 per year over the period between 2010 and 2013 (FSO, 2013a).

According to the Swiss Federal Statistics Office, of the 7919 commenced insolvency proceedings in 2013, 24% were due to organizational deficiencies whereas 76% were insolvency openings within the framework of the Federal Statute on Debt Enforcement and Bankruptcy (Figure 20). A closer look at the legal form of new ventures over the past 13 years shows that the sole proprietorship enterprises and the public limited company (AG) have been the most prominent legal forms in Switzerland followed by the limited liability company (GmbH) and partnership. Particularly noticeable is that the first half of this period was dominated by sole proprietorship enterprises, whereas limited liability companies have become more prevalent in the second half of this period (Figure 21) (FSO, 2013). The average survival rate of new firms has changed only marginally over the past years. On an international basis, Swiss firms have comparatively high survival rates. About 80% of new firms survive the first year, with roughly 50% surviving five years or more (FSO, 2003-2007) (Figure 22).

Entrepreneurial Intention and Total Entrepreneurial Activity
Surveys on entrepreneurial attitude are another approach to measuring entrepreneurship. Using the Global Entrepreneurship Monitor methodology of entrepreneurial intention, the data indicates that Switzerland ranks among the lowest among all countries that are tracked in the

Figure 19: Share of gazelles, 2008 or latest available year (2009 in insert) measured by employment growth (Source: OECD, 2012).

Figure 20: New firm entry contrasting commencement of insolvency proceedings in Switzerland (Source: FSO, 2013a and 2013b; based on firms registered in the commercial register).

Figure 21: New venture entry by legal form in Switzerland (Source: FSO, 2013).

Figure 22: Survival rates of new ventures in Switzerland during the first five years of business (Source: FSO 2003-2007).

Figure 18: Self-employment and unemployment rates in Switzerland between 1991-2014 (Source: FSO, 2014c; Base: Total employment).

Figure 17: New firm entry and exit (Source: FSO, 2013a and 2013b; based on firms registered in the commercial register).

Figure 20: New firm entry contrasting commencement of insolvency proceedings in Switzerland (Source: FSO, 2013a and 2013b; based on firms registered in the commercial register).
Global Entrepreneurship Monitor (GEM, 2014) has shown that Switzerland ranks in the mid-range of other European countries (TEA rate of 7.1%) (Figure 24). One reason for the low entrepreneurial intention and activity are the comparatively high opportunity costs and the overall strong Swiss economy with a very low unemployment rate. These factors lead to a low rate of necessity entrepreneurship and as such also the desire of individuals to start their own business. Start-ups in Switzerland are founded because their founders see opportunities rather than having to start a business to those who are entrepreneurially active is very high in Switzerland. That is, of the 7% of the adult population which have the intention of starting a business, almost all do so. In comparison, 14.2% of the French population have the intention to start a business but only 5.4% actually do so, resulting in a conversion rate of only 38% (GEM, 2014). The large intention-action gap in many countries other than Switzerland may partially be explained by ecosystem-related factors such as the ease of doing business (World Bank Doing Business Ranking, 2015). While it is easy to start a company in Switzerland, this is not so much the case in other countries. If entrepreneurs lack the necessary resources or connections, they might end up never starting a company, despite their intentions (Table 4).

**Employment**

Finally, the relative share of employment accounted for by small firms has become a valuable proxy to measure entrepreneurship activity. While older firms employ the majority of people in the workforce, new type of self-employment firms. It is clear, however, the employer enterprise birth rate i.e. the number of births of employer enterprises as a percentage of the population of self-employed workers with employees, Q4 2014; Base: Total self-employment (Source: Eurostat, 2014).

![Percentage of self-employed workers with employees, Q4 2014; Base: Total self-employment (Source: Eurostat, 2014).](image)

1 This comparatively high value of new job creation is a result of the selection effect for the Swiss Start-up Monitor, where only innovation-based companies are portrayed. The criteria includes: (1) patent-based, (2) university spin-off, (3) part of a key entrepreneurship support program such as CTI Coaching, or (4) having raised risk capital.

![Total early-stage entrepreneurial activity (TEA) in Europe (Source: GEM, 2014).](image)
But despite these favorable conditions, potential generally tend to overestimate the number of jobs they expect to generate, the impact of their businesses on the actual creation of these jobs will still probably be substantial.

This section has illustrated the regional hot-spots of high-tech and high-growth start-ups in Switzerland. In addition, several proxy measures for Swiss entrepreneurial activity have been assessed. In terms of self-employment and new venture creation Switzerland ranks in the lower middle range compared to other European and OECD countries. Another picture emerges when considering the intention to start a business and the Total Entrepreneurship Activity, which both ranges among the lowest in the world. But it is noteworthy that compared to other countries, the conversion rate of people with the intention of starting a business to those who actually start a business is among the highest in the world. Finally, the relative share of employment accounted by small firms is located in the upper range. It becomes clearly visible that the result of the assessment of entrepreneurship activity depends strongly on which proxy measure is used. All in all, entrepreneurship activities in Switzerland tend to be in the global mid-range. While there are signs of substantial activities and more and more high-impact start-ups being created in Switzerland, there is still significant room for improvement. If Switzerland is to appear in the top of one of the global ecosystem rankings (e.g., Startup Genome Project), there is still significant work to be done by all ecosystem players. However, because the promotion of entrepreneurship is a difficult and multi-faceted issue, it requires the orchestrated and coordinated effort of all involved stakeholders.

WHAT IS NEXT?

There are several initiatives in the coming years at infrastructure, research and venture financing level which will have a substantial impact on the development of the Swiss entrepreneurship ecosystem. Starting in 2016, a new innovation park is planned to be built in Dübendorf. Swiss Innovation Park is a concept of the federal government, cantons, science and economy whichfully exploit the innovation potential of Switzerland in the international competition among location. The concept combines the best conditions for industrial research with high receptivity of companies willing to settle in the region. The concept is a long-term model for the successful development of Switzerland as a knowledge-based, globally competitive economy. As such the regions become more attractive for investment in research and create directly and indirectly jobs.

Another initiative is Digital Zurich 2025 which aims to make the greater Zurich area to the leading European center for digital innovation. This will be achieved by bringing together the expertise and potential from a number of sources such as for example the ETH Zurich, the university and other institutions of higher education in the city, other experts in their field and a number of companies involved in information and communication technology. Digital Zurich 2025 plans an annual congress and a Swiss Investor Summit, selected Swiss start-up companies could meet up with international investors and business leaders. Balgrist campus is an institution with the goal to advance research into the musculoskeletal system to enable innovative discovery in the interests of patients. To achieve this, Balgrist Campus is establishing a research and development center for musculoskeletal medicine located between the lake of Zurich and Balgrist University Hospital. Balgrist Campus is funded privately and a contribution from the lottery fund of the Canton of Zurich. The research and development center has opened its doors in November 2015. It offers the unique opportunity to benefit from the close proximity of patients, practicing physicians, researchers and engineers, as well as the direct relationship with the university and the ETH in Zurich.

The initiative Swiss Investment Fund (SIF) of the Swiss Private Equity & Corporate Finance Association gives institutional investors the opportunity to invest in young high-tech companies. The SIF worth 500 million francs and is to be positioned as a so-called “fund of funds”. This means that rather than investing directly in start-up companies, it invests in 15 to 20 smaller funds that, in turn, can then provide equity capital for 200 to 300 young, Swiss high-tech firms. The investments will be done in private companies only and in a diverse set of sectors and stages (Swiss Venture Guide 2013).
Start-up Monitor has officially trans-
registered start-ups such as, financial and benchmarking tools, knowledge exchange and community collaboration tools (Table 6). Not only start-ups can register on the platform, but also stakeholders. Investors have for example the possibility to present their company profile and make public announcements. Additionally, investors are able to search for start-ups and track investment opportunities with a deal-flow management tool. The SSM has strict eligibility criteria. Companies must comply with the following criteria: Entry in the commercial register (or have the goal to register in the next couple of months), innovative and/or technology based business, and not older than five years after entry in commercial register and at least one of the following supplementary criteria: University spin-off, raised capital, part of a start-up support program (e.g. CTI-Start-up, Startfeld), nominee or winner of a start-up award/prize (e.g. de Vigier, Venture Kick), filed or pending patent. Registration cannot be submitted without entering all the required information. To ensure that all registrations meet the criteria, they are validated by the SSM team.

Why the Swiss Start-up Monitor is unique?
1. The Swiss Start-up Monitor is able to collect data on entrepreneurship which official statistics do not capture. Official statistics focus on new firm foundation or self-employment, but a vast majority of these firms do not have scalable business models (Blank, 2010). Differenziating between start-ups with scalable business models and ‘other’ young businesses is an important, but has been neglected so far by publicly available data.

2. The Swiss Start-up Monitor collects primary data on entrepreneurship which distinguishes them from other indices. Secondary data is frequently used as the only source of data for measuring components of entrepreneurship ecosystem. However, since this data has been collected by someone else or for another purpose, there is a lack of control over data quality and data may not fit the main objectives of the study. Therefore, primary data is indispensable to get a reliable picture of the Swiss entrepreneurship ecosystem.

3. The Swiss Start-up Monitor collects panel data. The longitudinal database can track the changes in entrepreneurship components and enables stronger claims about causality than analysis of cross-sectional data.

4. The Swiss Start-up Monitor focuses on the entrepreneurship ecosystem which is the first of its kind in the country. There have been several research efforts on entrepreneurship in Switzerland, but research on ecosystems has been largely neglected so far. The Swiss Start-up Monitor is the first which focuses on entrepreneurship ecosystem in Switzerland.

5. The data base of the Swiss Start-up Monitor allows for cross-country comparison and creates international benchmarking. The Start-up Monitor uses variables which are common in international research, so that cross-country comparison will be possible.

About the Swiss Start-up Monitor Foundation

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Table 6: Detailed overview over the Start-up monitor utilities.

<table>
<thead>
<tr>
<th>Utility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Profile</td>
<td>Short presentation of the own company which is visible to different groups of stakeholders.</td>
</tr>
<tr>
<td>Activity Feed</td>
<td>Overview of all platform activities, deadlines for business plan competitions, event dates, and new blog articles.</td>
</tr>
<tr>
<td>Job Board</td>
<td>A job-offering area, where registered users post their job opportunities for free. The job offerings are not only visible for community members, but also for all interested internet users visiting the Swiss Start-up Monitor’s public homepage.</td>
</tr>
<tr>
<td>Operations Board</td>
<td>Intuitive financial and reporting tool to track the own performance.</td>
</tr>
<tr>
<td>Documents</td>
<td>Knowledge exchange tool to share templates such as labor contracts, financial planning templates, business planning templates etc. with other start-ups.</td>
</tr>
<tr>
<td>Mailing List</td>
<td>The Founder’s Mailing List is the central place for questions, feature requests, success stories and anything regarding the Swiss Start-up Scene. The list is moderated and only open to members of the Swiss Start-up community.</td>
</tr>
<tr>
<td>Benchmarking</td>
<td>A tool where start-ups can compare themselves with a selfdefined peer group.</td>
</tr>
</tbody>
</table>

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START-UP ORGANIZATIONS AND INITIATIVES
### Bern Area

#### Education
- Akad Business, Bern
  - [www.akad.ch/business](http://www.akad.ch/business)
- CTI Entrepreneurship, Bern
  - [www.cti-entrepreneurship.ch](http://www.cti-entrepreneurship.ch)
- Fachhochschulen, Bern
  - [www.fachhochschulen.net](http://www.fachhochschulen.net)
- University of Bern Department of Management and Entrepreneurship, Bern
  - [www.management.imu.unibe.ch](http://www.management.imu.unibe.ch)

#### Infrastructure
- DufourWest, Biel
  - [www.dufourwest.ch](http://www.dufourwest.ch)
- Fri Up, Gründerzentrum Nord, Murten (BE)
  - [www.friup.ch](http://www.friup.ch)
- SBB AG, Bern
  - [www.sbb.ch](http://www.sbb.ch)
- Swiss Parks – Verband der Technologie- und Gründungszentren, Bern
  - [www.swissparks.ch](http://www.swissparks.ch)
- Technologiepark St-Imier (BE)
  - [www.st-imier.ch](http://www.st-imier.ch)

#### Financing
- Berner Kantonalbank, Bern
  - [www.bekb.ch](http://www.bekb.ch)
- BV Partners AG, Bern
  - [www.bvpartners.ch](http://www.bvpartners.ch)
- Finanzhilfe für unternehmensinterne Projekte – Mann + Frau: Ein Gewinn für Unternehmen, Bern
  - [www.mann-und-frau.ch](http://www.mann-und-frau.ch)
- Hasler Stiftung, Bern
  - [www.haslerstiftung.ch](http://www.haslerstiftung.ch)
- STI Stiftung für technologische Innovation, Biel
  - [www.sti-stiftung.ch](http://www.sti-stiftung.ch)

#### Innovation
- Competence Center for Medical Technology, Bern
  - [www.ccmedtech.ch](http://www.ccmedtech.ch)
- Schweizerische Vereinigung für Technologietransfer swIT, Bern
  - [www.switt.ch](http://www.switt.ch)
- Unitectra
  - [www.unitectra.ch](http://www.unitectra.ch)

#### Support
- Base Camp 4 High Tech, Bern
  - [www.basecamp4hightech.ch](http://www.basecamp4hightech.ch)
- Basecamp Bern, Interlaken (BE)
  - [www.basecamp.ch](http://www.basecamp.ch)
- Bürgschaftsgenossenschaft Mitte, Burgdorf (BE)
  - [www.bgmm.ch](http://www.bgmm.ch)
- Consulting Cluster, Bern
  - [www.consultingcluster.ch](http://www.consultingcluster.ch)
- Creative Hub, Bern
  - [www.creativehub.ch](http://www.creativehub.ch)

#### Networks
- Design Net, Langenthal (BE)
  - [www.designnet.ch](http://www.designnet.ch)
- donna informatica, Bern
  - [www.donnainformatica.s-i.ch](http://www.donnainformatica.s-i.ch)
- ecub, Bern
  - [www.ecub.ch](http://www.ecub.ch)
- Efficiency-Clubs, Biel
  - [www.efficiency-biel.ch](http://www.efficiency-biel.ch)
- Energie-Cluster, Bern
  - [www.energie-cluster.ch](http://www.energie-cluster.ch)

### Nordwesten Switzerland

#### Education
- Akad Business, Basel
  - [www.akad.ch/business](http://www.akad.ch/business)
- CTI Startup, Bern
  - [www.ctistartup.ch](http://www.ctistartup.ch)
- Eidg. Büro für die Gleichstellung von Frau und Mann, Bern
  - [www.egb.admin.ch](http://www.egb.admin.ch)
- Energy-Cluster, Bern
  - [www.energie-cluster.ch](http://www.energie-cluster.ch)

#### Financing
- BiomedInvest, Basel
  - [www.biomedinv.com](http://www.biomedinv.com)
- BioMedPartners AG, Basel
  - [www.biomedvc.com](http://www.biomedvc.com)
- De Vigier Stiftung, Solothurn
  - [www.devigier.ch](http://www.devigier.ch)
- EVA - The Basel life sciences, Basel
  - [www.eva-basel.ch](http://www.eva-basel.ch)

#### Visiblity
- Berner Business Creation Wettbewerb, Bern
  - [www.bbcw.ch](http://www.bbcw.ch)
- Blickpunkt:KMU, Biel
  - [www.blickpunktkmu.ch](http://www.blickpunktkmu.ch)
- Burgdorfer Innopreis, Burgdorf (BE)
  - [www.burgdorf.ch](http://www.burgdorf.ch)
- CTI Medtech Award, Bern
  - [www.ctistartup.ch](http://www.ctistartup.ch)
- CTI Start-up Label, Bern
  - [www.ctistartup.ch](http://www.ctistartup.ch)
-ENTERPRISE, Zollikofen (BE)
  - [www.enterprize.ch](http://www.enterprize.ch)

#### Government & Regulations
- Bern - Wirtschaftsförderung, Bern
  - [www.berneinvest.com](http://www.berneinvest.com)
- economiesuisse, Bern
  - [www.economiesuisse.ch](http://www.economiesuisse.ch)

#### Infrastructure
- DufourWest, Biel
  - [www.dufourwest.ch](http://www.dufourwest.ch)
- Fri Up, Gründerzentrum Nord, Murten (BE)
  - [www.friup.ch](http://www.friup.ch)
- KMU Frauen Schweiz, Bern
  - [www.kmufrauen/switzerland.ch](http://www.kmufrauen/switzerland.ch)
- Schweizerischer Gewerbeverband, Bern
  - [www.svg-usam.ch](http://www.svg-usam.ch)
- Swiss Venture Clubs (SVC), Belp (BE)
  - [www.swiss-venture-club.ch](http://www.swiss-venture-club.ch)

#### Support
- Base Camp 4 High Tech, Bern
  - [www.basecamp4hightech.ch](http://www.basecamp4hightech.ch)
- Basecamp Bern, Interlaken (BE)
  - [www.basecamp.ch](http://www.basecamp.ch)
- Bürgschaftsgenossenschaft Mitte, Burgdorf (BE)
  - [www.bgm-ccc.ch](http://www.bgm-ccc.ch)
- Consulting Cluster, Bern
  - [www.consultingcluster.ch](http://www.consultingcluster.ch)
- Creative Hub, Bern
  - [www.creativehub.ch](http://www.creativehub.ch)

#### Networks
- Design Net, Langenthal (BE)
  - [www.designnet.ch](http://www.designnet.ch)
- donna informatica, Bern
  - [www.donnainformatica.s-i.ch](http://www.donnainformatica.s-i.ch)
- ecub, Bern
  - [www.ecub.ch](http://www.ecub.ch)
Appendix

Innovationsfonds der Alternativen
Bank Schweiz ABB, Olten
www.tinyurl.com/Innovationsfonds

Mericom AG, Basel
www.mericom.ch

Novartis Venture Fund, Basel
www.nvfund.com

Aargau – Standortförderung, Aarau
www.tinyurl.com/ag-standortfoerderung

BaselArea – Standortförderung, Basel
www.baselarea.ch

Basel Stadt – Wirtschaftsförderung, Basel
www.awa.bs.ch

Jura – Promotion Economique, Delémont
www.eco.jura.ch

Solothurn – Standortförderung, Solothurn
www.standortsolothurn.ch

Technologiepark Basel, Basel
www.technologiepark-basel.ch

Technopark @ Aargau, Brugg (AG)
www.technopark-aargau.ch

Tenam AG, Liestal (BL)
www.tenam.ch

TZW Technologie Zentrum Witterswil, Witterswil (SO)
www.tzw-witterswil.ch

Clarient International Ltd., Mutterz (BL)
www.clarient.com

Energie Gipfel, Aarau
www.energie-gipfel.ch

Paul Scherrer Institut, Villigen (AG)
www.psi.ch/industry

Staumann Holding AG, Basel
www.staumann.ch

Technologie transfer FITT, Windisch (AG)
www.fitt.ch

Unitecra, Basel
www.unitecra.ch

Biotechnet, Basel
www.biotechnet.ch

Adlatus, Olten
www.adlatus.ch

Ecademy, Basel
www.ecademy.ch

Efficiency-Clubs, Basel
www.efficiency-club.ch

Femdat, Aarau
www.femdat.ch

Nationale Kompetenznetzwerk Gebäude-technik und Erneuerbare Energie, Langenbruck (BL)
www.brennet.ch

NEFU, Basel
www.nefu.ch

SVA – Schweizerischer Verband der Akademikerinnen, Basel
www.akademikerinnen.ch

SwoNet – Swiss Women Network, Aarau
www.swo.net

Basel Inkubator - Startup-Center der Universität Basel & FHNW, Basel
www.basel-inkubator.ch

Bürgschaftsgenossenschaft beider Basel
www.btg.ch

Innovationsfonds der Alternativen
Net Notar, Feldbrunnen-St.Niklaus (SO)
www.netnotar.ch

Life Sciences Prize, Basel
www.lifesciencesprize.ch

InnoPrix Solothurn
www.baloise.ch

Prix Jura, Delémont
www.jura.ch

Swonet – Swiss Women Network, Aarau
www.swonet.ch

De Vigier Preis, Solothurn
www.devigier.ch

ZURICH/EASTERN SWITZERLAND

Education

Henri B. Meier Unternehmensschule, St. Gallen
www.unternehmensschule.unisg.ch

HSG Chair for Entrepreneurship, St. Gallen
www.item.unisg.ch/de/divisions/entrepreneurship

EB Zürich, Zürich
www.eb-zuerich.ch

i-net innovation networks switzerland, Basel
www.inet-innovation.ch

KMU Swiss Event, Baden (AG)
www.kmuswiss.ch

National Instruments Switzerland, Ennbeladen (AG)
www.ni.com

EduCatioN

Akad Business, Zürich
www.akad.ch/business

Business Tools Zürich, Zürich
www.bttools.ch

De Vigier Stiftung, Basel
www.devigier.ch

ESW start-up, Wetzikon (ZH)
www.esw.ch

ETHZ Chair for Entrepreneurship, Zürich
www.entrepreneurship.ethz.ch

Gründungsstiftung, Basel
www.grundstiftung.ch

Gründungszentrum Crescenta für Migrantinnen mit Wohnsitz in der Nordwestschweiz, Basel
www.crescenda.ch

GründerZentrum Solothurn, Solothurn
www.gzs.ch

i-net innovation networks switzerland, Basel
www.inet-innovation.ch

KMU Swiss Event, Baden (AG)
www.kmuswiss.ch

National Instruments Switzerland, Ennbeladen (AG)
www.ni.com

Jungunternehmerpreis Nordwestschweiz, Basel
www.jungunternehmerpreis.ch

Swiss School for International Business, Zürich
www.ssib.ch

Swiss School for International Business, Zürich
www.ssib.ch

Technopark @ Academy, Zürich
www.tp-academy.ch

Universität St. Gallen, Institut für KMU, St. Gallen
www.kmu.unisg.ch

UZH Chair for Entrepreneurship, Zürich
www.business.unizh.ch/professorships/entrepreneurship_en.html

Visibility

Aargauer Unternehmenspreis, Aarau
www.tinyurl.com/Unternehmenspreis

Best Paper Award, Ennetbaden (AG)
www.tinyurl.com/NIDays-2016

De Vigier Preis, Solothurn
www.devigier.ch

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Aargauer Unternehmenspreis, Aarau
www.tinyurl.com/Unternehmenspreis

Best Paper Award, Ennetbaden (AG)
www.tinyurl.com/NIDays-2016

De Vigier Preis, Solothurn
www.devigier.ch
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