



# Innovation Bridge

Technology, Startups,  
and Europe's Connection to Silicon Valley

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## Acknowledgments

This report was prepared by Sean Randolph, Senior Director at the Bay Area Council Economic Institute. Camila Mena, Research Analyst at the Economic Institute, and Adair Rosin, an intern from Brown University, contributed to the research.

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## About the Institute

Since 1990, the Bay Area Council Economic Institute has been the leading think tank focused on the economic and policy issues facing the San Francisco/Silicon Valley Bay Area, one of the most dynamic regions in the United States and the world's leading center for technology and innovation. A valued forum for stakeholder engagement and a respected source of information and fact-based analysis, the Institute is a trusted partner and adviser to both business leaders and government officials. Through its economic and policy research and its many partnerships, the Institute addresses major factors impacting the competitiveness, economic development and quality of life of the region and the state, including infrastructure, globalization, science and technology, and health policy. It is guided by a Board of Trustees drawn from influential leaders in the corporate, academic, non-profit, and government sectors. The Institute is housed at and supported by the Bay Area Council, a public policy organization that includes hundreds of the region's largest employers and is committed to keeping the Bay Area the world's most competitive economy and best place to live. The Institute also supports and manages the Bay Area Science and Innovation Consortium (BASIC), a partnership of Northern California's leading scientific research laboratories and thinkers.

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# Executive Summary

The San Francisco Bay Area, which includes Silicon Valley, is widely seen as the world's leading center for technology innovation and entrepreneurial activity, a status reflected in its research universities, its extraordinary aggregation of venture capital, its high concentration of information technology and life sciences companies, and its track record of creating leading global businesses and transformative business models. This draws entrepreneurs from around the world and particularly from Europe.

How and why so many startups from Europe come to the Bay Area is explained by many factors. A slow recovery from the last global recession and a concern that it is losing ground to the United States and Asia is leading Europe to look increasingly to startups—an area where it has underperformed but is seeing new energy—as a source of future growth. This activity is concentrated in a number of major cities, led by London, Berlin, Paris, Amsterdam, and Stockholm; but other cities, such as Munich, Dublin, Warsaw, and Lisbon, also aggregate significant numbers of startups and are beginning to achieve scale as startup hubs.

Most European governments have launched programs designed to help startups grow. While varying from country to country, these typically include tax incentives and some type of investment, usually in the form of small-scale grants and co-investment with private venture firms. The European Investment Fund (EIF) allocates funding across Europe and also co-invests with private venture firms. In 2014, EIF-backed investments supported 41 percent of total venture activity in Europe, and the share of investment directly attributable to EIF was 10 percent.

These strategies by national governments and the EU seek to compensate for the lack of scale in Europe's venture markets: while European angel investors and venture firms are sufficient to support seed and very early-stage growth, the funding pool is shallow when it comes to Series A and particularly Series B and later-stage investment. The IPO and M&A environment is also weak, as Europe has few markets comparable to Nasdaq that enable emerging technology companies to go public, and more than half of the startup acquisitions that do occur are by companies from

outside Europe—primarily from the United States. Other funding hurdles that European startups face include a conservative culture in both venture firms and large companies that frequently fail to capitalize on the growth opportunities emerging companies may offer. This situation is changing, particularly in the last three years, as more later-stage funding has become available and more successful entrepreneurs have started to become investors. But the gap between Europe and the US/Silicon Valley is still large.

The other major challenge that European startups face is lack of market scale, as individual countries lack the scale of the US market, and cultural, linguistic and regulatory barriers inhibit the ability of startups to grow at a pan-European level.

This leads large numbers of European startups to come to the Bay Area, often with support from public and private companies, organizations and institutions. When they do this, many draw on a deep infrastructure of institutional support provided by their governments and by businesses from their home countries that are already embedded in the region. This bridge, composed of overlapping public and private networks, provides European startups with short-term landing pads and with expertise, advice, and connections that can help them grow their businesses. Whether that happens at a global scale, in the US or at home, most absorb the Silicon Valley experience, applying its values and insights to their future business strategies.

At least 35 European consulates, national technology agencies, and sub-national government organizations operate in the region, all or most with a focus on startups. They are joined by entrepreneurship programs run by European universities; at least 14 European-sponsored incubators, accelerators, work spaces, and innovation offices; independent accelerators where the largest number of international residents are European; and European-affiliated residential facilities specifically designed for startups. Eighteen European business organizations in the Bay Area include startup support in their programs. Major European companies have 19 corporate venture arms and 47 research laboratories and innovation offices in the Bay Area, which have engagement with startups as a core focus.

Entrepreneurs from across Europe who are working in the Bay Area—several hundred on any given day—share a number of key goals. One is access to venture capital, particularly at the growth (Series A or B) stage. A second is scaling in the US and global markets. Others come because their business models are built on platforms created by Bay Area companies; many consumer-facing startups work at some point with companies such as Facebook, Twitter and Google. Nearly all take advantage of the experienced marketing expertise that can be found in abundance in the region.

The startups that come find a rich supporting environment with deep networks, experienced mentors, and an openness to ideas that is difficult to find at home. They also encounter challenges, not the least of which is the region's high cost of living—a problem shared with Bay Area residents; housing is a particular problem. They also find a highly competitive environment for engineers, who are expensive, change jobs frequently, and have attractive opportunities with larger, well-established companies that unknown startups from other countries find it difficult to compete with. This situation leads many to do most of their R&D and engineering at home, where quality engineers are available at lower cost.

Often, the startups that gain traction will incorporate in Delaware and establish their headquarters in the Bay Area; others keep their headquarters at home and open a US affiliate. In either case, the pattern that most often emerges reflects a division of labor, where different and

complementary tasks are performed in the Bay Area and at home. Usually, the founder and top management move to the Bay Area, with strategy, marketing and in some cases R&D based in the region, and engineering support principally based in Europe, where most employees remain located. Both the Bay Area and the home country gain: the Bay Area through an infusion of companies and talent, and the home country through the increased employment, revenue, and visibility that come from having a successful global company that is more competitive and has grown faster than it could have had it stayed at home.

A number of steps could be taken in Europe and the US to make this relationship even stronger. In Europe, the proposed Digital Single Market (which aims to integrate Europe's markets for digital services) and a proposed Capital Markets Union (which among other things aims to lower restrictions to the cross-border movement of capital) could—if implemented properly—help European startups expand in a larger, more accessible European market. On this side, Bay Area accelerators can expand their presence in Europe—a process that is already beginning; venture capital firms can also benefit from a stronger footprint as Europe's startup environment expands. At the national level, creation of a startup visa to help entrepreneurs from other countries come to the US and create and grow companies could expand the number of startups coming to the region, enable them to stay longer, and address an issue that founders often cite as an obstacle to their ability to establish roots and grow in the US.

# Introduction

“Like so many before us, we went West in pursuit of a gold rush—this modern day one fueled by the Internet and a severe case of being bitten by the TechCrunch bug. After so many visits to the West Coast, we were sure San Francisco was the right place: being part of a startup industry, the early adopter fast-mover customers, the investors, the talent (and talent with actual relevant experience), the sheer density of startups and startup people, and of course the sunshine.”<sup>1</sup>

—Mikkel Svane, Founder & CEO, Zendesk and author of *Startupland*

The San Francisco Bay Area, which includes Silicon Valley, is widely recognized as the world’s leading center for technology innovation and entrepreneurial activity. Over several decades, it has successfully spawned waves of world-leading companies in information technology, social media, and life sciences and continues to generate companies and business models that disrupt existing industries. This makes it a magnet for both large and small companies from around the world.

The draw is at several levels:

- a world-leading research infrastructure of public and private universities, led by Stanford and four campuses of the University of California, that collaborate with industry and generate advanced technologies;
- an array of federal and independent research laboratories;
- the world’s largest pool of risk capital (venture and angel funding);
- the world’s largest concentration of IT and biotech companies;
- the world’s deepest and most diverse pool of technical talent;
- the world’s largest aggregation of entrepreneur-led startups;
- a sophisticated service industry with deep experience with IPOs and the management of intellectual property;
- and an open business culture that embraces risk and encourages collaboration.

These assets don’t operate in isolation, but work together to create a global innovation hub that connects with other knowledge-led regions around the world. In this sense, the Bay Area serves as a global innovation platform that invites companies from other countries to access and leverage its resources in order to compete and grow globally.

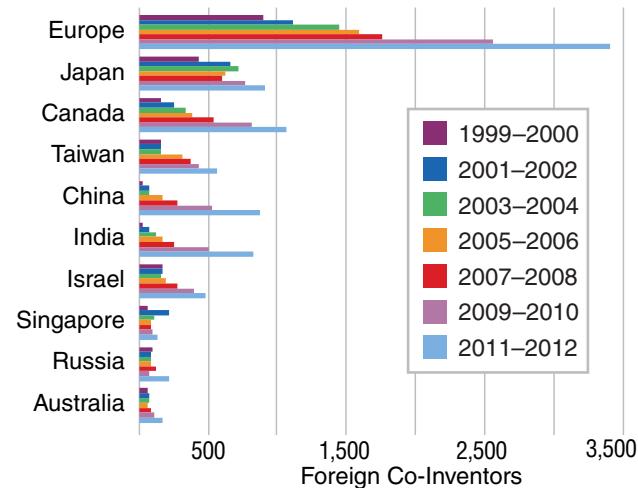
Europe is an active player in that landscape, as evidenced by the presence of European multinationals and hundreds of European startup and early-stage companies. This report addresses those startups: small entrepreneur-led companies, most often technology-based, which are generating new products or services that create jobs and revenue and may ultimately disrupt existing companies and industries, or create new ones. In a growing number of cities and nations around the world, startups are seen as critical to the innovation process and to innovation-led growth. This recognition is at the heart of Europe’s technology and startup presence in the Bay Area, and of the initiatives European governments and business organizations have developed to connect their companies to the region. How and why those early-stage companies cross that entrepreneurial bridge and how and where they grow will have important implications for future economic growth, particularly in Europe, which has fallen behind in its ability to generate technology companies with global scale and continues to struggle with slow growth in the wake of the last global recession.

While in 2006, 17 of the world's 50 most valuable companies were European, today that number is 7.<sup>2</sup> Authors Stephen Ezell and Philipp Marxgut note that the vast majority of Europe's large companies were founded around the turn of the twentieth century, and that from 1952 to 2007, Europe produced only 12 new companies with scale, at a time when the United States produced 52. From 1975 to 2007, only 3 large new European firms were publicly listed.<sup>3</sup> In contrast, the US has excelled at generating new companies, and of the most highly valued or capitalized public and private companies that have been created in that same period, the highest concentration is in the San Francisco Bay Area.

The challenge is highlighted in a 2014 study by A.T. Kearney, which found that worldwide only 9 of the top 100 ICT (information and communication technology) companies are headquartered in Europe, a number that has declined in recent years as a result of both mergers and acquisitions (M&A) and faster growth in US and Asian companies.<sup>4</sup> Similarly, of 236 billion-dollar+ software companies founded since 2003, 139 are in North America, 83 are in Asia, and only 44 are in Europe.<sup>5</sup> The challenge is particularly acute in terms of the extent of Europe's progress in tapping the potential of digitization. A 2016 report by the McKinsey Global Institute found that while Europe is undergoing a digital transformation driven by consumers, growing technology hubs, and a handful of leading companies, it lags in investment in and utilization of digital technology by sectors and firms. This is particularly the case compared to the United States. While the US has captured 18 percent of its digitization potential, Europe has captured only 12 percent. This masks considerable variation by country, with the UK leading the continent at 17 percent, followed by the Netherlands and Sweden at 15 percent each, France at 12 percent, and Germany and Italy at 10 percent each. In the ICT sector, Europe lags the US by 40 percent, and large sectors such as legal services, wholesale trade, and real estate are even further behind.<sup>6</sup> These are critical concerns, as a dynamic high-tech sector is at the core of innovation and global competitiveness.

## Global Connections: Patents with Bay Area and Foreign Co-Inventors

### Top Ten Collaborators



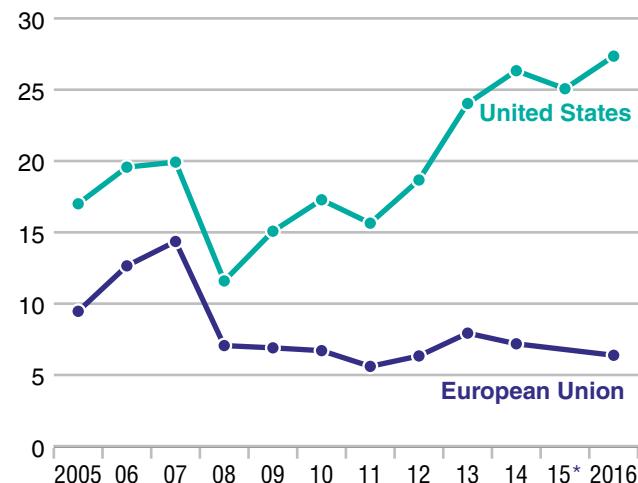
Data Source: US Patent Office

Analysis: Bay Area Council Economic Institute

Note: Counts refer to all utility patents with an inventor from the Bay Area, regardless of the inventor sequence number, and at least one inventor located outside of the US. Geographic areas are ordered by total number patents registered.

## Market Capitalization of Listed Domestic Companies, US and EU, 2005–2016

### Trillions of Current US Dollars



\* 2015 data for the European Union not available

Data Source: World Bank, World Federation of Exchanges database, World Development Indicators

Analysis: Bay Area Council Economic Institute

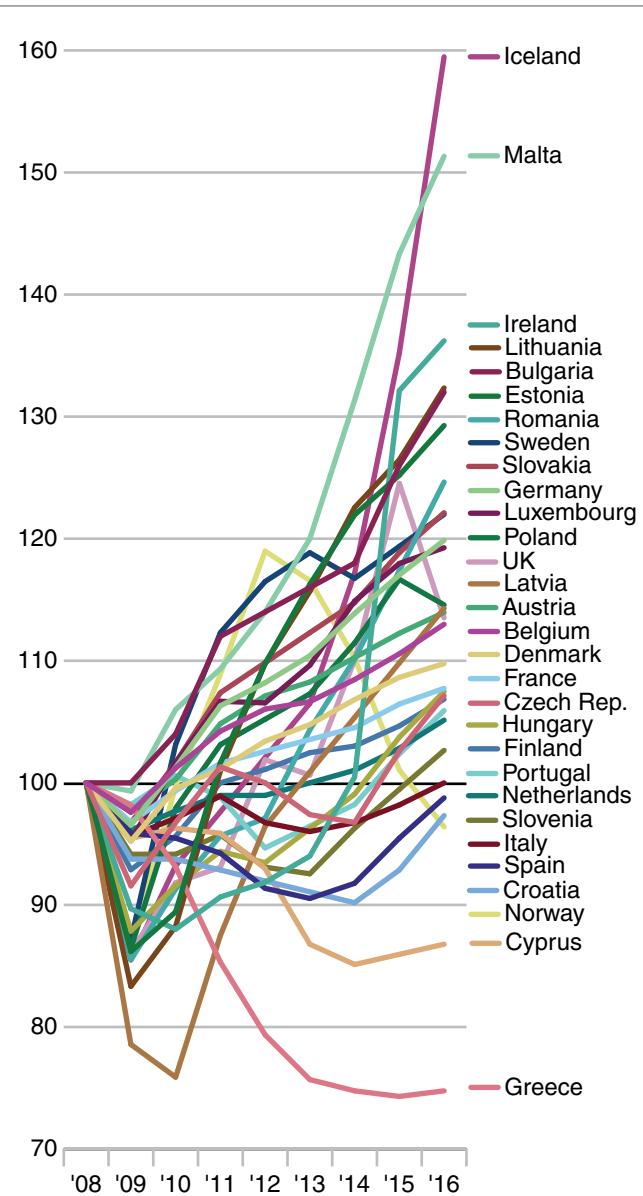
# Europe's Entrepreneurial Landscape

It is difficult to characterize all of Europe as a single place. With 28 member states (still including the UK) in the European Union, 19 members of the eurozone (countries that use the euro as a common currency), and 4 countries (Iceland, Liechtenstein, Norway, and Switzerland) that are not EU or eurozone members but are intimately connected, Europe presents a diverse economic landscape. Despite the European single market and a web of rules and governance structures (including institutional structures such as the European Commission and the European Parliament), European economies and their performance vary widely. This was evident in how different European economies were impacted by, responded to, and recovered from the Great Recession. Those differences continue to shape Europe's economic landscape today.

Slow recovery and a feeling that it has lost ground is leading Europe to look increasingly to entrepreneur-led startups as a source of future growth—an area where it has until recently underperformed. While facing many challenges, this strategy is starting to have success.

Like elsewhere in the world, innovation and startup activity in Europe is highly concentrated in cities. Entrepreneurs primarily cluster in major urban centers, where resources such as universities, large companies, investors, talent, and support facilities are concentrated. These cities are also nodes on global innovation networks, linking research, finance, and business to each other.

**GDP per Capita for 28 EU Members and 2 Non-EU Members, Indexed to 2008**



Data Source: Eurostat (some numbers for France, Greece, Netherlands, Portugal, Romania, and Spain are provisional)

Analysis: Bay Area Council Economic Institute

Notes: 2008 represents the economic growth year before the impacts of the Great Recession; comparable data was not available for Liechtenstein and Switzerland.

## Startup Hubs

The startup bridge to the Bay Area begins in cities throughout Europe that have emerged as key startup and entrepreneurial hubs.<sup>7</sup> Most are capitals or business centers that concentrate talent, based on strong universities, corporate headquarters, sector strength (e.g., financial services), and capital. While the list that follows is not definitive, and different cities might be included by other observers, it gives a sense of where startup activity in Europe is most concentrated and is growing. These places are also where the Bay Area's European startups mostly come from and where future partnerships are most likely to develop.

### Leading Startup Centers

#### London



Photo by DAVID ILIFF. License: CC-BY-SA 3.0

London's strength as Europe's largest home for startups is based on several factors, not the least of which is its role as Europe's leading business and financial center. It is home to Europe's largest concentration of venture capital and a stock market that makes it Europe's leading place for IPOs. With a regulatory environment that is business-friendly and with universities that have highly-ranked IT and computer science faculties—such as Imperial College, University College, and Kings College—London has attracted from the US and across Europe a large body of technical talent that supports its status as a center for global digital industry. The city claims a community of more than 71,000 professional developers, comparable in size to the Bay Area's.<sup>8</sup> Reflecting its status as a financial center, London is Europe's leading city for fintech (financial technology).

Supporting this startup pool is a network of more than 40 incubators and accelerators (not including co-working spaces). Noteworthy from a Bay Area perspective is Google Campus London, a startup space located in the heart of London's Tech City district. While technology dominates the accelerator scene, a growing number of facilities serve companies in sectors ranging from fashion and retail to food, beverages, media, and property.<sup>9</sup>

With a friendly regulatory climate and English as its language, London often serves as the first European base for American companies looking to expand into European markets. For similar reasons, it is an attractive base for US and other startups. It remains to be seen, then, how deeply the United Kingdom's decision to leave the European Union will impact London's dominant position in Europe's startup scene. Almost certainly the implications will be negative. It can be expected that US and other companies—particularly financial institutions that do business in Europe from a London headquarters (40 percent of the world's top companies currently base their European operations there)—will shift some part of their workforce to the continent and that UK companies will find it more difficult to attract European talent. This is significant, as according to industry group Tech London Advocates, roughly one in five workers in London's technology sector is an EU national and roughly a third came from overseas.<sup>10</sup>

While London will continue to offer startups an environment for venture funding and IPOs that few other locations can match, to the extent that its role as a European business capital is diminished, other EU cities—especially Berlin, Paris, Amsterdam, Dublin and Frankfurt—stand to benefit. Financial services (including fintech) in particular may be impacted. At this writing, however, there is no sign that investment in startups has slowed since the Brexit vote, with 2017 funding of VC-backed companies on track to exceed 2015 and 2016 levels in both deals and dollars.<sup>11</sup> Other issues raised by Brexit include privacy and the cross-border movement of data, as UK-based companies will no longer be covered by existing EU agreements. Absent a new agreement, some companies may move data centers to EU member countries, and UK-based startups will face increased regulatory and compliance costs when doing business in the EU. The expected withdrawal of European Investment Fund (EIF)

co-investment from UK-based venture funds (for more on the EIF, see below) is likely to chill London's hitherto robust venture capital market. The UK government has suggested that it will cover from UK resources any loss in EU funds for scientific research or venture capital and that it will endeavor to attract increased immigration from countries such as India to compensate for the expected drop in European immigrants. Whether these efforts will be sufficient to prevent a backward slide, however, is an open question.

## Berlin



Photo © A.Savin, Wikimedia Commons

Berlin has emerged as Europe's second most important startup hub, largely for startups in web, consumer and creative industries. An edgy vibe and inexpensive rents provide a cost-effective location that a growing number of investors, co-working spaces, and accelerators (such as Factory Berlin, betahaus, Metro Accelerator, and St. Oberholz) have built on. Its ecosystem system is supported by the largest concentration of universities in Germany and a diverse workforce, in which almost 50 percent of startup employees are citizens of other countries.<sup>12</sup> In 2016, the German research organization IFSE counted 620 startups in Berlin, compared to 270 in 2012—indicating rapid growth. Together they supported more than 13,000 employees (compared to 6,700 in 2012), making startups the city's fifth largest employer.<sup>13</sup> The boom in young tech companies is leading to a rise in the city's historically low rents and to increased competition for space, though rates are still competitive compared to cities such as London and Paris.

While Berlin is not a headquarters city for German companies, large US technology companies such as Microsoft, SAP, Cisco, Amazon, eBay, Twitter, Uber, Visa, and Zendesk have a presence. Noteworthy Berlin startups include food delivery company Delivery Hero, digital maps maker Here, fashion and e-commerce retailer Zalando, startup developer Rocket Internet, and music streaming company SoundCloud. Total funding of Berlin's 30 largest digital startups (before exit or IPO) was USD 4.8 billion in 2015, roughly double the USD 2.1 billion invested one year before and rivaling the level of venture investment in London.<sup>14</sup> In a sign that Berlin's startup ecosystem is becoming self-sustaining, some founders are starting to create their own venture funds following successful exits.

## Paris



Photo © Zinneke, Wikimedia Commons

Like London, Paris benefits from scale, including major universities and major corporate headquarters. The Paris Region is home to a robust digital and creative cluster that includes a large number of startups. Co-working spaces and approximately 100 incubators and accelerators such as NUMA, Paris&Co (which has ten sites with distinct sector specialties), and The Family host a growing number of early-stage companies. Station F (Halle Freyssinet) will open in 2017 with 34,000 square meters of space, 3,000 desks to accommodate 1,000 startups, 100 shared apartments, and a makerspace sponsored by San Francisco-based TechShop, making it the world's largest incubator. Other international partners at Station F include Facebook, whose Facebook Startup Garage will have 80 desks and

work with 10–15 startups every six months. As described by Internet entrepreneur and Station F founder Xavier Neil, “We’re deliberately creating something that is the biggest in the world to make people look at us and realize that it’s not just the Anglo-Saxons who can create things bigger and better.”<sup>15</sup>

In early 2017, it was announced that Bay Area accelerator Plug and Play will launch a fintech accelerator program in Paris in partnership with San Francisco-based Bank of the West (BNP Paribas Group). Plug and Play has already partnered with Paris-based Group Galeries Lafayette, one of Europe’s largest department store operators, to launch Lafayette Plug and Play, a 10,000 square foot accelerator space opened in 2016 in the city center of Paris, which focuses on fashion and retail tech startups.<sup>16</sup>

Leading universities and engineering schools, such as Pierre and Marie Curie University, Paris Sud University, École Polytechnique, and École Normale Supérieure, support a strong talent base in engineering and data science, while leading business schools such as ESSEC offer training tailored for entrepreneurs. Offerings at ESSEC, which has embraced entrepreneurship as a core focus, include an internal incubator, partner/mentors, a seed fund (ESSEC Ventures), and a post-incubator for companies that are more advanced. In recent years, the school’s entrepreneurial programs have supported between 40 and 50 startups per year, with an impressive 70–80 percent survival rate.

Paris is also home to Europe’s second largest concentration (after London) of venture capital; a France Digitale 2015 survey of French digital startups found that approximately 25 percent of those startups that have received investment also have international VC backing.<sup>17</sup> Flagship companies coming out of the Paris Region’s startup scene include BlaBlaCar, a ridesharing platform with EUR 177 million invested and 10 million travelers per quarter in 2015, and Scality, a digital storage platform with EUR 40 million invested. The success of these larger companies and a growing availability of funding is encouraging startups to direct their interest outside France: a 2017 report by payments company Stripe found that 98 percent of French startups launched since 2014 have customers outside the country, with 25 percent of sales generated internationally. These companies are on average creating 15 jobs; about 15 percent have more than 30 employees.<sup>18</sup>

## Amsterdam



Photo by mcjack

Amsterdam’s startup environment builds on the Netherlands’ history of international commerce, as well as moderate costs, an attractive quality of life, and favorable tax and regulatory policies. The city hosts an array of incubators and accelerators (such as Rockstart) and a growing number of angel and venture investors. In the first quarter of 2017, Amsterdam ranked sixth among European cities in VC activity, after London, Berlin, Paris, Barcelona, and Stockholm.<sup>19</sup> Startup Amsterdam promotes collaboration across the city’s ecosystem, while Startup Delta brings together public and private stakeholders and universities from throughout the Netherlands to integrate and coordinate their entrepreneurial support initiatives. Nine other technology and startup hubs with a range of industry specializations are within a 90-minute train ride, constituting a significant cluster.

Several Bay Area technology companies, including Uber, Tesla and Netflix, have established their European headquarters in Amsterdam. Notable startup companies coming out of the city include the hotel website Booking.com (now owned by Priceline), and telematics and consumer electronics company Tom Tom.

## Stockholm and the Nordics



Photo © Arild Vågen, Wikimedia Commons

The Nordic Region (Sweden, Denmark, Norway, Iceland, and Finland) has shown a remarkable capacity to generate innovative companies, particularly relative to its small population.

Stockholm is the leading center. Its status builds on corporate headquarters (Ericsson), an educated talent pool, and leading universities and institutes (such as the Karolinska Institute, KTH Royal Institute of Technology, and Stockholm University) that work well with industry. Government investment in R&D is high on a global scale, with Greater Stockholm accounting for one-third of Sweden's R&D expenditures.<sup>20</sup>

Startups in the city have attracted USD 2.5 billion in venture investment since 2005, led by five industries that account for almost three quarters of that venture funding: software (36 percent), financial services (13 percent), pharmaceuticals and biotechnology (12 percent), communications and networking (6 percent) and semiconductors (6 percent). Seventy-five percent of that funding comes from outside Sweden, suggesting the appeal of Sweden's innovation system for outside investors.<sup>21</sup> Because its domestic market is small, many startups look to global markets immediately. For example, nearly 80 percent of companies participating in the accelerator SUP46 have expanded to international markets. Reflecting the diversity and openness of the city's startup environment, SUP46 members include 45 nationalities.<sup>22</sup>

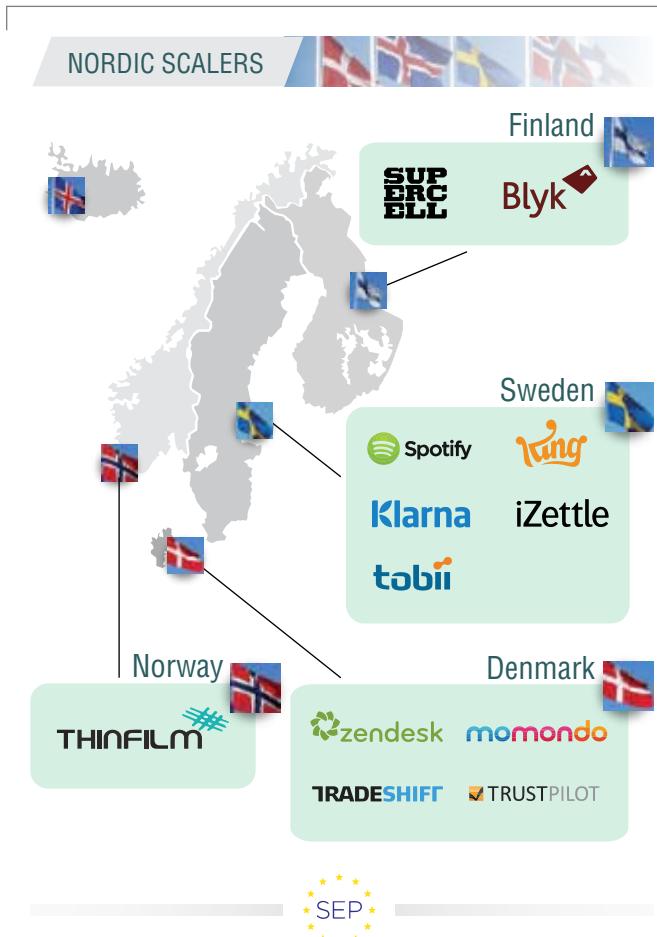
A similar story applies across the Nordic Region.

Helsinki, for example, is ranked number four out of 60 cities ranked on the European Digital City Index 2016, contributing to Finland's strong track record in generating gaming and other digital companies.<sup>23</sup> It also benefits from Nokia's legacy as a global telecommunications company, which has contributed to the development of a strong technology and engineering community. The government invests 3.2 percent of GDP in R&D, a high figure by OECD standards, and actively supports technology development through its innovation agency Tekes.<sup>24</sup>

A 2016 Startup Europe Partnership (SEP) analysis of ICT scaleups in the five Nordic countries identifies 430 scaleups (defined for SEP's analysis as companies that have raised more than USD 1 million) and have together attracted USD 6.5 billion in investment. Sweden accounts for the largest number with 149, and USD 3.4 billion in investment. That puts the total number of Nordic scaleups on a par with the UK, and with Germany and France together.<sup>25</sup>

Some of those companies have become global players, including Supercell, Spotify, King.com, Klarna, iZettle and Zendesk—each having secured over USD 100 million through venture investment or IPOs. Other noteworthy Nordic startups include Rovio and Symphogen. Gaming is a particularly strong sector, but a growing number of companies can also be found in software, digital media, fintech, and hardware. Twenty Nordic scaleups have moved their headquarters abroad, primarily to the US (75 percent), with the balance locating in leading European centers such as London and Berlin; most continue to maintain significant operations in their home countries.<sup>26</sup>

## Nordic Companies That Have Secured Over USD 100 Million in Capital (from VC funds or via IPO)



Source: SEP Monitor, June 2016

The lion's share of this activity is occurring in major cities: Stockholm (with USD 3 billion raised by 90 scaleups), followed by Copenhagen (USD 1 billion raised by 70 scaleups), Helsinki (USD .8 billion raised by 83 scaleups), Oslo (USD .4 billion raised by 33 scaleups), and Reykjavik (USD .1 billion raised by 13 scaleups).<sup>27</sup>

The growing energy of the Nordic startup scene can be seen in the Slush conference held each winter in Helsinki. The 2016 conference attracted 343,000 visitors and 17,500 participants, two-thirds from Nordic countries. That included 2,336 startups and 1,146 investors. Slush organizers chartered an aircraft to fly participants directly from the Bay Area.<sup>28</sup>

## Other Startup Centers

Beyond the cities that have achieved scale as startup centers, others are starting to emerge. Most are large cities, but some are smaller locales that have developed niche positions based on distinctive strengths or assets.

### Munich

Home to world-leading German engineering and automotive companies such as Audi and BMW; insurance companies such as Allianz and Munich Re; media companies; the German headquarters of Bay Area technology companies such as Oracle, Google, Intel, Symantec, and Salesforce; and research facilities such as IBM's global development center for the Internet of Things; Munich particularly aggregates startups in engineering and information technology hardware and software. While their number is only half that of Berlin, Munich's startups benefit from the presence of these larger corporations. Regional strength in ICT and Bayern Digital (a Bavarian government initiative to invest EUR 1.5 billion to support digitization) also benefit digital startups.<sup>29</sup>

The Technical University of Munich (TUM) plays a significant role in generating startups. The Center for Digital Technology and Management (CDTM), a partnership of TUM with the Ludwig-Maximilians-Universität München (LMU) supports highly respected entrepreneurship programs. Half of Germany's venture capital firms are in Munich. The city's startup ecosystem supports a growing number of incubators and accelerators including corporate facilities such as BMW's Startup Garage, Burda Bootcamp (Herbert Burda Media), Digital Accelerator (Allianz), Wayra Deutschland (Deutsche Telekom), and ESA Business Incubation Center (Airbus); independent accelerators such as UnternehmerTUM and ABC Venture Gates; and government initiatives such as BayStartUP. Startup events such as MUST – The Munich Summit and Bits and Pretzels (held during Oktoberfest) are growing in popularity.

### Lisbon

Like Amsterdam, Lisbon builds on a cosmopolitan history of international commerce. Between 2010 and 2015, Portugal produced 40 scaleup companies that raised approximately USD 166 million in venture capital, with 9 exits.<sup>30</sup> While most of these were concentrated in

Lisbon, nearby cities such as Oporto, Braga and Coimbra contributed. Lisbon startups are supported by a growing number of incubators and accelerators such as Startup Lisboa and Beta-i. Noteworthy Portuguese companies to emerge from its environment include digital call center company Talkdesk (with Series A funding from DFJ and Salesforce Ventures), data analytics company Feedzai (based in Lisbon and San Mateo), and travel company Farfetch (Portugal's first "unicorn," i.e., a startup valued at USD 1 billion or more). Lisbon-based Unbabel, a graduate of the Bay Area's Y Combinator that applies machine learning to translation, has received investment from GV (Google Ventures) among others.<sup>31</sup>

Startup Portugal, a government initiative, anchors a national strategy for entrepreneurship. Portugal's national utility EDP is also playing a significant role through EDP Starter, an incubator for energy startups, and EDP Ventures, the company's venture arm. Approximately EUR 20 million has been invested in 10 companies since 2008, two of which have opened offices in San Francisco. Portugal Ventures, the government's venture arm, supports a range of activities that assist entrepreneur-led startups, both in Portugal and overseas.

While Portugal still lacks large tech companies, local venture capital, and a sustained record of exits, it recently gained an asset. Winning out over competitors Dublin and Amsterdam, Lisbon hosted the November 2016 Web Summit, an international conference attracting Internet majors, investors, and startups, and the leading event of its kind in Europe.<sup>32</sup> With the Summit expected to return to Lisbon for at least three years, government and business leaders see this as an opportunity to leverage its 50,000 visitors to promote the development of local web companies.

### Barcelona

The capital of Catalonia, Spain's most economically advanced region, Barcelona is a significant startup hub in Southern Europe. Support comes from Barcelona Tech City, an association of tech companies and investors, and Barcelona Activa, an incubator-accelerator supported by the city. In 2016, the building that had housed the Historical Museum of Catalonia was converted to become Pier 01, a 10,000 square meter facility managed by Barcelona Tech City that will house up to 70 startups.<sup>33</sup> To promote mobile technology

startups in the region, Barcelona is capitalizing on its status as host for the annual Mobile World conference.

### Milan

Milan, Italy's business capital, claimed a number of incubators and accelerators, 50 co-working spaces, and 750 active startups in 2016.<sup>34</sup> Leading universities and the presence of many of Italy's major companies and all of its venture firms support growing activity. The inaugural Italian Investment Showcase, held in early 2017, attracted tech companies and international investors. Nearby in Northern Italy, startup activity is also growing in Turin, and outside Venice the H-Farm serves as a working innovation village, supporting and investing in digital startups.

### Dublin

Dublin is host to a number of incubators and accelerators and has a solid record of attracting venture capital; in 2016, it was ranked the eighth best city in Europe for startups by the European Digital City Index.<sup>35</sup> The city benefits from being English-speaking, being close to London, and having a strong technical workforce. These assets plus highly competitive tax benefits have attracted the European headquarters of leading Bay Area technology companies such as Google, Facebook, Twitter, and LinkedIn, whose presence has helped stimulate startup activity.

### Warsaw

Startup activity is growing across Eastern Europe and particularly in Poland, with Warsaw as its center. Warsaw's technical universities are among Europe's best, and the city hosts one of Google's European startup Campuses. Krakow is also becoming a center of activity, and there are also smaller concentrations of startups in Poznan, Gdansk and Wroclaw. A 2015 survey by Startup Poland counted 2,500 startups nationally. Most sell to businesses, with the largest number providing SaaS marketing solutions. Because of Poland's limited market, most (80 percent) are also international.<sup>36</sup>

### Eindhoven

Eindhoven, in the Netherlands, particularly hosts startups focusing on IT hardware, health care and gaming, based on the presence of large technology companies such

as Philips. High Tech Campus Eindhoven, an incubator and innovation center, accounts for nearly 40 percent of Dutch patent applications.<sup>37</sup>

## Cambridge

The University of Cambridge plays a strong role in generating startups in tech and biopharma, many based at Cambridge Science Park. Approximately 57,000 people work at Cambridge's 1,500 tech firms,<sup>38</sup> including ARM Holdings, a leading semiconductor firm with roots at the university. Cambridge Enterprise, a university initiative to help faculty and students commercialize technology, is co-located with ideaSpace, an incubator and co-working space for entrepreneurs.

## Zürich

As a leading financial center with a historical focus on privacy, Zürich is generating a growing number of fintech startups, including insurance technology startups and companies focused on blockchain and bitcoin. Academic institutions such as ETH Zürich and ZHAW (the Zürich University of Applied Sciences) support the ecosystem with accelerators and entrepreneurial support and training programs. The city is home to Google's largest development center outside the US, with over 2,000 employees in January 2017 and expansion plans that will raise that number to 5,000 people.<sup>39</sup>

## Tallinn

With a population of only 1.3 million, Estonia has generated more startups per capita and has attracted more investment into startups per capita than any country in Europe. Part of its success stems from government policies that have accelerated the adoption of digital technology through e-government and the digitization of agency processes. Like its Nordic neighbors, Estonia's small size also compels it to look outward for market growth, making the development of globally-oriented companies a priority. The acquisition of Skype, which claims many parents including Estonia, by eBay for USD 2.6 billion in 2005, put Estonia on the digital map; after its 2011 acquisition by Microsoft, the company still maintains an Estonian presence. Though Tallinn is small compared to other European cities, the funding of Estonian-founded fintech startup TransferWise by Andreessen Horowitz in 2015 with a USD 58 million Series C round<sup>40</sup> reconfirmed the city's status as a startup center.

## Luxembourg

Also small in scale, Luxembourg capitalizes on its role as a financial services and telecommunications center with incubators and accelerators sponsored by private partners such as PwC (PwC Accelerator), EY (EY Innovation), and BNP (Lux Future Lab), and public-private partnerships such as nyuko and the Digital Tech Fund, which provides seed funding to digital entrepreneurs. The Luxembourg Business Angels Network (LBAN), supported by the Luxembourg Chamber of Commerce, promotes angel and early stage investments. With 46.7 percent of its population coming from other countries,<sup>41</sup> Luxembourg has particularly focused on attracting startups from neighboring countries in Europe.

## Startup Heatmap



Source: startupheatmap.eu

These cities are dynamic and often attract entrepreneurs from other countries. The European Startup Initiative's Startup Heatmap Europe project, produced in 2016, found that 23 percent of startup founders have started their companies in countries that are different from their countries of origin. The Baltics, the UK and Ireland, Central Europe, the Benelux Union countries (Belgium, the Netherlands, and Luxembourg), and the Nordics have

attracted the most cross-border entrepreneurs, while Mediterranean economies and Eastern Europe have experienced net outflows. Looking to the future, a Startup Heatmap survey question asking entrepreneurs "Where would you start up if you could begin all over again?" generated this top ten ranking: Berlin (15 percent), London (14 percent), Amsterdam (10 percent), Barcelona (7 percent), Lisbon (5 percent), Dublin (4 percent), Stockholm (4 percent), Munich (4 percent), Copenhagen (3 percent) and Vienna (3 percent). Berlin and London together received 29 percent of the votes.<sup>42</sup> It should be noted however, that the survey was conducted just prior to the UK decision to leave the EU, which may impact London's appeal as a European startup hub.

Organizations supporting startups at the national level are also starting to connect across Europe. The Startup City Alliance Europe (SCALE) links major European cities such as Stockholm, Berlin, Paris, Rome, and Amsterdam, to share best practices and experience.<sup>43</sup> Startup Europe is working to strengthen local support networks, provide role models, and build better connections for startups with banks and local governments, not just in major urban centers but in smaller cities as well.<sup>44</sup>

One metric of entrepreneurial activity from a Bay Area standpoint is where Google has established its European Campuses, which are bases for entrepreneurs to learn, share ideas, and launch startups. In 2016, European capitals (London, Madrid, and Warsaw) hosted three of Google's six Campuses, and Google is a supporting partner of startup communities in other European cities, such as NUMA in Paris, Factory Berlin, Dogpatch Labs in Dublin, TQ in Amsterdam, Epicenter in Stockholm, and Impact Hub in Zürich.<sup>45</sup>

## National Incentives and EU Support

Both the European Union and individual European governments have recognized the importance of startups to economic growth and have created a broad range of programs and incentives to support startup activity. While not all can be listed in this report, some representative examples follow.

### Netherlands

The Netherlands is attempting to attract international entrepreneurs with a startup visa that allows non-Dutch

founders to launch their businesses in the Netherlands within a one year period and later-stage startups to obtain work permits for up to five years. Expatriates also benefit from a 30 percent tax reduction on their gross salaries.<sup>46</sup>

### France

The French government promotes startup activity through several vehicles: the French Tech Ticket, which provides financial and other incentives to non-French entrepreneurs to bring their companies to Paris;<sup>47</sup> a Research Tax Credit, which rebates 30 percent of R&D expenditures up to EUR 100 million (companies that don't pay taxes receive a check);<sup>48</sup> an Innovation Tax Credit for small and medium businesses equal to 20 percent of spending up to EUR 400 thousand for designing prototypes and building models; and a Young Innovative Company status that gives small companies with R&D spending equal to at least 15 percent of costs a temporary exemption from both taxes on profits and employers' mandatory social contributions.<sup>49</sup>

Financial support comes primarily through Bpifrance, a public merchant bank supporting entrepreneurs. In addition to soft loans and grants, it provides equity finance through co-investment with private venture funds and by operating as a fund of funds, placing co-invested capital in nearly every venture firm in France. A total of EUR 1.4 billion in assets are under management in its venture capital direct investment funds, which focus on a range of sectors including life sciences, ecotechnology, IoT, AI, digital services for health care and education, and urban innovation. One of those funds, devoted specifically to French Tech, invests in accelerators and other intermediary structures that support entrepreneurs.

### Ireland

Enterprise Ireland, the government agency which supports the development and growth of Irish companies in global markets, invested EUR 32 million in 29 startups in 2016. This was primarily through two vehicles: the Competitive Start Fund (CSF), which injects early-stage funding into new businesses, and the High-Potential Startup (HPSU) Fund, which provides capital to startup businesses with the potential to create ten jobs and EUR 1 million in sales within three years of starting. At the end of 2015, Enterprise Ireland's direct portfolio included

2,236 live investments in 1,224 companies. Investment also occurs through co-investment with private sector partners through its Seed and Venture Capital Programme and through a new European angel fund launched in partnership with the European Investment Fund. In addition to funding, Enterprise Ireland provides advice and peer-to-peer learning platforms and organizes a well-attended annual Startup Showcase at Dublin Castle.<sup>50</sup>

### Italy

The Italian government has recently launched Industria 4.0, an EUR 18 billion initiative to support startups and stimulate private sector research and investment in new technology.<sup>51</sup> Key elements include a 30 percent tax deduction for investment of up to EUR 1 million in startups and dedicated funds for co-investment with private venture firms. Another provision allows public ("sponsor") companies that invest in startups with at least 30 percent equity to absorb startup losses by the newly established companies for the first three years. ITA-Tech, a partnership of the Italian Sovereign Fund (CDP) and the European Investment Fund, targets technology transfer (e.g., from universities) by providing equity for new R&D-based companies.<sup>52</sup>

### Germany

Germany supports a wide range of activity through the federal and state governments, particularly around its Industry 4.0 initiative. KfW, a government-owned development bank, has established a EUR 400 million fund to support national technology startups over a period of five years.<sup>53</sup> The bank is owned by the Federal Republic of Germany (80 percent) and German states (20 percent).<sup>54</sup>

### Czech Republic

CzechDemo, a project of the CzechInvest Investment and Business Development Agency, provides financial support for startups and pays their cost to travel and exhibit at events such as TechCrunch Disrupt.<sup>55</sup>

### United Kingdom

The UK government's Enterprise Investment Scheme (EIS) provides reduced capital gains rates where companies succeed and write offs where they don't, which particularly benefits angel investors; cash rebates can be paid for R&D costs.<sup>56</sup> The Patent Box also reduces corporate tax

on profits earned from patented inventions.<sup>57</sup> NESTA, a government-sponsored foundation, develops innovation strategies and provides broad support for innovative enterprises through research, incubating ideas in fields of national priority, and the development of centers of expertise for the deployment of innovation methods.<sup>58</sup>

### Portugal

Portugal Ventures, founded in 2012 as a result of the merger of three state-backed VC and private equity firms, provides investment capital for startups. An average of EUR 500 thousand is available in seed rounds, which may be followed by additional funds to move companies to Series A. A pool of 500 advisers, 80 percent from outside Portugal, provides advice on individual investments, utilizing pitches over Skype.<sup>59</sup>

### Estonia

SmartCap, a state-owned investment company that is the investment arm of the Estonian Development Fund, invests up to EUR 3 million with private co-investors in startups with high growth potential.<sup>60</sup>

### European Union Incentives

The European Union invests heavily to support startups, primarily through the European Investment Bank's European Investment Fund (EIF). In 2014, EIF-backed investments supported 41 percent of total venture activity in Europe. The share of investment directly attributable to EIF was 10 percent, which indicates that the Fund plays a significant role in amplifying other venture sources. It follows a fund-of-funds approach, where resources managed on behalf of public institutions, such as the European Commission and the European Investment Bank, are invested with private investment firms, as opposed to making direct public investments. Funds are also co-invested with public agencies such as Bpifrance and Portugal Ventures (but only through programs that focus on returns and don't constitute subsidies.) From 1996–2014, 40–60 percent of EIF's equity investment was in venture which, when leveraged on a 5:1 ratio with private investors, stimulated EUR 10.94 billion in venture activity, supporting about 3,400 seed and startup companies.<sup>61</sup> Its role has grown significantly since 2010, in part compensating for weakness in the sector following the global financial crisis.

# Challenges in Europe's Startup Environment

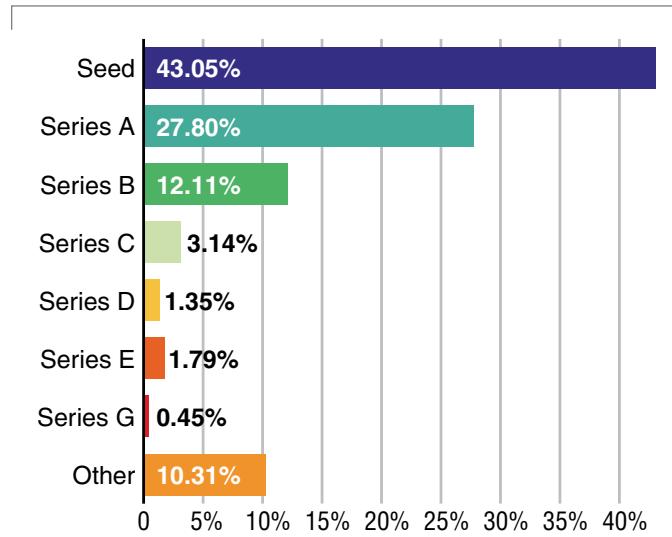
Despite growing energy around entrepreneurs and startups, Europe continues to face a range of challenges as it tries to develop a mature startup ecosystem. As the preceding analysis suggests, the conditions for starting and growing a company vary considerably from country to country based on factors such as access to capital and talent, costs, regulations, and culture. Acknowledging these differences, some challenges in the startup environment are endemic to Europe and shared across most countries.

## Access to Capital

While a significant number of angel investors and venture firms have emerged in Europe that are sufficient to support seed and very early stage investments, the funding pool is shallow when it comes to Series A and particularly Series B and later-stage investment. The general dimensions of this situation are illustrated in an analysis of venture capital raised by European and Israeli tech companies in Q2 2015. In that quarter, Tech.eu tracked 275 funding rounds totaling EUR 3.47 billion, finding that 43.05 percent of that investment was seed stage funding, 27.8 percent was Series A, 12.11 percent was series B, 3.14 percent was Series C, and all later stage deals accounted for only 3.59 percent. While one quarter is too short a span for drawing strong conclusions, this data suggests that Series B and C are bottlenecks for European companies.<sup>62</sup>

Similarly, a Startup Europe Partnership (SEP) five-country comparison of 981 European ICT scaleups (startups able to raise over USD 1 million) found that in France, Germany, Italy, Spain, and the UK in the five-year period preceding May 2015, the vast majority (67 percent) of venture funding was in the USD 1–10 million range, while only 14 percent was at the USD 10–20 million scale, and only 12 percent at USD 20–50 million.<sup>63</sup>

**Distribution of Venture Capital Funding by Stage for European and Israeli Startups in Q2 2015**

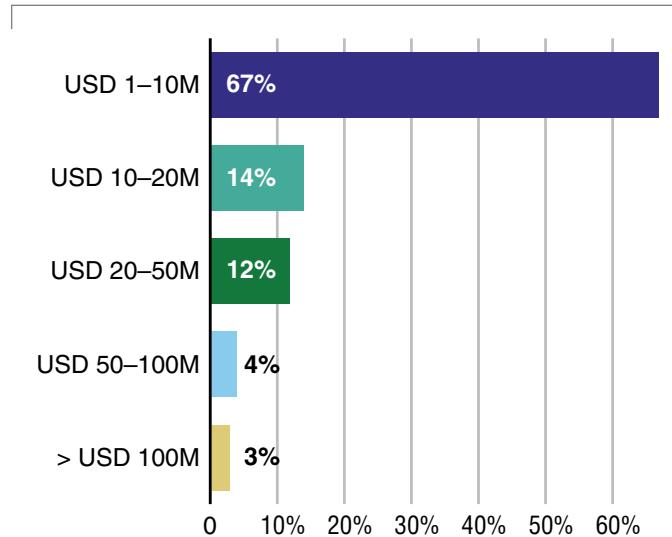


Data Source: Tech.eu

Analysis: Bay Area Council Economic Institute

Note: "Other" includes undisclosed rounds and additional capital to existing rounds.

**Funding Range of Venture Capital Raised in 5 European Countries by 981 Scaleups in the 5-Year Period Preceding May 2015**



Data Source: SEP Monitor, May 2015

Analysis: Bay Area Council Economic Institute

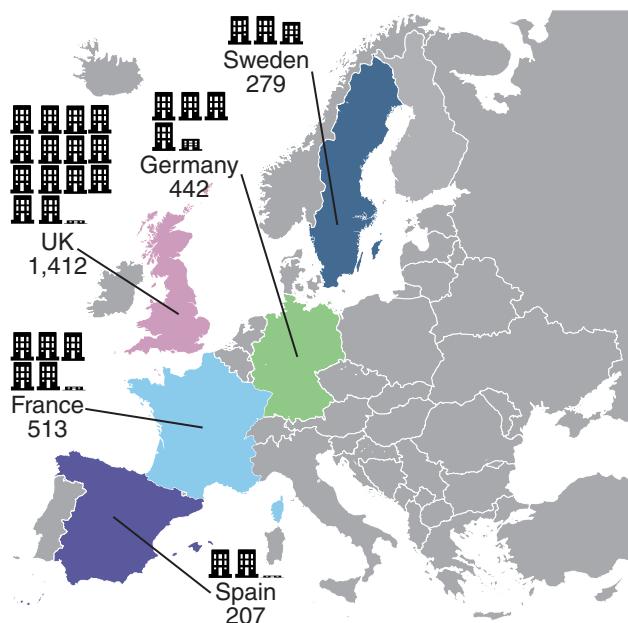
Europe has a growing number of angel investors—approximately 300,000 in 2015. According to EBAN (European Business Angels Network), at EUR 6.1 billion, angel investment accounts for 70.9 percent of Europe's EUR 8.6 billion early-stage investment market, with venture capital (EUR 2.1 billion, or 24.4 percent) and crowdfunding (EUR 0.4 billion, or 4.7 percent) accounting for the balance. The UK has the highest concentration of angel investors, followed by Spain, Germany and France. Smaller markets such as Finland, Portugal, Denmark, Sweden and Estonia also have active angel investment scenes. Average investment per company (EUR 184,000 in 2015) is small compared to the US. Despite the presence of cross-border angel networks, 94 percent of investment in 2015 took place in the investors' home countries.<sup>64</sup>

While seed and early stage investments are largely driven by business angels and government-backed venture investors, due to the limited pool of domestic risk capital, growth and later-stage investment is often led by investors from the US and the UK. This includes private equity firms and investment banks, such as KKR and Goldman Sachs. Corporate venture arms, sometimes structured as incubators or accelerators, are also becoming active.

This distribution impacts how and where companies grow. In another SEP analysis of 3,444 ICT scaleups (startups able to raise over USD 100 million) in 12 European markets (Denmark, Finland, France, Germany, Iceland, Italy, Norway, Poland, Portugal, Spain, Sweden, and the UK) in 2016, the UK had the largest number of scaleups (1,412), followed in the top 5 lineup by France (513), Germany (442), Sweden (279), and Spain (207). Collectively, the 3,444 scaleups raised a total of USD 50.8 billion in funding, either from venture capital or via IPO. The UK lead was also reflected in amount of capital raised: UK scaleups secured USD 20.2 billion in funding or almost 40 percent of the total. Germany came in second with USD 10.1 billion raised (almost 20 percent of the total). France had about 1.2 times more scaleups than Germany, but they raised less capital, giving France third place in the capital lineup with USD 6.6 billion (just under 13 percent of the total). Sweden's capital raised was USD 5.3 billion (a little over 10 percent) and Spain's was USD 2.8 billion (5.5 percent).<sup>65</sup>

Behind these figures lie a number of systemic issues.

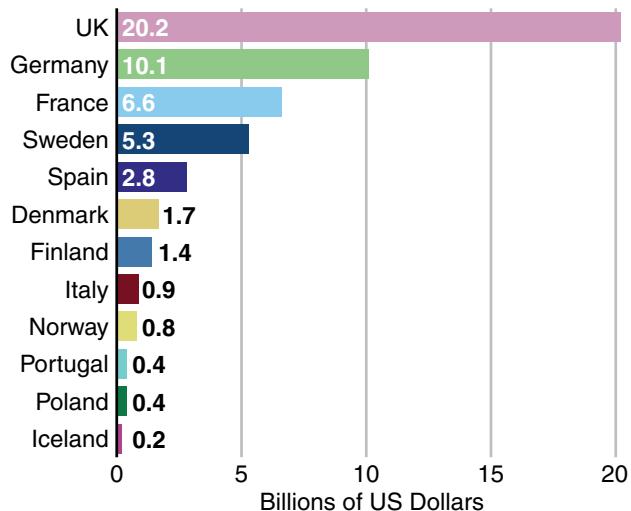
### Scaleups in Europe, 2016: Top Five Countries



Data Source: SEP Monitor, June 2017

Analysis: Bay Area Council Economic Institute

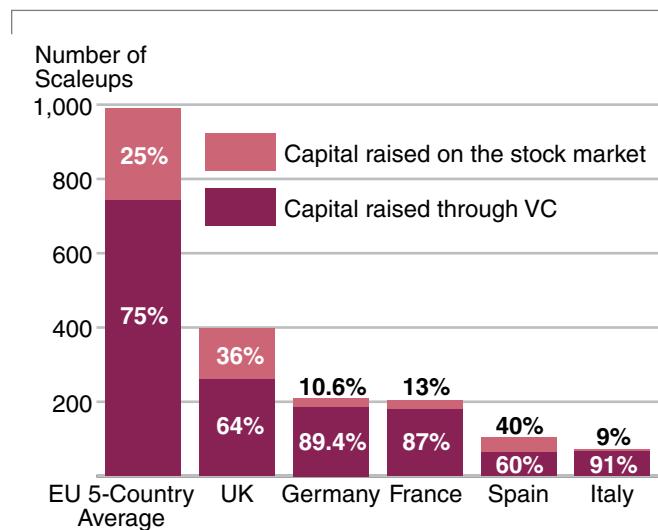
### 3,444 scaleups in 12 countries raised capital (VC + IPO) totaling USD 50.8 billion



Data Source: SEP Monitor, June 2017

Analysis: Bay Area Council Economic Institute

### Share of Capital Raised by 990 Scaleups in Five European Countries: Stock Market vs VC



Data Source: SEP Monitor, May 2015

Analysis: Bay Area Council Economic Institute

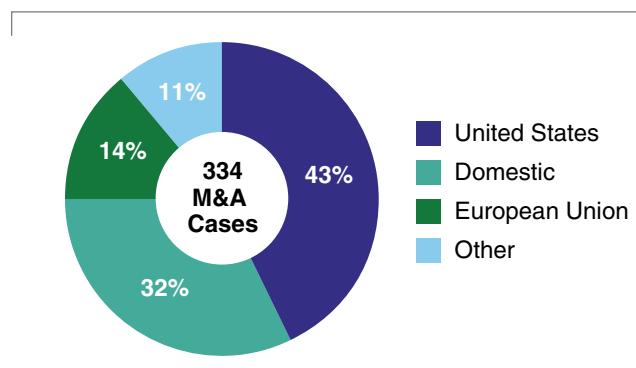
### IPOs

The distribution of early-stage companies across Europe is linked not just to venture capital pools but also to access to stock markets. As Europe's leading European platform for IPOs, the London Stock Exchange is a key enabler of scaleups in the UK and attracts early-stage companies from across the continent. Outside the London exchange, Europe's growth companies lack access to a liquid market comparable to Nasdaq, which provides an exit route for early investors.

### M&A

As a result of these shortfalls, when exit becomes an option, many European startups come to the US or are acquired by US buyers. This in part reflects differences in US and European corporate culture, since US companies (particularly those in Silicon Valley) often grow through acquisition, while their European counterparts tend to grow internally. If a startup's goal is to be acquired, its chances of success are therefore greater in the United States. The SEP five-country comparison of ICT scaleups found that only about one third of the tracked scaleups acquired in Europe were purchased by domestic companies, and only 14 percent were acquired by other European companies. This means that less than half ultimately remained in Europe, while almost 55 percent went elsewhere—primarily to the United States (43 percent).<sup>66</sup>

### Nationality of the Acquirers of Scaleups in Five European Countries

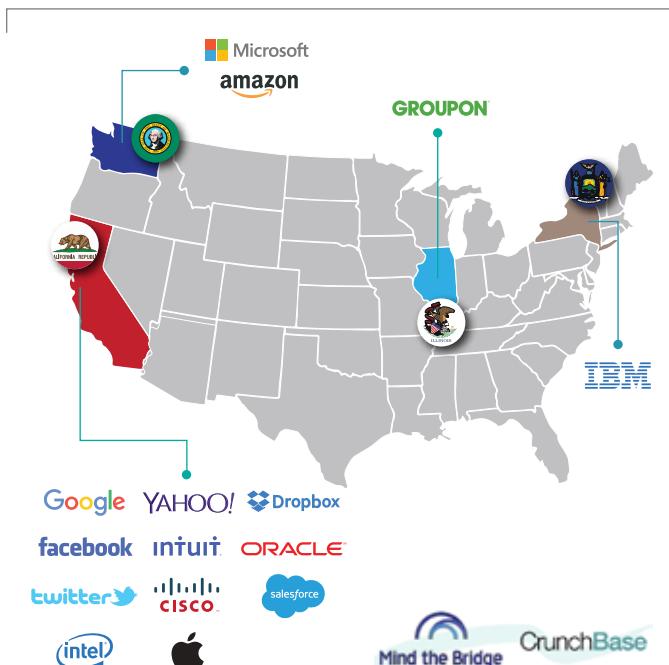


Data Source: SEP Monitor, May 2015

Analysis: Bay Area Council Economic Institute

According to another analysis by Mind the Bridge—SEP and CrunchBase, of 6,000 acquisitions by US and European companies since 2012, 82 percent were done by American companies and 18 percent by European. Overall, 44 percent of European startup acquisitions were performed by US companies. All of the top 15 transatlantic acquirers were American, of which 11 were from Silicon Valley.<sup>67</sup>

## US Top Acquirers



## Public Funding

In most European countries, startups benefit from generous government incentives—in effect grants—that provide small amounts of money to test ideas. This provides flexibility and reduces risk for young companies, but funding issues become acute as companies grow.

When later-stage funding is available, the amount that companies receive is generally smaller than in the US; for every USD 1 million raised in a late-stage funding round in Europe, for example, a similar funding round in the US might raise USD 3–5 million.

The number and size of European venture capital firms is also smaller than that of US firms, with venture funds in Europe being on average one-fifth the size of their US counterparts.<sup>68</sup> This relative underdevelopment of Europe's venture market explains the large role played by government entities, such as Bpifrance and the European Investment Bank, that try to fill the gap and in

the process catalyze a larger venture market. According to European Startup Monitor 2015, after personal savings and friends and family, European founders rely on government funding and subsidies as their primary source of external funding (21.9 percent), followed by angel investors (21.3 percent), accelerators (13.5 percent), and bank loans (9.3 percent).<sup>69</sup>

“Overall, the market weaknesses in the area of VC justify government intervention that addresses the shortage of VC supply....‘public money remains absolutely critical to the European venture industry...’”<sup>70</sup>

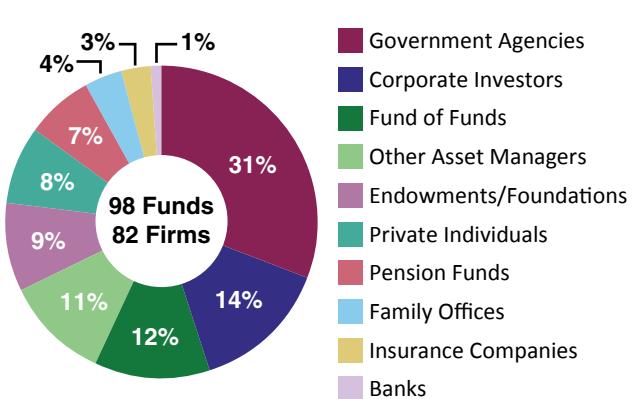
—European Investment Fund

Reliance on public funding (which accounts for more than 30 percent of Europe's total venture funding) suggests a potential market disconnect. Government funding for startups has for the most part been effective in bridging critical gaps for very-early-stage companies, with co-investment as a limited partner with private sector firms the typical vehicle. This strategy puts the responsibility for investment decisions on private partners. The question that remains to be answered is whether this high dependence on public funds is helping or inhibiting the development of a self-sustaining private venture system.

## Venture Markets

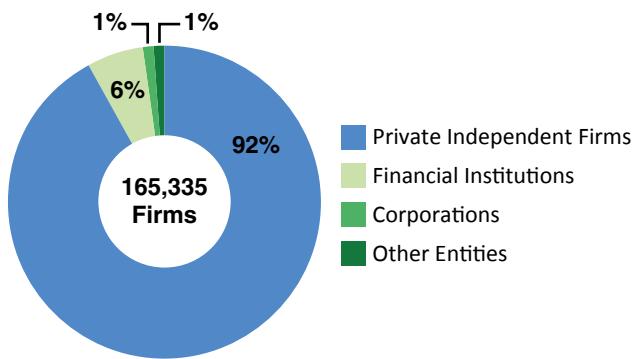
Another systemic issue is the fragmentation of Europe's venture capital market. A 2017 Startup Heatmap Europe study of venture capital deals between EUR 100 thousand and EUR 5 million within the last 3 years found that only one out of six investments in Europe is cross-border, with UK investors dominating the landscape with 27 percent of all deals. When deducting the impact of non-European investors, 73 percent of all investments came from domestic investors and only 17 percent from other European sources.<sup>71</sup> For the most part, venture markets are national, and with the exception of UK-based and some Nordic funds, most investment stays local. Startups in Italy, for example, are unlikely to attract venture investment from France.

### EU Venture Capital: Funds Raised by Type of Investor



Source: Invest Europe, "2015 Private Equity Activity," May 2016  
Analysis: Bay Area Council Economic Institute

### US Venture Capital: Funds Raised by Type of Investor



Data Source: National Venture Capital Association, "Yearbook 2016," March 2016  
Analysis: Bay Area Council Economic Institute

### Venture Culture

Finally, there is a question regarding the management culture of Europe's venture funds. In contrast to Silicon Valley, where most venture capitalists are former entrepreneurs or successful technology executives, most European venture managers come from the banking sector or from large corporations. This can lead to a more conservative approach to risk, a focus on near-term returns, and less ambitious goals. As one European VC in Silicon Valley observes "Investors are more interested in control than in being a partner in growing the pie. Here [Silicon Valley] investors are more like other entrepreneurs, working to help the founders build products." Another former French VC notes: "We don't know how to win because we don't know how to lose." Due to the constrained scope of investment that results, a significant amount of wealth that might otherwise be invested in Europe finds its way to the United States instead.

**“The decision-making cycle in Europe is too slow.**

The mentality and approach here [the Bay Area] is what we need. The big difference between Europe and Silicon Valley is that here you have a decision maker who understands the opportunity and goes for it. In Europe, it's not the same experience. Europe is good for some small checks, but when you get to \$10 million or more they act like private equity, looking for a quick or assured return. There, it's "We'll put in \$1 million and get back \$5 million." Here it's "We'll put in \$1 million and get back \$1 billion." New, crazy ideas are welcome and people are smart and open, so you can get straight to the point. **”**

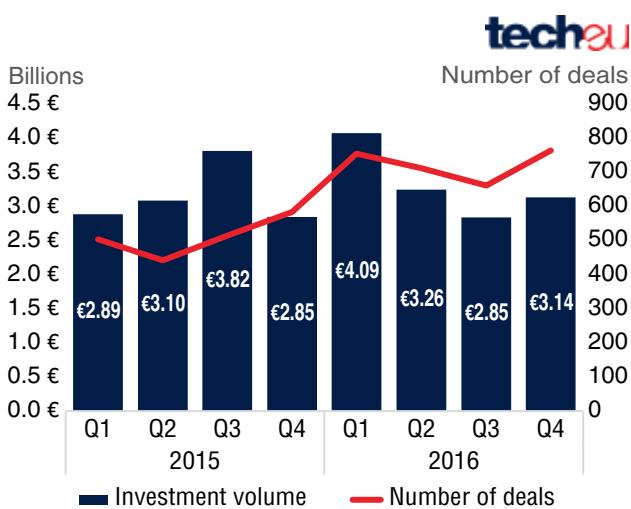
—Samo Omerzel, CEO, vendotel

## Evolving Trends

Europe's venture finance environment has improved, particularly in the last three years as more funding has become available for later-stage deals. Berlin and Paris stand out as centers for this activity.

From the perspective of a startup seeking funding, the importance of this recent growth in venture activity shouldn't be discounted. Tech.eu, which tracks tech investment activity in the EU member countries, Israel, Turkey, Russia, Norway, and Switzerland, reports that startups based in continental Europe raised EUR 13.4 billion in 2016, a 6 percent increase over 2015, and that 3,420 deals took place, a 32 percent increase compared to the prior year. This continues a growth trend that began in 2012. Early-stage funding rounds saw a significant increase, with Series A increasing 23 percent. There were fewer late-stage rounds, however, with a drop of 13 percent compared to the previous year.<sup>72</sup>

### Tech Funding by Quarter (excluding Israel), 2015 and 2016



	Investment volume	Number of deals
Q4 YoY change	+6%	+32%
Q4 QoQ change	+12%	+22%

Source: Tech.eu, "European Tech Funding Report 2016"

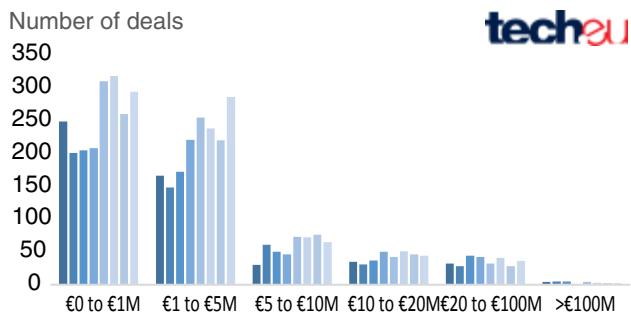
In line with fundings by stage, the biggest growth by size of investment was in deals between EUR 1 million and EUR 5 million, which increased by 41 percent. The mixed trend continued, however, as rounds between EUR 20 million and EUR 100 million dropped 6 percent, and rounds of EUR 100 million or more dropped as well. As in 2015, the UK, France, Germany and Sweden led Europe in both the number of deals and investment volume, with the greatest jumps being registered in France and Sweden.<sup>73</sup>

Exits in 2016 showed a parallel pattern, with total VC-backed exits (298 in the EU member countries plus Israel, Turkey, Russia, Norway and Switzerland) up 6.5 percent over 2015 and capital raised (EUR 40.4 billion) up 10.5 percent. The top country for startup exits was Germany, followed by the UK and France, with the largest venture-backed exit being Finland's Supercell at USD 8.6 billion. There were just 26 IPOs, down 18.8 percent from 2015 as more companies chose to stay private longer. The total value of the tech companies that were the target of an acquisition, merger, or IPO was EUR 159.9 billion, up 81 percent from 2015, due in particular to two large acquisitions (of semiconductor companies ARM, headquartered in the UK, and NXP, headquartered in the Netherlands). The United States remained by far the largest acquirer, followed by Germany and the UK.<sup>74</sup>

## Market Scale

Even large European economies like France or Germany lack the scale of the US market. This is even more the case for smaller economies like Sweden, the Netherlands or Portugal. Because Europe has a single market for goods but not for services, companies seeking to do business on a European scale face an array of national regulations, not to mention cultural and language barriers. All this can be costly for startups. For European startups whose highest ambition is to lead in their home markets, this doesn't present an issue. But for companies that want to become global players, it's a challenge. This is particularly the case for IT companies, where the scale of the US market vastly exceeds that of all European markets combined. As a result, once startups have consolidated their local base and seek to grow, many leapfrog Europe and come to the United States—usually to the Bay Area.

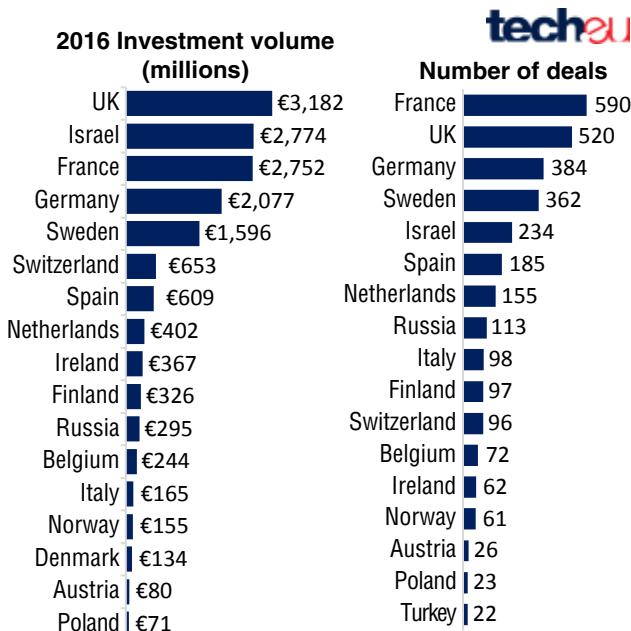
## Distribution of Tech Funding Deals by Size of Investment, 2015 and 2016



	€0-1M	€1-5M	€5-10M	€10-20M	€20-100M	>€100M
YoY change	+37%	+41%	+53%	+20%	-6%	-21%
Q4 YoY change	+41%	+29%	+41%	-12%	-14%	N/A

Source: Tech.eu, "European Tech Funding Report 2016"

## Tech Funding Rounds by Volume and Country, 2016



Source: Tech.eu, "European Tech Funding Report 2016"

## Labor Law and Taxes

Tax and regulatory regimes in Europe vary from country to country but can sometimes be an issue for successful entrepreneurs. While, on the whole, corporate taxes aren't a big factor (since most startups don't make money), personal income tax—which is often high—can be more significant for founders, particularly when selling a company. In Denmark, for example, the top marginal capital gains tax rate is 42 percent, compared to an average 28.6 percent (combined federal, state, and local on long-term capital gains) in the US;<sup>75</sup> the top marginal personal income tax rate (plus payroll taxes) is 60.4 percent, compared to a US rate of 46.3 percent.<sup>76</sup> In France, when a 15.5 percent tax for social contributions and a 4 percent wealth tax are added to the top marginal 45 percent tax rate for personal income, this yields a combined rate of 64.5 percent. In some countries, tax policy can also make it difficult for companies to use stock options as incentives in employee compensation. In Sweden, for example, stock options are considered the same as income from employment and are taxed at a rate as high as 67 percent, compared to the US, where the federal long-term capital gains tax is only 15 to 20 percent.<sup>77</sup>

Overall, companies interviewed for this report don't point to taxation as an important reason why startups fail to grow, but it's still cited as a factor. Some governments are trying to address this. To help entrepreneurs, the French government has created a tax break for small and medium enterprises and lower capital gains rates for startups after lockup periods of eight years (required social contributions are not affected). While complex, provisions of this kind can reduce effective tax levels for entrepreneurs.

The inflexibility of labor law does, however, present real challenges in many countries. Hiring and firing can be difficult. This inflexibility is a concern for startups that need to adapt quickly to the ups and downs of revenue and funding when companies are in their early stages and need to either find the right employees or downsize. As one European CEO put it, "It's so expensive to lay off people. If you hire ten people some won't be good, but you can't adjust. Also, you can hire the right people now but they might not be the right people in the future—but, again, you can't adjust."

## Business Culture

Business culture is also a factor inhibiting startup growth. In much of Europe—like most of the world—failure in business is a stigma, inhibiting an entrepreneur's ability to secure new investors. Concerned with social stability and welfare, governments are often uncomfortable with the idea of business failure and its potential for disruptive social impacts. This contrasts with the Bay Area, where failure is more often seen as a learning experience, from which entrepreneurs gain lessons that will improve their performance in their next startups. These different attitudes toward risk help explain why Silicon Valley startups can be more ambitious. Relatively few European startups (compared to Silicon Valley) set aggressive goals or start with the idea of changing an industry or the world, instead targeting niche growth in their home markets. But ambition is exactly what Silicon Valley investors look for. Differences can also be explained by historical attitudes in some countries that devalue entrepreneurship, and by the lack in Europe of mentors or role models who have succeeded as entrepreneurs and are prepared to nurture the next generation.

The internal culture of large corporations raises other issues. Large, long-established companies in Europe have historically grown through internal R&D, in contrast to Silicon Valley companies that typically grow through acquisition and open innovation models. As a result, Silicon Valley companies are oriented toward startups and connect with them more readily. Some European startups point out that it's easier to get in the door of a European company's office in the Bay Area than it is at home. This is starting to change, as more European corporations launch innovation initiatives. But according to one recent analysis, too many are taking these steps without a strategic focus on performance and without the involvement of their senior executives. For almost half of these companies, innovation initiatives—including engagement with startups—appear to be quick fixes for internal needs rather than clear strategic choices embedded in the corporate culture. Less than a third are actually engaged in cultural transformation.<sup>78</sup>

“Realizing an ambitious entrepreneurial culture is probably the greatest business challenge for Europe and its single countries...One thing we know for sure: cultures do not change overnight. Europe needs to readdress its innovation ecosystem (and is working hard on this) but it must also reinvent its entrepreneurial spirit. The fundamental lesson from Silicon Valley is that the innovation ecosystem must be embedded in a culture that celebrates entrepreneurship and that excels in total commitment. Creating this embedding, in our opinion, is the essential challenge for Europe to become a truly competitive player in the global arena of innovation, entrepreneurship, and startups.”<sup>79</sup>

—Peter Ester and Arne Maas, authors of *Silicon Valley: Planet Startup*

# Connections in the Bay Area

As suggested in the preceding pages, European entrepreneurs come to the Bay Area primarily for access to venture capital and to scale their startups in US and global markets. They also come to tap into the global connectivity and marketing expertise at which the Bay Area excels. When they do this, many draw on a deep infrastructure of institutional support provided by their governments and by businesses from their home countries that are already embedded in the region. This bridge, composed of overlapping public and private networks, provides European startups with short-term landing pads and with expertise, advice, and connections that can help them grow their businesses. Whether that happens at a global scale, in the US or at home, most absorb the Silicon Valley

experience, applying its values and insights to their future business strategies.

The support network is built around three major components: government offices (consulates and national or subnational agencies) and cross-border entrepreneurship programs, incubators and accelerators (public and/or private), and business organizations. Particularly in the case of government offices, the identity and functions of these entities frequently overlap. The support resources are rounded out by the presence of major European companies that have 19 corporate venture arms and 47 research laboratories and innovation offices in the Bay Area, which have engagement with startups as a core focus.

## Government Offices and Cross-Border Programs

### European Consulates and Government Agencies in the Bay Area

#### CONSULATES

Czech Republic (honorary)  
Denmark  
Finland (honorary)  
France  
Germany  
Greece  
Hungary  
Ireland  
Italy  
Latvia (honorary)  
Luxembourg  
Norway  
Portugal  
Romania (honorary)  
Slovak Republic (honorary)  
Spain  
Sweden  
Switzerland  
United Kingdom

#### NATIONAL BUSINESS, TECHNOLOGY AND INVESTMENT AGENCIES

Belgian Trade Commission (Belgium)  
Bpifrance (France)  
Business Sweden (Sweden)  
CzechInvest (Czech Republic)  
Enterprise Estonia (Estonia)  
Enterprise Lithuania (Lithuania)  
Finpro (Finland)  
Open Austria (Austria)  
Portugal Ventures (Portugal)  
swissnex (Switzerland)  
Tekes (Finland)  
Vinnova (Sweden)

#### SUBNATIONAL GOVERNMENT AGENCIES

ACCIO Silicon Valley (Catalonia)  
Flanders Investment & Trade (Belgium)  
PRIME (Paris)  
Scottish Development International (Scotland)

#### EUROPEAN UNION

EIT Digital

**SPOTLIGHT**

## **Switzerland at Pier 17**

Switzerland takes an all-in approach to its presence: in September 2016, Swiss government agencies in the region were consolidated in a new shared facility at historic Pier 17 on San Francisco's Embarcadero. Housing the Consulate General of Switzerland, Swiss Business Hub, Switzerland Tourism and swissnex, Swiss Pier's goal is to be both a business and diplomatic center and an interdisciplinary hub and catalyst for innovation and the acceleration of ideas.

A public-private venture, swissnex plays a key role. Active in the Bay Area for more than a decade, it is one of five Swiss technology nodes located in leading innovation centers: San Francisco, Bangalore, Boston, Shanghai and Rio de Janeiro. Its offerings include trend scouting, study tours, events and exhibits, and consulting, with science, technology, education, and culture as focal points. Together, this activity is intended to serve as a platform for exchange that links the Bay Area to Switzerland. In addition to partnerships with Swiss government agencies, universities, and private companies, services specifically targeted for startups include co-working space, residencies, and acceleration. Examples of programs include SAFT, a cleantech energy startup challenge connecting the region with Impact Hub Zürich, which targets entrepreneurs in the fields of smart cities, distributed generation, and energy efficiency; DART 17, a program that supports artists who use tools like AR, VR, robotics, sensors, and gaming to design interactive experiences; CTI Market Entry Camps, a seven-year partnership with the

Swiss Commission for Technology and Innovation (CTI) to help promising technology startups get a footing in the US market; Digital Campus, which aims to provide Swiss institutions of higher learning with the latest knowledge and best practices in digital education technology; and Data Canvas, an online and offline media network that sponsors challenges in which participants use environmental sensor technology and data visualization to promote public education on civic issues.

One early resident at Swiss Pier is the Silicon Valley Innovation Outpost (SVIO) run by Nestlé, the world's largest food company. SVIO, which anchors the company's global innovation activity, has 16 employees, 6 of whom rotate from other Nestlé sites around the world to look for new technologies and spread what they learn into the company worldwide. Nestlé has created a digital platform, dubbed HENRi@Nestlé, which allows startups and entrepreneurs to pitch projects in response to Nestlé's "innovation challenges." Nestlé then partners with chosen startups—10 to 30 startups in any one year—focusing on the digitally engaged consumer through technologies such as artificial intelligence and IoT (for example, how digital services can be provided through a "connected kitchen"). As described by Senior Global Digital Innovation Manager Stephanie Naegeli, "The platform, externally, is just a platform. But internally, it will completely change Nestlé's innovation processes."<sup>80</sup>

**SPOTLIGHT****EIT Digital: Digital Transformation and Europe as One**

EIT Digital's Silicon Valley hub, with a small team based at RocketSpace in downtown San Francisco, is part of the European Institute of Innovation and Technology's global network, linking Silicon Valley to other EIT Digital innovation centers in Europe (Berlin, Budapest, Eindhoven, Helsinki, London, Madrid, Paris, Stockholm, and Trento). Collectively, their goal is to drive digital innovation and transformation in Europe. Activities include pan-European collaborative innovation initiatives with a go-to-market focus; entrepreneurial education through the EIT Digital Academy consisting of a Masters School, Doctoral School, and Professional School; and the EIT Digital Accelerator to support scaleup companies. Their offices also serve as a co-working base for entrepreneurs and students. As the only Bay Area office of a pan-European organization supported by the European Commission, EIT Digital's hub actively promotes the theme of "Europe as One," supporting and connecting the national trade and scientific missions and accelerator programs of EU member states in the region.

Beyond their national programs, European countries also collaborate to bring startups to the region. We4Startups organizes tours and pitch presentations by competitively selected startups from the Visegrad Four countries of Eastern Europe (Poland, Czech Republic, Slovakia and Hungary). The annual event is sponsored by Polish Silicon Bridge/Startup Poland, CzechInvest/CzechTech, Slovak Startup Development Department Program/SARIO, and InnoTrade Program/Hungarian National Trading House, with support by member consulates. Twelve startups participated in 2016. The partnership has since been rebranded as CE Connect (Central Europe Connect) and has expanded to include Austria.

Since 2015, many of the players in this network have come together each year through Startup Europe Comes to Silicon Valley (SEC2SV), a weeklong event that attracts European startups and US partners for a wide-ranging agenda of meetings and pitch events. They include European Innovation Day, a conference attended by startups, technology leaders, and policy makers, organized by the non-profit Mind the Bridge Foundation in collaboration with EIT Digital with support from the European Commission. Other European startup organizations also bring events to the region, such as the La French Touch Conference, which was held in San Francisco for the first time in January 2017.

Universities are also carving out a role. For example LeBridge is a collaboration between UC Berkeley and the Schoolab entrepreneurship program in Paris, which has primary partnerships with ESSEC Business School, École Centrale Paris, and Strate École de Design. LeBridge offers a program for entrepreneurs combining four months of mentoring and support in Paris with four months of training and support in Berkeley. Stanford University provides an ongoing forum for exchanges between the Bay Area and European startup communities and investors through its European Innovation and Entrepreneurship program. Using a different model, the Technical University of Munich (TUM) opened a liaison office in San Francisco in 2016 with the goal of connecting with both Bay Area universities and the region's entrepreneurial community. In the past ten years, TUM has spun out approximately 800 startups from its Munich campus and is planning a program to bring its university-based entrepreneurs to the Bay Area on a regular basis.

## Incubators and Accelerators

### European-Connected Incubators, Accelerators, Work Spaces, and Innovation Offices in the Bay Area

#### EUROPEAN SPONSORED ACCELERATORS, WORK SPACES, AND INNOVATION OFFICES

- ABC Silicon Valley (Slovenia/Germany)
- Atelier San Francisco (Belgium)
- EIT Digital Silicon Valley hub (EU)
- Free Electrons (Portugal, Ireland)
- French Tech Hub (France)
- German Accelerator (Germany)
- Innovation Center Denmark, Silicon Valley (Denmark)
- Mind the Bridge (Italy)
- Nordic Innovation House (Nordic Region)
- PARISOMA (France)
- Polska Silicon Valley Acceleration Center (Poland)
- Spain Tech Center (Spain)
- swissnex (Switzerland)
- The Refiners (France)

#### US ACCELERATORS SUPPORTING EUROPEAN STARTUPS

- Founders Space
- GSV Labs
- Plug and Play
- RocketSpace
- Runway
- 500 Startups
- US Market Access Center
- Y Combinator

#### RESIDENTIAL FACILITIES WITH ACCELERATOR SERVICES

- Bed|n|Build
- Startup Basecamp

Accelerators, such as Nordic Innovation House and French Tech Hub, can be free standing or based in larger platform facilities, such as RocketSpace and Plug and Play, that host multiple national accelerators or companies. Palo Alto-based Nordic Innovation House, for example, is an outgrowth of a Norwegian initiative, Innovation House, which was established to support startups from Norway. Today it offers a soft-landing space for startups from across the Nordic Region—Norway, Sweden, Finland, Iceland, and Denmark—as a cooperative project of the five Nordic nations.

French Tech Hub, another freestanding accelerator and innovation outpost with a presence in San Francisco, helps French companies enter and grow in the US market through help with introductions, go-to-market strategies, and incorporation, and other services to support the establishment of US subsidiaries. The German Accelerator, with offices in San Francisco and Redwood City, has brought cohorts of entrepreneurs to the region on a quarterly basis since 2012.

More facilities of this kind are on the way in 2018, including the government-sponsored Czech Accelerator, and Prague, a parallel facility for startups run by the city of Prague.

Some accelerators are privately sponsored, such as Atelier San Francisco (supported by the Belgian Chamber of Commerce, which has a parallel facility in New York) and L'Atelier BNP Paribas North America, but most have government backing (such as the German Accelerator and the Polska Silicon Valley Acceleration Center), typically reporting to a Ministry of Foreign Affairs, Ministry of Economic Affairs, Ministry of Trade, or Ministry of Science. A few, such as Holland in the Valley, operate from within consulates. The Italian government, for example, provides startup support through a new FDI (foreign direct investment) unit created at its consulate, and Austria's foreign ministry has opened an innovation office (Open Austria) at the Galvanize San Francisco tech center. Whether freestanding, housed at platform facilities, or operated from within consulates, the scale of these offices varies, from one employee (for example, Sweden's Vinnova) to 18 (at swissnex). All draw extensively on support and mentor networks developed with platform hosts or locally-based nationals.

In some cases, private individuals also sponsor bridge programs. For example UB21, run by Czech investor Karel Janecek, brings early stage Czech startups to Silicon Valley for two-week orientations. Michael Hughes, co-CEO of LoopUp, a remote conferencing company based in both London and San Francisco, leads the Silicon Valley Internship Programme (SVIP), an initiative that brings software engineers newly graduated from UK universities for one-year internships with high-growth Silicon Valley technology startups, with the expectation that their experience will benefit other UK entrepreneurs when they return. Successful applicants

receive matching services, airfare, help getting work visas, and a USD 60,000 salary. SVIP also hosts monthly "Meet the Entrepreneur" and hackathon events, and partners with Girls in Tech to engage more women.

To address the cost and difficulty of finding housing in the Bay Area, privately sponsored residential facilities that also offer accelerator-type services are being established. These may offer short term accommodation (co-living), co-working spaces, and community programs, such as networking and speaker events. Examples include BedInBuild and Startup Basecamp.

Another private initiative, 42 USA—a coding school in Fremont that provides free tuition and housing—offers a different kind of bridge. Opened in 2016 by French telecommunications businessman Xavier Niel, it mirrors a

similar school founded by Niel in Paris in 2013 (École 42) that currently supports 2,500 students. Housed on a 200,000 square foot former DeVry University campus, the Silicon Valley facility offers 163 dormitory rooms and can support up to 300 students. Designed to democratize access to computer education for people aged 18–30, the program has no academic prerequisites and is based on peer-to-peer learning, but candidates are required to pass online logic tests and an intensive four-week screening called "the piscine" (French for swimming pool, referring to the fact that candidates are thrown in and either sink or swim). Niel plans to spend USD 100 million on 42 USA over the next ten years.

Among the most prominent independent facilities used by European entities are Plug and Play and the US Market Access Center.

#### SPOTLIGHT

### Plug and Play

Large accelerators such as Plug and Play (PNP) house an array of special-purpose innovation platforms, providing space, seed and early-stage investment, and introductions to connect startups, corporations, and venture capital. Within its startup ecosystem, in partnership with large corporations, PNP currently runs 11 industry verticals for the different stakeholders to operate within: Brand & Retail, Fintech, Food & Beverage, Health & Wellness, Internet of Things, Insurtech, Mobility, New Materials & Packaging, Sustainability, Travel & Hospitality, and Supply Chain & Logistics. Its vertical-specific acceleration programs (exploring business development, fundraising, and partnership development) run on different cycles during the year and are investment-based (PNP invests for equity if startups fit criteria) but otherwise completely free.

Since 2009 another program, Plug and Play's International Accelerator, has worked with over 450 overseas startups, more than half from Europe. The International Accelerator program runs quarterly and is fee-based (no equity taken). Plug and Play partners with government organizations/agencies who sponsor startups to join the program, which happens in four phases: a qualification process that takes place before arriving; a four-day PNP University workshop

covering topics such as funding, pitching, market strategies, and legal, tax, and accounting issues; mentoring and coaching, which is ongoing during the program; and a PNP Expo with company pitches during the second half of the quarter.

Plug and Play also works collaboratively with corporate innovation teams. Among its corporate partners are companies such as BNP Paribas, Munich Re, Philips, Carrefour, Ericsson, Deutsche Bank, Lufthansa, Banco Santander, Michelin, PSA Peugeot Citroën, and Renault. In addition to its partnerships and sponsorship of numerous conferences and events, PNP hosts an International Corporate Innovation seminar that provides a two-day immersion in the workings of Silicon Valley for senior business and government leaders whose roles relate to startup ecosystems and corporate innovation.

Plug and Play has also led a modest but growing trend of Bay Area accelerators to establish beachhead accelerators in Europe. As opposed to establishing independent facilities, its strategy is to partner with major, well-established businesses with a similar commitment to the enterprise. Overall, PNP's global reach has expanded to 23 cities in 11 different countries.

**SPOTLIGHT**

## US Market Assistance Center

One of the more unique Bay Area accelerator programs is the US Market Assistance Center (USMAC), based at RocketSpace. Sixty percent of its activity comes through contracts with governments or government-supported entities. Through USMAC's core program Go Global Silicon Valley, the government/institutional partner identifies candidate startups to participate in a training program that is delivered in their home country. From that group, USMAC qualifies and selects the most promising to come to the Bay Area for 2–4 week immersion programs.

The model is built on a perception that many international startups were coming to the Bay Area, but with low success or survival rates. Candidate companies are therefore sorted into two categories: (1) early-stage companies in their home countries who haven't yet found a product-market fit, and (2) companies that have found a product-market fit in their home countries and need to scale. For the first group, services might include the basics: developing a value proposition and learning how to build and test it. For the second group, the focus is more on understanding what markets to get into, how to test products in a new market, and team development. Goals are thus tailored to a company's stage of development. Mentors play a critical role with advice, but also with connections to networks.

“Silicon Valley is a deeply connected place at the human level. Who you know matters. Beyond their advice for what to do and not to do, mentors are incredibly important because of their ability to provide connectivity into the human networks. If you look across Europe, they fundamentally don't exist in quality anywhere outside London and Berlin. Most programs draw on people who have been successful in a large company but weren't entrepreneurs, so bring big company answers to companies that aren't even companies yet. So it's not the same thing as here, where people with that experience are everywhere. You don't have this density of 'been there, done that' anywhere else in the world.”

—Chris Bury, Co-Founder, USMAC

USMAC's European partners currently include AIP Group (Poland), ANJE (Portugal), ASTER (Italy), Cap Digital (France), CzechInvest, Enterprise Ireland, the Dublin Institute of Technology, Brussels Invest & Export, Cofindustria (Italy), the Embassy of Poland, Enterprise Estonia, the Consulate of Hungary, Flanders Investment & Trade, the German American Chamber of Commerce (GACC), the Grand Duchy of Luxembourg, ICEX (Spain), Innovationsbron (Sweden), Invest in Bavaria, Invest Northern Ireland, Northtown (Lithuania), PARP (Poland), Promálaga (Spain), the Slovak Business Agency, Startup Latvia, Tekes (Finland), UP21 (Czech Republic), and Vinnova (Sweden). Through 2016, 63 bootcamps have been held in 21 countries, involving 550 startups. Of those, 260 have participated in follow-on training programs in the Bay Area, of which 92 have established a long-term presence in the region and 69 have attracted a total of USD 370 million from investors.

Other leading Bay Area accelerators that host overseas startups, particularly from Europe, include RocketSpace, Runway, Tandem, 500 Startups, Y Combinator, and Founders Space.

Sometimes startups will move between hosts, graduating as their capabilities and needs change. For example, Luxembourg has operated a partnership with Bay Area accelerator Plug and Play since 2012. One candidate per quarter is selected to come to Silicon Valley for a three-month orientation program, with approximately 15 having participated to date. Some stay to grow while others return home. MyScienceWork is a company started in Paris in 2010 that organizes and analyzes information on scientific research, patents, and intellectual property generated at institutions around the world, with the objective of enabling collaboration. Its founders moved the company to Luxembourg to access funding and were subsequently selected for residency at Plug and Play Tech Center in Silicon Valley. When that experience confirmed their decision to stay, the founding team moved to RocketSpace and followed the USMAC program to enter the US market and find first customers. Its current clients include the SETI Institute, the Public Library of Science, Annual Reviews, and Stanford postdocs. Referring to its core client base of academic institutions and the advantage of a Bay Area presence, COO Laurence Bianchini notes that "in Europe academic decision making is very slow. Here it's much faster. In France you would never be able to meet the president of a university, but here people are more open to meeting and to trying new things even if they don't know you." The company currently has five employees in the Bay Area, five in Luxembourg, and two in France.

Leading Bay Area accelerators have started to establish outposts in Europe. This is still at a small scale, so it remains to be seen if it becomes a trend. RocketSpace is opening a facility in the Tech City district of London in 2017. Another notable example is Plug and Play, which has six centers: a stand-alone facility in Valencia (Spain); Axel Springer Plug and Play in Berlin (a joint venture with European publishing house Axel Springer); Startup Autobahn Powered by Plug and Play (a partnership in Stuttgart with Daimler and Stuttgart University, focused on mobility); Galeries Lafayette Plug and Play in Paris

and Plug and Play–Fashion for Good in Amsterdam (both of which focus on fashion and retail); and BNP Paribas Plug and Play in Paris (a joint venture with BNP Paribas that focuses on fintech). These sector programs reflect a strategic decision by Plug and Play to co-invest with established partners in key industry verticals, rather than establishing its own more costly and difficult-to-manage facilities.

## Business Organizations

### European Business Organizations Supporting Startups in the Bay Area

- Business Association Italy America (Italy)
- BelCham (Belgium)
- British-American Business Council Northern California (UK)
- California-Spain Chamber of Commerce (Spain)
- Danish American Chamber of Commerce of Northern California (Denmark)
- French American Chamber of Commerce of San Francisco (France)
- German American Business Association of California (Germany)
- German American Chamber of Commerce–West (Germany)
- Hungarian American Chamber of Commerce in the US (Hungary)
- Irish Network Bay Area (Ireland)
- Irish Technology Leadership Group (Ireland)
- Latvian-American Business Association of California (Latvia)
- Romanian-American Chamber of Commerce (Romania)
- Silicon Vikings (Scandinavia)
- Swedish-American Chamber of Commerce of San Francisco & Silicon Valley (Sweden)
- Swiss-American Chamber of Commerce (Switzerland)
- US-Polish Trade Council (Poland)
- West to West (Portugal)

What is particularly significant about European business organizations in the Bay Area, compared to overseas business entities in most of the United States, is their focus on technology and startups and their active role in enabling startup growth through structured connections to local resources and partners. Many participants in these national business networks are successful entrepreneurs themselves and, in Silicon Valley fashion, many are prepared to share their connections and experience.

While most of this activity is at the small group level, some takes place on a large scale. For example, each year the French American Chamber of Commerce hosts the French American Business Awards, to recognize both large and small French or French-led companies and French business leaders. In 2016, 61 jurors screened 175 candidate companies and 60 individuals in 10 categories, with awards in categories including Agribusiness, Cleantech, Food, High Tech with over USD 30 million in revenue or funding, High Tech with under USD 30 million in revenue or funding, and Startup of the Year. Awardees included energy company Enphase, and secure communications technology company Symphony. Individually and collectively, the awardees have significant impact. In 2015, Symphony had 75,000 users, a valuation of USD 650 million, and more than USD 170 million in investment.

Some Bay Area business groups are offering specialized outreach programs. The Irish Technology Leadership Group, for example, sponsors an annual Young Innovator Competition for secondary students in Ireland. Designed to inspire the next generation of Irish innovators, winning teams visit Silicon Valley for a week of orientation and site visits.

The curated community is another approach to innovation collaboration as used by GBx, a private network of successful British entrepreneurs, investors, and senior technology executives living in the Bay Area. GBx aims to build a British technology ecosystem as a mutual support network connecting both the C-level British technology community and early-stage British entrepreneurs wishing to establish themselves in the region. To help startups land and expand faster, the GBx offers connections and advice, both online and at monthly discussion events. Another goal is to help inform British government policy by providing a forum for discussion of emerging tech issues.

The organization's leadership team includes the British Consul General in San Francisco and two consulate leaders from the UK Department for International Trade.

## European Corporations

“The car is the ultimate mobile device of the future, and the future is being written in Silicon Valley. This means it is particularly important to be right next door to leading IT companies in the USA, as this allows us to identify trends early and invest in new technologies at the right time. In addition to our own potential for innovation, above all we want to form strong partnerships.”<sup>81</sup>

—Thilo Koslowski, Managing Director,  
Porsche Digital

Major European corporations are heavily represented in the region. Sometimes this is through research laboratories but is more often through what can be termed “innovation outposts” that vary in size from a handful to several hundred staff. Since technology and ideas move rapidly, to fully participate in the region’s innovation economy, companies need an established presence. These offices play multiple roles. They monitor technology trends and developments, reporting back to their home offices, and develop partnerships with large Bay Area companies. Recognizing that young companies are often more nimble and can out-innovate even companies with large research budgets, many of these corporate outposts are also seeking out startups, to identify those with business models or technologies that can support their business plans through partnerships or acquisition. In any year, a single corporate office may screen as many as several hundred startups, looking for partners who can be supported or potentially acquired. They also want to know what startups are working on, to learn what disruptive technologies or business models might be on the horizon.

Other European corporations have chosen to partner with existing accelerators to nurture startups in their sectors. For example, German airline Lufthansa and Spanish logistics company KALEIDO, are partnering with RocketSpace on a Logistics Tech Accelerator. Many also operate venture funds in the region to capitalize on local and global investment opportunities.

**SPOTLIGHT****Siemens: next47 Catalyst**

In 1999, Siemens established a Technology-to-Business (TTB) center in Berkeley to develop technology partnerships for its Munich-based parent with universities, corporate partners, and startups. One of seven Siemens technology outposts around the world, TTB was absorbed in 2017 into next47, a new innovation unit designed to foster disruptive ideas and more vigorously accelerate the development of new technologies.

Next47 connects and supports the company's startup activities. Employees, external startups, and established companies can pursue their ideas in the company's areas of strategic interest, outside many of the organizational restrictions of the larger company. The concept is that everything related to startups and startup innovation should be under one roof, as an operating entity with the capacity to make its own investment decisions. Among other changes, this means bringing together the company's once separate TTB and venture capital arms. In this respect, it leverages both the Siemens ecosystem and its functional divisions without being overly tied to near-term activities. Areas of focus include artificial intelligence, autonomous machines, distributed electrification, blockchain applications, and connected (e-) mobility.

Since the late 1990s, Siemens as a company has invested more than EUR 800 million in approximately 180 startups globally. Through that process, it makes contact with more than 1,000 startups a year, launching approximately 20 external cooperative ventures in addition to supporting startups that are launched internally. TTB, now integrated with next47 and rebranded next47 Catalyst, will move to the organization's consolidated office in Palo Alto.

**SPOTLIGHT****Schneider Electric**

Schneider Electric, a global energy technology company based in Paris, supports a team of 10–12 in San Francisco. Goals include maximizing impact on its business through acceleration of innovation that expands its portfolio, reduction of internal costs, identification of startups for investment or acquisition, and brand building. This is important as the company's traditional manufacturing markets are being transformed by technology. The Bay Area team's hardware and software engineers and project managers partner with startups, championing the partnerships and facilitating their integration with the company. Through its connections to incubators, accelerators, investors, events, and resources such as CBInsights and RocketSpace, Schneider engages with local startups and with French and other European startups that come to the Bay Area. Priority fields include smart grid, smart homes, the industrial Internet of Things, and the adaptation of electrical grids to integrate renewables. The Silicon Valley office develops approximately 20 startup partnerships each year.

**SPOTLIGHT****L'Atelier BNP Paribas North America**

With offices in Paris, San Francisco, and Shanghai, L'Atelier BNP Paribas helps both the Paris-based BNP Paribas Group and its international banking clients adapt to change in the digital era by managing digital transformation and guiding decision making to accelerate innovation. As a detection post for emerging trends, the San Francisco office serves in effect as the Group's eyes and ears on the digital transformation being driven by Silicon Valley. Activity at its facility in San Francisco's Dogpatch neighborhood focuses on research, business transformation consulting services, and business acceleration programs, and includes broadcast communications and hosted events.

## Corporate Research Laboratories and Innovation Offices

ABB Silicon Valley Campus (Sweden)  
A³ by Airbus (France)  
Arvato Silicon Valley (Germany)  
Audi Innovation Lab (Germany)  
Aviva InsurTech (UK)  
AXA Lab, Silicon Valley (France)  
Axel Springer Digital Ventures (Germany)  
Bayer US Innovation Center (Germany)  
BMW Technology Office (Germany)  
Bosch Research & Technology Center North America (Germany)  
Bouygues Group Winnovation (France)  
BT, scouting unit (UK)  
Capgemini Applied Innovation Exchange (France)  
Dassault Systèmes US West Coast headquarters (France)  
Delphi Labs @ Silicon Valley (UK)  
Deutsche Bank Labs Silicon Valley (Germany)  
Deutsche Telekom Innovation Laboratories (Germany)  
EDF Innovation Lab (France)  
Enel Innovation Hub (Italy)  
Ericsson Silicon Valley (Sweden)  
L'Atelier BNP Paribas North America (France)  
Luxottica, San Francisco Office (Italy)  
Mercedes-Benz Research & Development North America (Germany)  
Munich Re Silicon Valley Outpost (Germany)

Nestlé Silicon Valley Innovation Outpost (Switzerland)  
Nokia Networks (Finland)  
Orange Silicon Valley (France)  
Pearson, startup engagement program at RocketSpace (UK)  
Philips Silicon Valley Center (Netherlands)  
Porsche Digital (Germany)  
PSA Connected Car Group (France)  
PWC Center for Technology & Innovation (UK)  
Renault Innovation Silicon Valley (France)  
Royal Bank of Scotland Silicon Valley Solutions (UK)  
Sanofi San Francisco External Innovation (France)  
SAP Innovation Center Silicon Valley (Germany)  
Schneider Silicon Valley Innovation Center (France)  
Seco Tools (Sweden)  
Sennheiser Silicon Valley Technology & Innovation Center (Germany)  
Siemens, next47 Catalyst (Germany)  
Swisscom Silicon Valley Outpost (Switzerland)  
Telefonica Silicon Valley Office (Spain)  
Univerre (Switzerland)  
Valeo, Silicon Valley office (France)  
Valora Lab (Switzerland)  
Vodafone Xone (UK)  
Volkswagen Group Electronics Research Laboratory (Germany)

## Corporate Venture Arms

ABB Technology Ventures (Sweden)  
Airbus Ventures (Europe)  
AXA Strategic Ventures (France)  
BASF Venture Capital (Germany)  
BBVA Propel Venture Partners (Spain)  
BMW i Ventures (Germany)  
Deutsche Telekom Capital Partners (Germany)  
HELLA Ventures (Germany)  
innogy Generator Programme (Germany)

Nokia Growth Partners (Finland)  
Robert Bosch Venture Capital (Germany)  
Sapphire Ventures (Germany)  
Shell Technology Ventures (Netherlands)  
Sky Startup Investments & Partnerships (UK)  
Telefonica Digital (Spain)  
Total Energy Ventures (France)  
Vodafone Ventures (UK)  
Volvo Group Venture Capital (Sweden)

“This is the center of the world for venture investing. There is an ecosystem that has been built over about 80 years and we very much want to be a part of that ecosystem. Deutsche Telekom has been a part of that ecosystem from a very corporate perspective for a very long time. Now we’re taking the next step with our investment management group and \$2 billion under management...more importantly, we want to build this bridge between Silicon Valley and Europe and Israel....we really want to work with this notion that Silicon Valley is no longer a region, it is actually a platform.”<sup>82</sup>

—Vicente Vento, CEO, Deutsche Telekom Capital Partners

## European Venture Firms

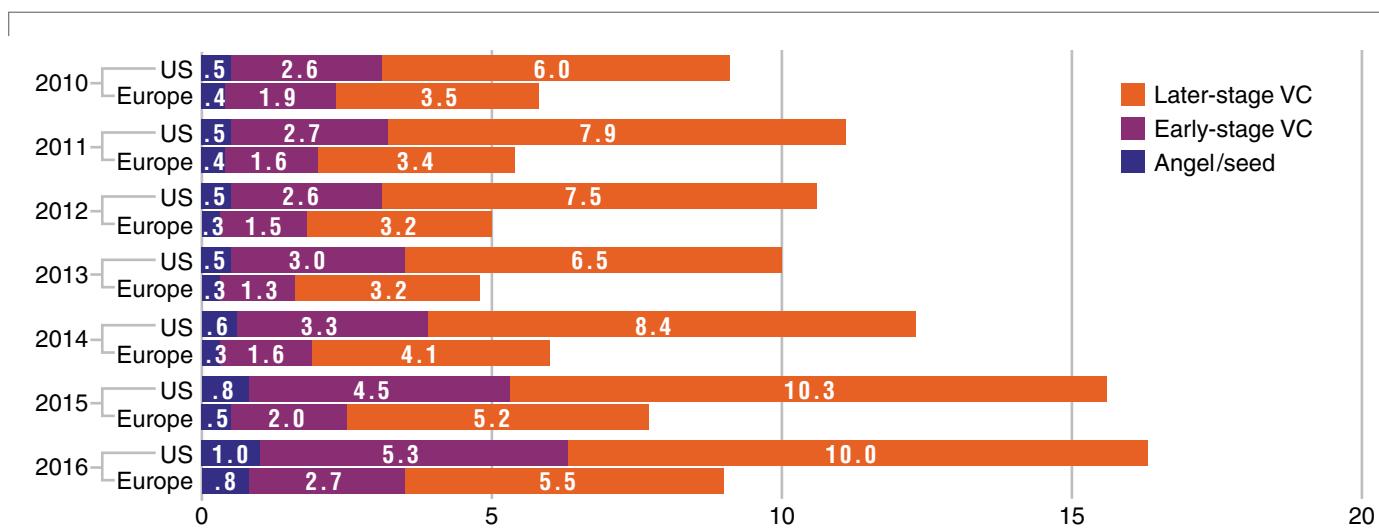
On a smaller scale, corporate venture arms are being joined by independent European venture firms such as Partech Ventures. Launched in the Bay Area in 1982 as the venture arm of the French financial services company Paribas, Partech was subsequently spun out and expanded to Paris and Berlin. Today, its largest presence is in Europe, with approximately two thirds of its USD 1 billion+ funds deployed there and one third in the US. Investment is exclusively in technology, and decisions are made on a trans-Atlantic basis. Asked to compare the Bay Area with Europe, a Bay Area general partner notes: “There’s more seed funding there [Europe] now, but still not as many investors. In Bay Area seed investment rounds, Partech is typically one of 5–10 investors. In Europe we’re one of maybe two or three, so we’ll play more a lead role there, because there aren’t as many players. At the growth level, there aren’t many funds in Europe that can write EUR 10–40 million checks—there are some in France, more in the UK, and a couple in Germany. That’s about it, maybe 20 in all. So innovation funding is still underserved in Europe. That has persuaded us to create a new growth fund—to fill a gap.”

Another example is Sweden’s Creandum. Founded in Stockholm in 2003, Creandum initially focused on the semiconductor industry and only in Sweden. Finding it hard to scale, the firm diversified in its second fund, expanding from seed to Series A, and focusing more

on software. Spotify was an early investment. It also expanded its geographic focus to the Nordic Region. For the firm’s third fund, it started opportunistically to look outside of the Nordics with a few investments in the UK and Germany. Its San Francisco office was opened at the same time. With the launch of its fourth fund of USD 200 million in 2016, Creandum’s focus again shifted as the firm opened an office in Berlin. Today, with USD 500 million under management, the company still focuses heavily on the Nordic Region but looks at companies across the whole of Europe.

As described by a Creandum partner, the purpose of its San Francisco office is to make the firm a smarter investor in Europe by better understanding trends in the US investor community. It also helps European companies come to the US by providing local support and assistance, principally but not exclusively to its portfolio companies that are ready to expand. A third role is to find companies to invest in, primarily European startups that come to the Bay Area through incubators, accelerators, and events. The Bay Area is an important destination: “In the past, you started in a Nordic country, then expanded to the neighboring countries, and then to the UK or Germany. But it’s almost as much work to go to another Nordic country as to the US, so many are taking a shortcut and coming here directly. The perception is if you can crack the US market, you can crack the world.”

### Venture Funding Median Deal Size by Stage, US and Europe, 2010–2016, Millions of US Dollars



Source: Venture Pulse, Q4'16, Global Analysis of Venture Funding, KPMG Enterprise. Data provided by Pitchbook, January 12, 2017

Analysis: Bay Area Council Economic Institute

#### INSIGHT

### Nordic Startups in the Bay Area

A recent survey by the Scandinavian business network Silicon Vikings identifies 160 Nordic startups operating in the Bay Area, of which 79 responded to the survey or participated in interviews. Of those, half (51 percent) were started in the Nordics and later opened a US subsidiary or affiliate, and half (49 percent) were started in the US by a Nordic founder. The number of companies with Nordic founders is led by Sweden (37 percent), followed by Norway (17 percent), Denmark (29 percent), and Finland (11 percent), with Estonia (3 percent) and Iceland (3 percent) accounting for the balance. The leading reasons given for starting a business in the US are access to US customers/servicing existing US customers (51 percent), using the US as a springboard for global expansion (23 percent), accessing venture capital (22 percent), and proximity to US business partners (4 percent). Fifty-three percent have received some form of venture investment, with 61 percent of those having received venture investment from the US.<sup>83</sup>

# The Bridge to Silicon Valley

On any given day, hundreds of entrepreneurs from across Europe are working in the Bay Area. Some are passing through as part of entrepreneurial training or orientation programs. (Initial visits to the region typically run between one week and three months, fitting within the 90-day period within which visas aren't required for visitors from Europe.) Others are already embedded in the region's business community.

## Why They Come

The reasons why European startups come to the Bay Area in such numbers reflect the challenges that they continue to face in Europe, primarily relating to capital and scale. Europe has fewer venture capital firms—perhaps only twenty with significant scale.

European venture capital firms also have less capital to deploy. While seed funding is plentiful, when European startups grow to the point where they need Series A or particularly Series B or C funding, many come to the Bay Area. While some Bay Area venture capital firms do small fundings outside the US, when they are leading an investment round or are participating in a large investment, most want the companies they invest in to be close, where a relationship can be developed with their leadership. This also draws startups to the region.

Companies in more advanced stages of development come if they are planning to go public, since more IPOs happen in the US, and US valuations are also higher than those in Europe. They may also come if their exit strategy is to be acquired, since Bay Area technology companies (unlike most European companies) typically grow through acquisition. The average US venture capital exit is nearly USD 200 million, compared to USD 70 million in Europe. From 2012–2016, the count of USD 250 million exits totaled 22 across Europe, compared to 166 in the US.<sup>84</sup>

Startups coming to the Bay Area also find unparalleled opportunities to scale. While a startup in Spain, for example, can stay and grow there if its ambition is to lead the Spanish market, startups with the ambition to become global companies need a larger playing field. The continued fragmentation of Europe's capital and services markets, marked by cultural differences

and differing regulations, leads many startups, after establishing themselves at home, to look to the US as their next growth market. For both companies and their investors, success in the US market is the ultimate test and goal. From this perspective, the Bay Area offers a platform to scale in the United States; because of the presence of Asian and other international companies and governments in the region, it also provides a platform for scaling globally. As one East European entrepreneur expressed it, "If you want to build a successful global business, it's 1,000 times more difficult to do it from Poland, and 100 times more difficult to do it from the whole of Europe than from here [Silicon Valley]."

Some companies come to the Bay Area for another reason: their business models are built on platforms created by Bay Area companies. Many consumer-facing startups work at some point with companies such as Apple, Google, Facebook, Twitter or Amazon, which are based in the Bay Area or in the same time zone. Often a full-time presence is required to build products in collaboration with counterparts. This is the case with Swedish music streaming company Spotify, which established a Bay Area office in 2010 in order to be close to the region's tech community and to companies such as Facebook, Twitter and Uber, with which it has strategic partnerships and whose platforms are central to its ability to scale globally. The company also sees partnering opportunities with newer, smaller companies (for example, in health and fitness). As one senior manager notes, "Everyone is here." Spotify remains headquartered in Stockholm, while its San Francisco team focuses on marketing, partnership development, and related engineering.

Many startups are also looking for seasoned managers with connections to investors and experience in global markets, which the region offers in abundance. A good example is apps analytics company App Annie, which was founded in Beijing in 2010 by Bertrand Schmitt, a native of Paris. Schmitt notes that the company could have put its headquarters anywhere in the world, but moved to San Francisco in 2014 to take advantage of the region's rich pool of talent, as well as access to venture capital and proximity to other tech companies. With USD157 million in funding, today

App Annie provides data and analytics that help many of the world's largest corporations, including Macy's, Warner Brothers, McDonald's, Pandora, Amazon, and Orbitz, track the effectiveness of mobile apps. Of its 450 employees around the world, 150 work out of its San Francisco offices.<sup>85</sup>

The Bay Area is seen as a welcoming environment for startups, with an open business culture that provides comparatively easy access to senior executives, partners, and mentors, as well as information. Access is enabled by networks that exist at many levels. As expressed by a successful Swedish entrepreneur, "While the mentorship opportunities in recent startup hubs like Berlin and Stockholm have increased dramatically in recent years, the mentors in Silicon Valley are still some of the most experienced and clueful in the world (let's call that factor "X"). In addition, they're also the most willing to invest their time and share their experiences (factor "Y"). When you multiply X and Y, you get a mentorship culture that's light-years ahead of anyone else in the world, and I don't think anyone will catch up for several decades."<sup>86</sup>

This dynamic environment—including the ready acceptance of risk and possibility of failure that is inseparable from the startup process—accelerates innovative thinking and the development of new products and ideas. The aggregation of so many startups and investors also lets companies test their products and ideas on the world's most competitive stage, providing the ultimate market validation for those that succeed.

## What They Find

Some European startups coming to the Bay Area find their way here independently, while others benefit from the extensive government and private support networks outlined in the preceding pages. Those networks play a significant role through training, networking events, and introductions to mentors, funders and potential business partners. Arriving entrepreneurs also find an energized community of fellow founders and partners from around the world with a deep and diverse base of the skills that can enable global scaling.

“...you can build a world-changing organization anywhere, but the job is always easier at your industry's center of gravity. For fashion it's Paris; for finance it's London; for tech it's Silicon Valley. Think about it as running uphill versus running downhill. You expend the same amount of energy in both cases, but if you're running downhill you go so much farther. Being in the center of gravity for our respective industry is much the same: The energy you spend growing your business gets you closer to success than the same energy spent in a different location. So, should you move your non-U.S. tech startup to Silicon Valley? Every situation is unique, but on balance, I've learned that the Silicon Valley advantage pays off nine times out of 10.”<sup>87</sup>

—Emil Efrem, CEO, Neo Technology

Arriving startups also find a deep pool of potential investors who, compared to many investors in Europe, are open and accessible to startups. What matters most isn't where you come from, but the value of your ideas. As Torsten Kolind of YouNoodle, a company that connects startups with grants and corporate partners, puts it "Here the founders and investors have an easier time coming together to say 'we can do this.' There's more a leap of faith here. A startup and investor will meet each other earlier, and build a company together. Investors in Europe see themselves more as bankers than entrepreneurs."

With all its assets, the Bay Area also presents entrepreneurs with significant challenges. Some arrive believing the streets are paved in gold and that investment is easy to obtain, which is definitely not the case. Expectations need to be managed, and startups planning to stay long term would do well to arrive with some level of funding already in hand.

A more immediate problem, shared with all Bay Area residents, is housing, which is expensive and hard to find. Rental rates are among the highest in the country, and securing housing in any form can be time-consuming. Another challenge is competition. Even though the region has the world's largest, most skilled, and most diverse pool of technical talent, competition for engineers is intense. Startups must compete for talent with Facebook, Google, LinkedIn and a host of

technology companies that offer attractive salaries and benefits. Engineers tend to change jobs frequently, seeking the best opportunities, so attracting and retaining talent can be difficult for an unknown company from another country. For that reason, and with large pools of lower-cost but highly qualified engineers at home, most startups from Europe continue to rely on engineering talent in their home countries.

Though statistically small, a survey of 13 European startups in the region, conducted by the Bay Area Council Economic Institute in 2016, aligns closely with interviews conducted in the same period, confirming this landscape. The participants included nine startups from Ireland, one from Italy, one from France, and one from the Czech Republic. Summaries of their responses follow:

- While one was founded in 1989 and another in 2005, most were founded between 2009 and 2016. Ten were in B2B, and one each in IT, industrial services, and automotive.
- Eight came to the region through incubators or accelerators, three through government programs, one through a business plan competition, and one through personal connections. In some cases these connections overlapped for example when a company supported by Enterprise Ireland was selected to participate in USMAC.
- All of the companies said that their primary goal was to expand in global (as opposed to national) markets.
- The target markets were diverse, including Europe, Asia, North and South America, and the Middle East. A majority (nine) identified Europe as their primary target for expansion, suggesting that the resources to enable that expansion are more readily available in the Bay Area than in Europe.
- Asked about more specific goals in coming to the region, ten identified market development and/or scaling as their top objective, and three identified product and market validation.
- Nine already had some level of funding (the scale was not specified). Seven had sourced funding in Europe before arriving. None had yet received funding from US investors.

- Ten were in the region on a short-term basis, and three long-term.
- Asked what they saw as the short-term benefits of moving to the Bay Area, the respondents gave a range of answers: product validation and connecting with OEMs; access to mentors; access to markets; learning new market strategies; market validation; proximity to early adopters; building networks; customer development; and access to funding.
- Asked about the long-term benefits of moving, the respondents gave similar answers: e.g., access to the US market; access to larger customers; the region's high-tech environment; and proximity to investors.
- If they had not yet opened an office in the region but would like to, asked where they would incorporate, four indicated that they would move their companies to the US, and eight indicated that they would keep their headquarters in their home countries and establish US affiliates.
- Asked to indicate on a scale of 1 to 10, 1 being very easy and 10 being very hard, how easy or difficult it is to start a company in Europe, most (nine) gave a score of 7 or 8, two said 6, and one each said 5 and 4.
- Asked what in Europe might make it easier to scale a company, the respondents' reactions were mixed. One pointed to government support for early-stage companies, one to lower costs, one to lower-cost talent, and three to historical presence. Several did not respond or suggested that the benefit of government programs is offset by bureaucracy.
- On the question of what the barriers are to scaling a company in Europe, the responses were led by language and culture, followed by market fragmentation (differing tax and regulatory regimes), and lack of investors.
- Asked how they would describe the adequacy of European investment at different levels (angel, seed, Series A, Growth), seven felt it was poor, with fair access to angel and seed funding but inadequate access to Series A or above. One noted that the level of investment available in Europe is growing, and another observed that access to funding is strong in the UK and Ireland.

- Asked what specifically attracted them to the Bay Area, the respondents' comments were diverse but broadly consistent: large customers, an open economy, concentrated expertise, a concentration of target customers, new technologies and business models, quality of life, startup networks, product validation, funding, environmental markets, and the belief that Silicon Valley is the center of technological innovation—"the place to be."
- Asked what the major challenges are to being in the region, the respondents' answers were heavily concentrated around cost—for people, office space, and housing—and competition for talent, with some respondents also pointing to visibility (competition for attention), the time difference from Europe, and visas.

#### SPOTLIGHT

### Bloomlife (Belgium)

Bloomlife, a company focusing on data analytics for pre-natal care, was founded in San Francisco and Belgium simultaneously in 2008. Founders Julien Penders and Eric Dy, biomedical engineers, had previously led a corporate R&D group in Belgium. Their goal in coming to the Bay Area was to take advantage of the best that both sites have to offer. From the Bay Area, the firm could access the US market's scale and the region's ecosystem, where "you can find everything." It helped, according to Penders, that the Bay Area is "the capital of digital health—both hardware and data." Europe, on the other hand, was saddled with cultural and linguistic barriers and more conservative investors: "They want more predictability, like a five-year financial plan. VCs here understand that in a startup you don't know what's going to happen."

When the company started, a grant from the Belgian government helped support technical research, and in San Francisco the Belgian and Flanders Trade Offices helped open doors. USD 4 million in seed funding has been raised from angel and venture investors at home and in the Bay Area, with most coming from Silicon Valley. With fifteen employees, Bloomlife's founders are here, while most of its engineers are in Belgium.

- Asked where they would locate their leadership team and hire their engineers, all but one said they would locate their leadership team and sales activity in the Bay Area and locate engineering in Europe.
- On the question of what improvements in the business or entrepreneurial environment would be helpful to them at home, the leading response was better access to funding, followed by a simplified European market, easier capital flows between EU members, and less bureaucracy.
- On the question of what improvements in the business or entrepreneurial environment in the Bay Area would be most helpful, the leading response was a startup visa.

#### SPOTLIGHT

### Feedzai (Portugal)

Launched in Lisbon in 2010 by a team of entrepreneurs drawn from university research, data science, and aerospace (founder Nuno Sebastiao ran simulations at the European Space Agency), Feedzai focuses on digital fraud prevention using artificial intelligence machine learning. The company started with USD 600 thousand in angel funding and EU and regional grants in 2011. The regional money came with a contingency: to use those funds you could only hire in Lisbon. Complying with the grant brought big bureaucratic burdens, which were difficult for a two-person company. Their first US funding came in 2013 through the Bay Area venture arm of a German company, SAP AG, and the Bay-Area-based venture capital fund Data Collective.

To date, Feedzai has raised USD 36 million from a variety sources. Incorporated in Portugal, where it has 110 employees in three offices, the company's operations are based in the Bay Area, with two other US offices in Atlanta and New York. Its 30 employees in the Bay Area are primarily doing sales and marketing, with most of its engineers in Atlanta and Portugal. In 2016, Feedzai had 133 million bookings, with USD 270 million in revenue.

**SPOTLIGHT****StyleScript (Netherlands)**

StyleScript, a company that applies artificial intelligence to ecommerce, started in the Netherlands under the name StyleCompass. Founder Jonna Fassbender-van den Dungen, with a background in retail, had run another company for ten years. One difference she finds in the Bay Area is that it's easier to meet people and to network: "I've had lots of introductions that have enabled me to get to the right person. You're referred and passed along through the network; I've met with people from Pinterest, Google, Facebook, Amazon, Neiman Marcus, Apple, Nordstrom, and more. In Holland, you'd contact the assistant to the CTO and it would probably stop there. Here, people listen and will give you the opportunity to make your pitch."

She says it was easy as one person to start the company in Holland, but harder to scale due to labor rules, social mandates, and taxes. Other challenges are a gap between universities and entrepreneurs that is only slowly closing, limited venture capital ("VCs are risk-averse, and banks don't take startups seriously"), and for ecommerce companies, an absence of large retailers ("even large retailers in Holland are small compared to the US"). Fassbender-van den Dungen plans to move to San Francisco with some of her team members, while others will stay in Europe, where StyleScript's engineers are scattered. Since it aims to be acquired, StyleScript doesn't plan to incorporate in the US.

**SPOTLIGHT****Eventbrite (France)**

Eventbrite co-founder Renaud Visage came to the US from France in 1993 to study civil engineering at Cornell, where he learned to code. Seeing the Internet as an opportunity, in 2000 he joined an online photo sharing company, Zing Networks in San Francisco, that was funded by Kleiner Perkins, grew, shrank, and was later acquired by Sony. In 2005, he met his two other co-founders, Kevin & Julia Hartz, who together saw an underserved market for putting together small and medium sized events. Eventbrite was launched in 2006, with the first venture investment coming in 2007. Sequoia Capital committed Series A funding in 2009, which dramatically raised the company's profile.

Today, Eventbrite has more than 500 employees and recently acquired Amsterdam-based ticketing company Ticketscript. Teams operate in 10 countries, supporting 2 million events annually in 190 countries, with USD 3 billion in ticket sales in 2016. Eventbrite has European offices in London, Dublin,

Cork, Berlin, and Amsterdam, and engineering is done in the Bay Area, Nashville, and Mendoza (Argentina). Asked why the company is headquartered in the Bay Area, Visage points to the availability of financing and lots of talent, as well as people willing to take risks. This makes it the best place to convert startups to large scale enterprises. He also points, however, to cost and the need to grow sustainably as the company scales—"You can increase profitability faster if you don't have everyone in the Bay Area"—hence the teams in Argentina and Tennessee.

Visage is now a partner in Index Ventures, which invests in both the United States and Europe. He sees positive change in France, with more venture capital available, more people with the ambition to start companies, and more successful entrepreneurs who serve as mentors or investors—particularly in the last five years. But the ecosystem is still on a different scale from the Bay Area's, and the transition may take generations.

## SPOTLIGHT

### KONUX (Germany)

Launched in Munich, KONUX develops smart sensors and uses AI-based data analytics in the IoT (Internet of Things) space, to enable industrial companies to better support and maintain their equipment. Deutsche Bahn is a major client. Rooted in Germany's vision for Industry 4.0—the digitization of manufacturing—the founders felt from an early stage that KONUX needed to come to Silicon Valley. As 22-year-old students, two of them secured visiting research scholar appointments at Stanford and Berkeley, which gave them a base and a way to make the connection; one was a computer scientist and the other an electrical engineer. As CEO Andreas Kunze describes it, "We believed that all successful startups had some connection to Silicon Valley

and we needed that connection too. If we hadn't come to the US, the KONUX of today wouldn't exist." Access to capital was a factor: "You can find money in Germany, but if you want to do something that's new or disruptive, or if there haven't been many successful startups so there's not a pattern for investors to follow, it's hard to get funded—particularly if you're young and just out of university. In the US, people are more willing to try new things." Through their university connections, they secured seed funding in 2015 and Series A funding in 2016 and 2017. Still based in Munich but incorporated in the US, the management team travels to Menlo Park for quarterly board meetings and strategy sessions. At the moment, all of KONUX's employees are based in Germany.

## SPOTLIGHT

### Digital Shadows (UK)

Digital Shadows, a cybersecurity company that monitors the Internet for digital risks, was founded in London in 2011. CEO Alastair Paterson thinks that London is a great place to start a company: it's easy to get early-stage investment, there is government support, and there are tax incentives for angel investors. The company received an early GBP 96 thousand grant from Innovate UK, which helped it acquire key developers. Another GBP 75 thousand followed through an angel investor, and then GBP 400 thousand in 2013 from Passion Capital, a London seed fund. In that same year, Digital Shadows connected with the Fintech Innovation Lab, a financial services accelerator in London's Canary Wharf, sponsored by major banks. There they were introduced to the banks' security teams. From there, Paterson wanted to expand globally, with the US as the next step. Because even in London access to Series A and B capital is constrained, the company's next infusion of capital would need to come from Silicon Valley; so in 2014,

Paterson came to San Francisco to meet potential clients and investors. Introductions and networking paid off, and in the fall of 2015 the company received USD 8 million from two venture firms. Paterson moved to the Bay Area in 2015.

Today, the company has 130 employees, spread between London, the Bay Area, and Dallas. Engineering is done primarily in London, where engineers are less expensive and easier to hire than in the Bay Area. Asked why Dallas, Paterson points to ample security talent and lower costs. The company's CFO and its Vice President for Business Development—along with many of the management, sales, and marketing team members—are in San Francisco, and the company is incorporated in Delaware. In addition to access to capital and market scale, Paterson points to ease of building corporate teams as a Bay Area advantage: with a deep talent pool and flexible labor laws, teams can be spun up more quickly in California than in the UK, enabling startups to scale faster.

**SPOTLIGHT****Beekeeper (Switzerland)**

Beekeeper co-founder Cristian Grossman was born into an entrepreneurial Swiss family in Mexico City and after high school studied chemical engineering at ETH Zürich. That led to a PhD focusing on automatic control and artificial intelligence. His co-founder was also a student at ETH, where they built an online communications platform to connect students. That led them to wonder if it could be used for other things. The first client, in 2013, was the Swiss hotel chain Swissôtel, which wanted to communicate with its employees who often weren't at desks. When the company was acquired by the Raffles and Fairmont group, Beekeeper found itself servicing 50,000 employees, of which only 20 percent had email accounts, in 120 hotels worldwide. From there they expanded to other chains—Hyatt, Marriott, Four Seasons, Hilton, and Mandarin Oriental. With the hotels vertical as an established base, the founders are now looking to other industries that have large numbers of employees with mobile phones but no desks, particularly focusing on manufacturing and retail.

Beekeeper was initially self-funded from the founders' savings, and broke even when it signed its first client. It subsequently received USD 1.7 million in seed funding from Swiss and German angels and VCs. A second seed tranche came from the initial investor group and from Silicon Valley investors like Fyrfly Venture Partners and, most notably, from Niklas Zenströmm, the London-based co-founder of Skype. Series A funding of USD 8 million came in 2017 from an expanded group of investors led by Keen Venture Partners. The company originally came to San Francisco to follow its customers, particularly Fairmont. The city was more expensive and farther away from Europe than East Coast cities such as New York, but offered better talent and more investors. The ambition was to build a global company, and Beekeeper's founders aimed to scale from the US. Registered in Delaware, Beekeeper currently has 60 employees spread between Zürich, London, Berlin and San Francisco, with the largest number in Zürich, and customers in 137 countries. R&D is done from Zürich, while sales and marketing happens at all four locations.

**SPOTLIGHT****Cosmotech (France)**

Founder Michel Morvan is a scientist and former professor at the École Normale Supérieure in Lyon, where he worked on complex systems. He also served as Chief Scientist and Vice President for Innovation at Veolia, a global water, energy, transportation and waste service company. In 2010, Morvan launched his startup, a modeling and simulation platform that helps companies make decisions in highly complex operating environments. Initially named CoSMo, the company's first strategy was to provide customized software solutions for individual customers, but in 2013 the focus shifted to becoming a software vendor. The product is designed to help large companies optimize their investment over time, by testing scenarios and showing the likely consequences of different decision paths.

CoSMo's initial focus was on the electrical utility sector, from which it has expanded to include gas utilities, railways, and water. Initial funding came from Aster Capital, the corporate venture capital fund of Alstom, Schneider Electric, and Solvay, and from Sofimac Partners and Crédit Agricole. When Morvan decided in 2014 that the company needed to be global, he came to Silicon Valley. There were three drivers: access to the North American market; access to global marketing expertise ("In France you can be good at creating technology, but not as good at creating and marketing products. We wanted to learn from Silicon Valley—it's what they do."); and access to capital. The company currently has 66 employees in Lyon and 4 in San Francisco including Morvan. He notes that France has good developers who are loyal to the company and don't often move, while it is hard for small companies from overseas to offer benefits that compete with large Bay Area players. The parent company is French, and the San Francisco company is a Delaware-registered subsidiary. CoSMo received EUR 3.8 million in Series A funding from European investors in 2014 and was renamed Cosmotech in June 2017.

**SPOTLIGHT**

## **FLYR (Netherlands)**

Co-founder Alex Mans launched FLYR in Amsterdam, asking whether one could predict the price of air tickets. The core technology he developed allows travelers to hold or lock in the current price of an air ticket or hotel room for a small price. If the price later rises, the company will pay the difference. Since the technology predicts where prices will move, price movements can be arbitrated. As an entrepreneur, Mans saw that the travel business is high volume and low margin and that the European market was fragmented, with different languages and regulatory requirements. So the answer, as opposed to addressing European markets one by one, was to come to the US, which offered a large market and large clients. At the time, there also wasn't much venture capital available in Amsterdam, and there were few successful founders who could serve as mentors. This pointed him to the Bay Area. ("I've learned so much more about running and growing a company here than I could have there. Everything you need to build a successful business is here. You just have to figure out how to connect with the right people and resources.")

Mans built his first prototype in Amsterdam. The tipping point came when he was selected to present at the annual Launch Festival in Silicon Valley in 2013. ("I had already wanted to come, but that confirmed it. There were so many stimulative influences, so much capital. It was an eye opener—a different world and a different scale.") Later he received a call from Plug and Play, which had seen a YouTube video from the Launch Festival and invited him to come back.

He bought a ticket from his own pocket, then spent another six months in the area seeing how things worked and building a team. During that time, he attracted several small investments from angels (USD 30–50 thousand) and met his co-founder, Jean Tripier, who had come from France twenty years earlier and had operational experience running startups. Tripier became president of the company.

FLYR raised its first seed round of USD 1.4 million in 2014. More investment came in 2015 from Amadeus and AXA's venture arm in San Francisco. The first major customer came in 2015 with TripAdvisor, which enabled the company to scale. Late 2016 saw another round of funding (USD 8.5 million) that was led by Peter Thiel. Today the company's clients include TripAdvisor, Priceline, and approximately forty other travel companies around the world. Its products will also launch with airlines such as JetBlue in 2017. The next step for FLYR is a move into payments, which will let it expand to larger transactions and leverage the pricing arbitrage in travel purchases. Revenue in 2017 is expected to increase fivefold compared to 2016.

All but one of the company's team members are located in San Francisco. As it expands, however, FLYR will consider establishing another team in Europe or elsewhere in the US. Forty percent of its employees are in engineering, with the balance in sales and marketing. The next phase of expansion will require more engineers which, at a USD 100–150 thousand salary level in the Bay Area, will lead it to look for economical alternatives.

**SPOTLIGHT****Zendesk (Denmark)**

Zendesk CEO Mikkel Svane first visited San Francisco as a student in 1995 and came away changed: "The trip made everything more clear—the Internet was going to change everything. What I took home from San Francisco was the sense of being at the start of something big." Returning home, he knew he wanted to start a company. In 2007, he launched Zendesk, a user-friendly corporate help desk, with two partners in a Copenhagen apartment. Friends and a German angel invested. A subsequent visit to TechCrunch Disrupt confirmed for Svane that San Francisco was where he needed to be to build the business, but the first move to the US was to Boston, where the company found its first venture capital investor. It was 2009, and at that point Zendesk had nine employees.

The stay in Boston was short. Zendesk had developed a customer base in Silicon Valley and landed a Series B investment of USD 6 million from San Francisco-based Benchmark Capital. Soon after that they were on their way to California. As Svane puts it, "We always knew that there was much more startup action on the West Coast—and we always saw ourselves ending up there." The company's first office was at 410 Townsend Street, co-located with other startups, such as Yammer and Eventbrite, that would later emerge as industry leaders. Twitter, Airbnb, Uber, and Dropbox became Zendesk customers. Outgrowing its Townsend Street space, Zendesk found and renovated a derelict but classic 1906 building at 6th and Market,

in San Francisco's frontier but trending mid-Market neighborhood, which today is its headquarters.

In 2014, seven years after being conceived in the Copenhagen apartment, Zendesk went public on the New York Stock Exchange. Today it has 1,700 employees, with its largest office in San Francisco and 14 others around the world, including development centers in Melbourne, Singapore, Dublin, Copenhagen, and Montpellier. It has more than 101,000 paid customer accounts in over 160 countries and territories.

Asked what makes the Bay Area unique for startups, Svane points to the large number of early adopters and early movers in the region, many of them other startups. Many of Zendesk's early clients were other fast-growing Bay Area startups such as Twitter. But the advantages the region offers for startups are on an even larger scale: "It's there even before you start. It's such a mothership of innovation. There's a sense of gravity in San Francisco and Silicon Valley—for us it was the same. TechCrunch was such an icon for us in the startup culture, representing Silicon Valley, and being in the Bay Area to develop relationships with other like-minded people and companies was key. This place is ahead of everything else. It's true for every startup: if you want to be in the game, this is where the action is; it's where the opportunities are and where you can learn."

## How They Grow

It is important to recognize that overseas startups come to the Bay Area for many reasons and along different pathways. Some may pass through an incubator or accelerator program and go home, taking with them new relationships and insights into how Silicon Valley works. This is often the case with very-early-stage companies that don't have products yet. Later-stage companies, which are closer to being market-ready, are more likely to come looking for partners or investors. Their goal is typically to make connections that will enable their expansion into the US and global markets.

Often, the startups that gain traction will move their headquarters to the Bay Area, with one or more of the founders relocating. Venture investors, who prefer their portfolio companies to be close, often encourage this. This is particularly true when the investor takes a seat on the board, or wants to bring in co-funders. As one venture investor put it, "If we fund you, we want you here. There's a big network opportunity to connect you with smart people around product design, funding, and marketing. You have a better opportunity of making money if you come here."

When there is more than one founder, one might move to the Bay Area while the other stays at home. A US-headquartered company will usually maintain an affiliate presence in its home country to handle operations there. In other cases, the European company will keep its headquarters and leadership team at home and create a US affiliate. This may involve an exchange of shares of the home company for shares of a

newly-established Delaware corporation. The company's intellectual property usually remains in Europe (often for tax reasons), but new IP may be developed in the US.

In either case, the pattern that most often emerges reflects a division of labor, where different and complementary tasks are performed in the Bay Area and at home. Frequently this relates to the high cost of engineers in the Bay Area and the availability and lower cost of engineers in Europe, where technical quality is comparable. Though to a lesser degree, early-stage government funding tied to local employment or to subsidies for R&D can also be a factor that ties a company's operations to its home country.

Bay Area offices usually source investment and lead expansion into US and global markets, drawing on an experienced cadre of managers with global experience. Home offices typically provide infrastructure and engineering support. As a result, the employee count at home may be larger, even if the company becomes US-headquartered. But the opposite is also true: for example, call center software solution provider Talkdesk, which was founded in Lisbon but is headquartered in San Francisco, employs 150 in the Bay Area and 90 in Portugal. Both the Bay Area and the home country gain: the Bay Area through an infusion of companies and talent, and the home country through the increased employment, revenue, and visibility that comes from having a successful global company that is more competitive and has grown faster than it could have had it stayed at home.

# Building a Stronger Innovation Bridge

“Cities across Europe have created strong policy frameworks and worked to galvanize the right stakeholders. But startups still encounter prohibitive legislation as they begin to expand from member state to member state.”<sup>88</sup>

—Factory and the German Marshall Fund

Europe’s startup relationship with Silicon Valley is built on synergies that enable both to benefit. While the bridge is strong, it could be even stronger. There are many opportunities, as well as issues.

## From Europe

### The Digital Single Market

The European Commission (EC) has proposed the creation of a Digital Single Market (DSM), as a trans-national framework for digital commerce across the European Union. Aimed at creating a unified market environment for consumers and businesses in what is now a highly fragmented environment, it contains numerous ideas. At its heart are provisions aimed at reducing costs and barriers in telecommunications and digital service markets that would, among other things, lower barriers to the ability of Europe’s digital startups to scale. As proposed, that will include clearer rules and reduced costs for cross-border transactions, less need to adapt to individual countries’ consumer laws (due to regulatory and other barriers, only 7 percent of SMEs in the EU currently sell cross-border),<sup>89</sup> and improved access to content, goods and services across Europe. Challenges come in the form of national resistance to regulatory harmonization, and a regulatory philosophy that leans heavily toward data privacy, which could potentially stifle innovation. From a US perspective, DSM could also benefit American digital startups that are looking to scale in Europe.

The Digital Single Market also raises issues that concern both large and smaller US companies.

Under the EU’s General Data Protection Regulation (GDPR), which was approved by the European Parliament in April 2016 and comes into effect in May 2018, data privacy laws will be harmonized and enforcement increased. The largest change from

existing law is the extension of jurisdiction to include companies processing the personal data of European residents, regardless of the company’s location or where the processing takes place. Companies in breach of GDPR data security regulations can be fined up to 4 percent of their global annual turnover or EUR 20 million, whichever is greater.

Under the DSM framework, the EC is considering policies that would impose on companies a “duty of care” for content posted to their websites, which could significantly increase their exposure to legal liability (in the US companies are shielded from liability for user activity). The monitoring burden that results could increase costs for existing platforms and discourage the creation of new ones, inhibiting startups and innovation broadly.

Pressure is also growing for data localization—the requirement that data generated in a European country be stored on servers within its borders. This push is motivated by concerns among privacy advocates that data stored on servers in the US may be exposed to US government spying. It may also be linked, however, to a desire in some European governments to help national companies compete with American technology giants. Along these lines, both France and Germany have discussed the creation of national clouds, which would limit the scope and market for US cloud service providers.

It is not clear, however, that data stored on national servers is more secure, and multiple locations could raise costs and inhibit innovation based on the use of large-scale data. Large US companies, such as Microsoft, Amazon, Google, and IBM, have already responded by increasing their investment in cloud infrastructure inside Europe, but data localization is also an issue for small and medium-sized companies that would be required to meet multiple national requirements but are less able to absorb the increased cost of compliance. This concern is confirmed by startups interviewed for this

report, who indicate that one reason for coming to the US is the cost and inefficiency of data localization inside Europe. In addition to raising costs, such requirements risk further fragmenting markets. By restricting the ability to aggregate data at a time when the use of artificial intelligence and big data is growing rapidly, this could become a new barrier both to innovation and to a more efficient, unified market. Careful review of national data localization and other policies by the European Commission is necessary to ensure the development of an internally consistent cloud capacity that enables digitization by both large and emerging businesses without resorting to data protectionism.

Another area to be watched, and perhaps the most sensitive, is Privacy Shield, the US-EU agreement approved in July 2016 that enables the transfer of personal data between the United States and Europe in support of transatlantic commerce.<sup>90</sup> Its predecessor agreement, Safe Harbor, was declared invalid by the European Court of Justice in 2015, based on concerns that European citizens' personal information would be vulnerable to US government surveillance. Massive amounts of data, however, from payroll data to social media profiles, move between the US and Europe, and Privacy Shield attempts to strike a balance between European privacy concerns, security, and the need to enable and not unnecessarily impede data transfers. To enable the underpinning for commerce involving transatlantic data transfer, Privacy Shield establishes a framework in which US companies self-certify to the US Department of Commerce that they meet specific criteria, thus allowing the EU to agree that US privacy protections are adequate. However, some Members of the European Parliament remain skeptical about Privacy Shield's protections, and legal challenges from European digital rights groups are also underway. The concern for startups is that regulatory uncertainty could raise costs and stifle business growth between Europe and the US, so it is important that European Commission and US leaders work together closely to ensure the continuation of the Privacy Shield agreement and the enforcement of its rules in a manner satisfactory to both sides.

Still another issue that could impact startups is a set of proposed EC regulations that would expand the European Commission's regulatory oversight of mergers and acquisitions. US tech firms have already been

challenged by EU antitrust rules, and the Commission is looking to expand the scope of the transactions it reviews, possibly to include new jurisdictional metrics such as data volumes and the number of online users. Some startups are concerned that this could impede their exit strategies, both by the fact that transactions would be subject to expanded review, and by the possibility that some transactions could also be barred.

The Digital Single Market needs to be implemented in a way that supports startups and innovation, and that protects the free flow of data. This connects to the idea of a transatlantic digital marketplace. A thoughtful treatment of transatlantic digital issues can be found in a 2016 white paper by the Atlantic Council, *Building a Transatlantic Digital Marketplace: 20 Steps Toward 2020*.<sup>91</sup>

## Capital Markets Union

By reducing barriers to the cross-border movement of capital, the European Union is aiming to address the other major issue that has inhibited startup growth.

The European Commission has launched a phased initiative to harmonize and streamline financial regulations and create a unified capital market in the European Union by 2019. The objective is to create deeper, more integrated capital markets, lower barriers to cross-border investment, increase competition in financial markets, reduce the cost of raising capital, give European companies better access to non-bank funding, and improve access to financing for small and medium-sized businesses.<sup>92</sup> Focal points include the harmonization of tax regulations and standardizing insolvency laws, issues of special concern to startups. Startups could particularly benefit through improved access to venture capital and with alternative funding channels, startups could become less reliant on bank lending. Regulatory barriers to the ability of small and medium businesses to raise capital in public markets will also be addressed.

## Other Measures

On a broader level, other things that can be done in some European countries to incentivize entrepreneurs include reforming bankruptcy laws to align with the

best global standards, changing how IPOs are taxed to distinguish entrepreneurs from people who see capital gains but aren't starting companies, reforming tax codes to enable the wider use of stock options, and liberalizing labor laws.

## From the Bay Area/Silicon Valley

### A "European" Presence

Despite the presence of a large number of national and subnational offices and organizations, at the moment EIT Digital (created in 2008 by the European Parliament) is the only formal "European" presence in the Bay Area. Both the Bay Area and Europe could benefit from a more visible, integrated presence that would showcase and connect European organizations and companies with market and collaborative opportunities on a larger scale.

### Focusing on More Advanced Companies

The high volume of European startups coming to the Bay Area and the European government support that many of them receive raises the question of how many of them take root and grow, and how productive this investment has been. When many programs started, the initial idea was—and often remains—to provide an orientation to Silicon Valley that would be inspirational. While this remains an important objective for many, both accelerators and government programs are starting to look more deeply at success rates.

“Innovation increasingly happens anywhere. Still, lots of entrepreneurs come to Silicon Valley too early, thinking there's a pot of money waiting. The better strategy is to come after you have some funding at the angel level and come to the Bay Area at the time you have a real business reason to be here (for good) and are working on actual traction of your early product in market. Building traction with US customers is a very good reason to come that also builds credibility with seed and follow-on investors.”

—Philipp Stauffer, Founder & General Partner, Fyrfly

Programs such as US Market Assistance Center (USMAC) have developed extensive processes based on market readiness. The German Accelerator has also shifted to focus more on readiness, with a greater orientation to timing—when and at what stage of its development to bring a company over. To qualify, a company must have a team (typically about ten); have raised at least a seed round (USD 500 thousand); have a product, customers and revenue; and be ready to expand. Along similar lines, Enterprise Ireland's 2017–2020 strategic plan reflects an increased emphasis on startups with scale.

While broad orientation and training programs continue to have value, both the Bay Area and its European partners will benefit most from initiatives that generate high success rates, as seen in larger numbers of viable, self-sustaining companies that grow on both sides of the Atlantic.

### Accelerators

Bridges always have two ends. European entrepreneurs benefit from a robust support mechanism when they come to the Bay Area. Many could also benefit from better preparation before they leave home. This can enable them to make the most of their limited time here. One way is for more Bay Area accelerators to establish a presence in Europe, similar to what is happening with Plug and Play and RocketSpace.

Full-scale facilities may or may not be necessary. In the fall of 2016, Y Combinator ran "Office Hours" (25-minute counseling sessions for startups) in 11 cities around the world including Copenhagen, Lisbon, Stockholm, and Berlin. Approximately 30 percent of the startups funded by Y Combinator that summer were started outside the US, and Office Hours is one device that enables it to connect with founders.

Other accelerator programs, such as USMAC, deliver extensive on-the-ground screening and support services for startups in Europe before they arrive, another model that appears to work well.

## Venture Capital

Large Bay Area companies have substantial financial resources in Europe and actively support and work with startups there—often acquiring them. Bay Area venture capitalists might also benefit from a stronger European presence. There are good reasons why this hasn't happened yet: the Bay Area is rich with investment opportunities that don't require a long plane ride, and most investors like to be hands-on—maintaining close contact and looking founders in the eye. But the growing number of quality startups in Europe and the growing dynamism of its startup hubs presents opportunities that merit reconsideration of this strategy. Bay Area venture firms such as Draper Fisher Jurvetson (through its London affiliate Draper Esprit), Accel, and GV (formerly Google Ventures) are already on the ground with active funds and offices. Other venture firms from the Bay Area and across the US, such as Benchmark Capital, Insight Venture Partners, NEA, Greycroft, Sequoia Capital, Valar Ventures, Route 66, USV, LeadEdge Capital, Union Square Ventures, and Bessemer Venture Partners, are actively investing through US-based funds. With its strong trajectory, Europe's startup community offers significant room for growth.

## Two-Way Mentors

Europe still falls short when it comes to experienced entrepreneurs who have successfully started companies. There is no lack, however, of European founders who have been successful in the Bay Area. More of those founders could return to Europe more often to advise and support young companies.

## The Trans-Atlantic Trade and Investment Partnership

The Trans-Atlantic Trade and Investment Partnership (TTIP), a free trade negotiation between the United States and the European Union, has the potential to lower trade and investment barriers and reduce regulatory costs for US and European businesses, particularly by harmonizing regulatory standards. Though progress in the negotiation is uncertain due to the complexity of the issues and unknowns regarding the direction of US trade policy, a successful agreement could make trans-Atlantic business easier for both US and European entrepreneurs.

## Immigration Reform: Startup Visas

Access to visas is a perennial issue for startups from overseas and is routinely cited by founders as one of the most significant problems they faced when coming to the United States. This is an important issue for the Bay Area: while approximately 24 percent of technology startups in the US have founders from another country, in the Bay Area the number is closer to 43 percent.<sup>93</sup> Along the same lines, a 2016 study by the National Foundation for American Policy found that of 87 USD 1 billion startups (unicorns), 51 percent were founded by immigrant entrepreneurs. On average, each of those companies created 760 jobs. The largest cluster of those companies (32) is in California, and of the 20 founders of those companies who came to the US as students, 5 attended Stanford.<sup>94</sup>

“ Ninety percent of entrepreneurs would prefer to build a business in the US. Why don't they? The primary reason is lack of a startup visa. Most other countries have them, which removes the biggest barrier to entry. This would have a very big economic impact. ”

—Duncan Logan, Founder, RocketSpace

Most immigrant founders currently come to the US under the Visa Waiver Program, which limits their stay to 90 days. H1-B visas—which allow 3–6 years employment in the US for workers with special skills—are difficult to obtain: there are 233,000 applications each year but a quota of only 85,000 slots, which fills within days. The E-2 Treaty Investor classification provides visas for applicants who acquire or launch a new business with a significant investment, usually no less than USD 100 thousand; the details can be complicated, however, and most entrepreneurs coming to the US don't yet have the resources to make an investment of that size. There is no visa category specifically tailored for entrepreneurs.

Because of these barriers, many founders are forced to return home prematurely, just as investors or business opportunities are being developed, and return on tourist visas or not at all. But many bring unique assets and want to build companies. Creating a special visa class for immigrant entrepreneurs would enable this. The issue resonates in Silicon Valley, where the founders of many of its leading companies were born in other countries. Noteworthy European-born founders include business leaders such as Andy von Bechtolsheim (Sun Microsystems), Sebastian Thrun (Udacity), Hap Klop (North Face), Peter Thiel (Mithril Capital Management and Palantir Technologies), Konstantin Guericke (LinkedIn), Jerome Lecat (Scality) Renaud Visage (Eventbrite), and Aart de Geus (Synopsys), but also many executives of smaller, fast-growing companies that are contributing to the next wave of Bay Area innovation.

Due to the complex politics of “comprehensive immigration reform,” in which skilled immigration has for many years been packaged with low-wage undocumented immigration from Mexico and Central America, past Congressional efforts to create a startup visa have failed. In September 2016, however, the Obama administration’s Department of Homeland Security proposed the “International Entrepreneur Rule,” which would let startup founders initially stay in the United States for up to 30 months, plus an additional 30 months if they meet further benchmarks. Criteria, applied on a case-by-case basis, include at least 10 percent ownership and an active leadership role in the operations of a company started in the United States within the last 5 years; the company’s growth potential, as evidenced by significant investment capital (at least USD 250 thousand from qualified US investors); or competitive research grants of at least USD 100 thousand from federal, state and local government entities.<sup>95</sup> The rule was published by the Homeland Security Department on January 17, 2017 with a stated final effective date of July 17, 2017, but shortly before that date the Trump administration announced a delay for further review, so the status of this initiative remains unclear. What is clear is that both the Bay Area and Europe would benefit from a visa category that enables startup founders to create and grow companies in the United States.

## Appendix

# Interviews and Informational Support

## Bay Area

Alberto Acito, Head Foreign Direct Investment–Italian Trade Agency, Consulate General of Italy  
Knud Balslev, Director of Business Development, Cryptomathic (Denmark)  
Steffen Bartschat, CEO & Founder, Hill 88 (Germany)  
Anselm Bossacoma, Executive Director, ACCIÓ (Catalonia)  
Laurence Bianchini, COO, MyScienceWork (France)  
Colin Brown, Founder & CEO, Ventureexcel (UK)  
Edouard Bulteau, Investment Manager, Total Energy Ventures (France)  
Paul Burfield, SVP West & Southern United States, Enterprise Ireland  
Jeff Burton, CEO, Woodside Creek, LLC (US)  
Chris Bury, Co-founder, US Market Assistance Center (US)  
Paul Campbell, Senior Vice President for Research & Innovation, Schneider Electric Silicon Valley Center (France)  
Alfredo Coppola, Co-founder, US Market Assistance Center (US)  
Filipe Costa, Trade & Investment Commissioner, Consulate General of Portugal  
Alec Dafferner, Partner, GP Bullhound (UK)  
Charlotte Danielsson, Executive Director, Silicon Vikings (Nordic Region)  
Guillaume de Dorlodot, CEO/Founder, Startup Basecamp (France)  
Nathalie Doré, CEO, L'Atelier BNP Paribas (France)  
E.J. Dieterle, President & CEO, Yes Partners (Germany)  
Sophie Woodville Ducom, Executive Director, French-American Chamber of Commerce (France)  
Gro Erin Dyrnes, Director, Innovation Norway San Francisco & Silicon Valley (Norway)  
Nicolas El Baze, Managing Partner, Partech Ventures (France)  
Carl Fritjofsson, Principal, Creandum (Sweden)  
Martin Giles, Partner, Wing (US)

Oliver Hanisch, Founder, German Innovators (Germany)  
Penny Harwood, Senior Vice President, London and Partners (UK)  
Gabriel Hubert, New Markets, Stripe (San Francisco)  
Michael Hughes, Co-CEO, LoopUp (UK)  
Santtu Hulkonen, Founder, Solved (Finland)  
Leena Im, Global Policy Development Manager, Facebook (US)  
Luke Kowalski, Corporate UI Architect, Oracle (US)  
Peter Jensen, Founder & CEO, Parstream (Denmark)  
Søren Jørgensen, Executive Director, Innovation Center Denmark  
Dirk Kanngiesser, Co-Founder & CEO, German Accelerator (Germany)  
Stephane Kasriel, CEO, Upwork (France)  
Torsten Kolind, Co-Founder & CEO, YouNoodle (Denmark)  
Daniel Laure, President & CEO, Total New Energies USA (France)  
Burton Lee, Managing Director, Innovarium Ventures & Director, European Innovation and Entrepreneurship Program, Stanford University (US)  
Anne Lidgard, Director, Silicon Valley Office, Vinnova (Sweden)  
Kristian Lindwall, San Francisco Site Lead–Engineering, Spotify (Sweden)  
Duncan Logan, Founder, RocketSpace (US)  
Donnie Lygonis, Senior Advisor, Nordic Innovation House (US)  
Marco Marinucci, Founder and CEO, Mind the Bridge (Italy)  
James Mayock, Managing Partner, E&M Mayock (US)  
Jim Myrick, Strategic Partnerships Consultant, Flex and Co-Founder, Serious Fun (Stockholm)  
Stephanie Naegeli, Senior Global Digital Innovation Manager, Nestlé (Switzerland)  
Carlo Napoli, Head of Open Innovation Culture & Project Portfolio, Enel (Italy)

Alberto Onetti, Chairman, Mind the Bridge (Italy) and Coordinator, Startup Europe Partnership  
Samo Omerzel, CEO, vendotel (Slovenia)  
Yael Oppenheimer, Director International Operations, Plug and Play (US)  
Alastair Paterson, CEO & Founder, Digital Shadows (UK)  
Julien Penders, Co-Founder & CEO, Bloomlife (Belgium)  
Luis Pinto, Global Operations Partner, Learn Capital (Portugal)  
Megan Ramies, International Operations Manager, Plug and Play (US)  
Wojtek Rokosz, Founder, Ardeo (Poland)  
David Santana, former Director, Spain Tech Center (Spain)  
Georges Schmidt, Consul General, Luxembourg  
Elliot Schrage, Vice President Communications & Public Policy, Facebook (US)  
Darian Shimy, Vice President Engineering, Weebly (US)  
Friedrich Sulk, Head of Operations—Silicon Valley, German Accelerator (Germany)  
Dominic Sutter, Startup Program Manager, swissnex (Switzerland)  
Mikkel Svane, CEO, Zendesk (Denmark)  
Thuong Tan, Senior Advisor & Head of Office, Tekes (Finland)  
Miroslav Tenkl, Director of West Coast Operations, CzechInvest (Czech Republic)

## Washington, DC

Caroline Atkinson, Head, Global Policy, Google Inc.  
Thomas Barrett, Director and Chief Representative, European Investment Bank

## Europe

Guido Baltes, Director, Institute for Strategic Innovation & Technology Management (Konstanz)  
Jeremy Bamberg, Factory (Berlin)  
Siddharth Bannerjee, Researcher—Digital Startups, NESTA (UK)  
Alice Batista, The Family (Paris)

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George Tilesch, US Managing Partner, Innomine Group (US)  
Marko Turpeinen, Director Silicon Valley Hub—EIT Digital (2013–16) (EU)  
Laurence Van den Keybus, Member Manager, BelCham (Belgium)  
Andrus Viirg, Enterprise Estonia Silicon Valley (Estonia)  
Renaud Visage, Co-Founder, Eventbrite and Venture Partner, Index Partners (France)  
Dolores Volkert, Liaison Office—San Francisco, Technical University of Munich (Germany)  
Xavier Wartelle, CEO, French Tech Hub (France)  
Michel Wendell, General Partner, Nexit Ventures (Finland)  
Julie Wicklund, Partner, Cooley LLP (UK)  
Michel Wendell, General Partner Nexit Ventures and Honorary Consul, Finland  
Kai Westerwelle, Partner, Taylor Wessing (Germany)  
Hergen Wöbken, Managing Director, Institute for Strategy Development (Germany)  
Chenyang Xu, General Manager, Siemens Technology-to-Business (Germany)  
Heini Zachariassen, Founder & CEO, Vivino (Denmark)  
Antonia Zierer, Executive Director, Invest in Bavaria (Germany)

Fran Burwell, Vice President—European Union & Special Initiatives, Atlantic Council

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Orla Battersby, Manager, High Potential Startup Division, Enterprise Ireland (Dublin)  
Heitor Benfeito, Director—Active Portfolio Development, Portugal Ventures (Lisbon)  
Jason Bigeard, Director—French Tech Acceleration, Bpifrance (Paris)

Karen Boers, Managing Director, Startups.be (Brussels)

Hamid Bouchikhi, Director, Impact Entrepreneurship Center, ESSEC Business School (Paris)

Nicolas Brien, Campaign Director, France Digitale (Paris)

Jacob Christensen, Partner, Plesner (Copenhagen)

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Vincent Durieux, Director–Regional Cooperation, Paris Region Enterprises (Paris)

Gaël Duval, Founder & CEO, La French Touch (Paris)

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Marc Knoll, Project Director, Paris Region Enterprises (Paris)

Andreas Kunze, CEO, KONUX (Munich)

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Mickael Leal, CEO, AllPriv (Paris)

Elina Lepomaki, Member of Parliament, Finland (Helsinki)

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Petri Rouvinen, Research Director, ETLA (Helsinki)

Karen Sandhu, Senior Business Development Manager–North America, London & Partners (London)

Sven Scheuble, Vice President Corporate Technology, Siemens (Munich)

Gregor Schmid, Partner, Taylor Wessing (Berlin)

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Anders Slettengren, CEO, Industrifonden (Stockholm)

Jessica Stark, CEO & Co-Founder, SUP46 (Stockholm)

Rune Theill, Co-Founder & CEO, Rockstart Accelerator (Amsterdam)

Corrado Tirassa, Co-Founder, NXT Innovation (Milan)

Travis Todd, Factory (Berlin)

Deyi Tscherdakoff, Director of Innovation, ESSEC (Paris)

Nicholas Tscherdakoff, Venture Partner, 3T Capital (Paris)

Thomas Wald, Business development Director–Life Sciences, Paris&Co (Paris)

João Vasconcelos, Secretary of State for Industry, Portugal (Lisbon)

Pedro Rocha Vieira, Co-founder & CEO, Beta-i (Lisbon)

Marianne Viikkula, CEO, Slush (Helsinki)

Robin Wauters, Founding Editor, Tech.eu (London)

Thomas Zimmerer, Munich Circle (Munich)

Rob Zimmermann, Director Legal Affairs, Netflix (Amsterdam)

Ana Maria Zuluaga, International Programs Director, Schoolab (Paris)

# Notes

- 1 Mikkel Svane, *Startupland: How Three Guys Risked Everything to Turn an Idea into a Global Business* (San Francisco: Jossey-Bass, 2015), p. 115.
- 2 The Economist, "From clout to rout: Why European companies have become a fading force in global business," June 30, 2016, <http://www.economist.com/news/business/21701480-why-european-companies-have-become-fading-force-global-business-clout-rout>
- 3 Stephen Ezell and Philip Marxgut, "Comparing America and European Innovation Cultures," Information Technology & Innovation Foundation, September 16, 2015, <https://itif.org/publications/2015/09/16/comparing-american-and-european-innovation-cultures>
- 4 A. T. Kearney, "Rebooting Europe's High-Tech Industry," March 2014, <https://www.atkearney.com/communications-media-technology/ideas-insights/future-of-europes-high-tech-industry>
- 5 Atomico, "Billion Dollar Software Companies," <http://www.atomico.com/explore-d3>
- 6 McKinsey Global Institute, *Digital Europe: Pushing the Frontier, Capturing the Benefits*, June 2016, pp. viii–ix, <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-europe-realizing-the-continents-potential>
- 7 *The Global Startup Ecosystem Report 2017*, produced by the Startup Genome project, ranks five European cities in the top twenty globally: London (#3), Berlin (#7), Paris (#11), Stockholm (#14), and Amsterdam (#19). Silicon Valley is ranked #1, followed by New York (#2), with five other US cities appearing further down the list—Boston (#5), Los Angeles (#9), Seattle (#10), Austin (#13), and Chicago (#7). Michael Tegos, "In 2017's top 20 ecosystems, Beijing leads in startup experience, Singapore in talent," *TechInAsia*, (March 14, 2017), <https://www.techinasia.com/startup-genome-startup-ecosystem-ranking-report-2017>
- 8 London & Partners and Stack Overflow, *London's developer landscape: a comparative study*, 2015.
- 9 Hubble, "Official List of London Business Accelerators and Incubators," February 6, 2016, <https://hubblehq.com/blog/the-official-list-of-londons-business-accelerators-and-incubators>
- 10 Jeremy Kahn and Adam Satariano, "What Brexit may mean for British Tech, and Silicon Valley," *San Francisco Chronicle*, June 27, 2016, <http://www.sfgate.com/business/article/What-Brexit-may-mean-for-British-tech-and-8328035.php>
- 11 CB Insights, "What Brexit? Deals and Dollars to UK Startups Poised for 6-Year High," June 21, 2017, <https://www.cbinsights.com/blog/brexit-uk-startups-vc-funding-trends/>
- 12 IFSE (Institute for Strategy Development), "Booming Berlin: A closer look at Berlin's startup scene," April 2016, [http://www.ifse.de/uploads/media/IFSE\\_Booming\\_Berlin\\_English.pdf](http://www.ifse.de/uploads/media/IFSE_Booming_Berlin_English.pdf)
- 13 Ibid.
- 14 Ernst & Young, *Liquidity Meets Perspective: Venture Capital and Startups in Germany 2015*, December 2015, p. 8, <https://emeia.ey-vx.com/1380/58194/landing-pages/ey-venture-capital-and-start-ups-in-germany-2015.pdf>
- 15 Kim Willsher, "Paris plans the world's largest startup incubator in former railway yard," *The Guardian*, January 12, 2016, <https://www.theguardian.com/world/2016/jan/12/paris-plans-worlds-largest-startup-incubator-in-former-railway-yard>
- 16 Innovation Leader, "Why Group Galeries Lafayette launched an accelerator for retail and fashion startups," January 2017, <https://www.innovationleader.com/groupe-galeries-lafayette-accelerator/>
- 17 France Digitale, "Social and Economic Performance of French Digital Startups: Barometer 2015," <https://www.slideshare.net/ernstandyoung/barometer-2015-social-and-economic-performance-of-french-digital-business-startup>
- 18 Chris O'Brien, "How a New Wave of French Startups are Taking a Global Approach to Change France's Economy," February 1, 2017, <http://venturebeat.com/2017/how-a-new-wave-of-french-startups-are-taking-a-global-approach-to-change-frances-economy/>
- 19 Yoram Wijngaarde, "Europe on track to raise well over €4 billion VC in first quarter of 2017," *dealroom.co*, April 2, 2017, <https://blog.dealroom.co/how-european-vc-is-doing-in-2017-so-far/>

20 Global Cities Initiative (Brookings Institution and JPMorgan Chase) and Stockholm Chamber of Commerce, *Global Stockholm: Profiling the capital region's international competitiveness and connections*, November 2015, pp. 15–22, <https://www.brookings.edu/research/global-stockholm-profiling-the-capital-regions-international-competitiveness-and-connections/>.

21 Ibid.

22 <http://sup46.com/>

23 <https://digitalcityindex.eu/>

24 Tekes finances approximately 1,500 business research and development projects, and almost 600 public research projects at universities, research institutes and universities of applied science. <https://www.tekes.fi/en/tekes/>

25 Mind the Bridge—Startup Europe Partnership, *SEP Monitor*, "Northern Lights: ICT Scaleups in the Nordics," June 2016, [http://startupeuropepartnership.eu/wp-content/uploads/2016/06/SEPMonitor\\_Northern-Lights\\_ICT-Scaleups-in-the-Nordics\\_DIGITAL-1.pdf](http://startupeuropepartnership.eu/wp-content/uploads/2016/06/SEPMonitor_Northern-Lights_ICT-Scaleups-in-the-Nordics_DIGITAL-1.pdf)

26 Ibid.

27 Ibid.

28 <http://www.slush.org/>

29 Wolfgang Hübschle, "Bavaria continues its focus on digitization," *Invest in Bavaria*, June 2015, <https://www.invest-in-bavaria.com/en/blog/post/bavaria-continues-its-focus-on-digitization.html>

30 Mind the Bridge—Startup Europe Partnership, *SEP Monitor*, "Portugal Rising: Mapping ICT Scaleups," November 2015, [http://startupeuropepartnership.eu/wp-content/uploads/2015/11/SEP-MONITOR-Nov-2015\\_Portugal-Rising\\_Mapping-ICT-Scaleups.pdf](http://startupeuropepartnership.eu/wp-content/uploads/2015/11/SEP-MONITOR-Nov-2015_Portugal-Rising_Mapping-ICT-Scaleups.pdf)

31 Gedalyah Reback, "Portugal Startup Unbabel's AI puts Google Translate to Shame," *Geektime*, February 25, 2016, <http://www.geektime.com/2016/02/25/portugal-startup-unabels-ai-puts-google-translate-to-shame/>

32 <http://startuptools.com/>

33 Sindre Hopland, "Pier 01, Barcelona's New Startup Headquarters, Will House 1,000 People," *Barcinno*, May 19, 2016, <http://www.barcinno.com/pier-01-barcelonas-new-startup-headquarters-will-house-1000-people/>

34 Andrea Romoli, "Welcome to Milan: Italy's Biggest Startup Hub," *StartUS Magazine*, September 6, 2016, <http://magazine.startus.cc/milan-italys-biggest-startup-hub/>

35 <https://digitalcityindex.eu/>

36 Startup Poland, *Polish Startups Report 2015*, <http://startuppoland.org/wp-content/uploads/2015/10/Startup-Poland-raport-ENG-01.pdf>

37 <https://www.hightechcampus.com/>

38 University of Cambridge, "The Cambridge Cluster," <https://www.cam.ac.uk/research/innovation-at-cambridge/the-cambridge-cluster>

39 Patrick Warnking, "Zurich calling—Expanding our European tech hub," January 17, 2017, <https://blog.google/topics/google-europe/zurich-expanding-our-european-tech-hub/>

40 Rob Price, "London Cash Startup TransferWise Is Now Worth \$1 Billion," *Business Insider*, January 26, 2015, <http://www.businessinsider.com/transferwise-58-million-andreessen-horowitz-2015-1>

41 Information and Press Service of the Government of the Grand Duchy of Luxembourg, "LU: The Official Portal of the Grand Duchy of Luxembourg," <http://www.luxembourg.public.lu/en/le-grand-duche-se-presente/luxembourg-tour-horizon/population-et-multiculturalite/>

42 European Startup Initiative, "Startup Heatmap Europe," 2016, <http://www.startupheatmap.eu/>

43 <http://www.iamsterdam.com/en/business/startupamsterdam/we-are-startupamsterdam/highlights/scale>

44 <http://startupeuropeclub.eu/>

45 <https://www.googleforentrepreneurs.com/>

46 <http://www.iamsterdam.com/en/>

47 <http://www.frenchtechticket.com/>

48 Ministère de l'Enseignement supérieur et de la Recherche, "The Research Tax Credit, 2008," [https://cache.media.enseignementsup-recherche.gouv.fr/file/CIR/18/1/CIRanglais08\\_33181.pdf](https://cache.media.enseignementsup-recherche.gouv.fr/file/CIR/18/1/CIRanglais08_33181.pdf)

49 European Commission, *A Study on R&D Tax Incentives Annex: Good Practice Cases*, Final Report, November 2014, <http://ec.europa.eu/DocsRoom/documents/8034/attachments/1/translations/en/renditions/native>

50 <https://www.enterprise-ireland.com/en/>

51 <http://www.investitaly.com/en/industria-40-italys-national-plan-industry>

52 European Investment Fund, "ITATech: New EIF and CDP initiative to finance technological innovation in Italy," December 2016, [http://www.eif.org/what\\_we\\_do/equity/news/2016/eif-npi-itatech.htm](http://www.eif.org/what_we_do/equity/news/2016/eif-npi-itatech.htm)

53 KfW, "KfW strengthens Germany's technological competitiveness with new venture capital product," May 2015, [https://www.kfw.de/KfW-Group/Newsroom/Aktuelles/Pressemitteilungen/Pressemitteilungen-Details\\_274688.html](https://www.kfw.de/KfW-Group/Newsroom/Aktuelles/Pressemitteilungen/Pressemitteilungen-Details_274688.html)

54 KfW, "KfW turns 65," November 2011, [https://www.kfw.de/KfW-Group/Newsroom/Aktuelles/Pressemitteilungen/Pressemitteilungen-Details\\_171713.html](https://www.kfw.de/KfW-Group/Newsroom/Aktuelles/Pressemitteilungen/Pressemitteilungen-Details_171713.html)

55 <http://www.czechstartups.org/en/four-czech-startups-will-be-at-the-tech-crunch-disrupt/>

56 <https://www.gov.uk/government/publications/the-enterprise-investment-scheme-introduction/enterprise-investment-scheme#contents>

57 <https://www.gov.uk/guidance/corporation-tax-the-patent-box>

58 <http://www.nesta.org.uk/>

59 <http://www.portugalventures.pt/>

60 <http://www.smartcap.ee/en>

61 European Investment Fund, Working Paper 2016/34, *The European venture capital landscape: an EIF Perspective – Volume 1: The impact of EIF on the VC ecosystem*, June 2016, pp. 4 and 13, [http://www.eif.org/news\\_centre/publications/eif\\_wp\\_34.pdf](http://www.eif.org/news_centre/publications/eif_wp_34.pdf)

62 Neil Murray, "Analysis: European tech companies raised €3.47 billion in venture capital in Q2 2015," Tech.eu, August 3, 2015, <http://tech.eu/features/5500/analysis-european-tech-startups-venture-capital-funding-q2-2015/>

63 Mind the Bridge–Startup Europe Partnership, SEP Monitor, "From Unicorns to Reality: A Five-Country Comparison of European ICT Scaleups," May 2015, <http://startupeuropepartnership.eu/wp-content/uploads/2015/07/SEP-Monitor-From-Unicorns-to-Reality.pdf>

64 EBAN, *European Early Stage Market Statistics*, May 2016, pp. 2–8, <http://www.eban.org/wp-content/uploads/2016/06/Early-Stage-Market-Statistics-2015.pdf>

65 Mind the Bridge–Startup Europe Partnership, *SEP Monitor*, June 2017, "Scaleup Europe," <http://mindthebridge.com/portfolio/sep-monitor-scaleup-europe/>

66 Mind the Bridge–Startup Europe Partnership, *SEP Monitor*, "From Unicorns to Reality: A Five-Country Comparison of European ICT Scaleups," May 2015, <http://startupeuropepartnership.eu/wp-content/uploads/2015/07/SEP-Monitor-From-Unicorns-to-Reality.pdf>

67 Mind the Bridge–Startup Europe Partnership and CrunchBase, *Startup Transatlantic M&As: US vs. EU*, September 2016, [http://startupeuropepartnership.eu/wp-content/uploads/2016/09/Startup-Transatlantic-MAs\\_MTB-Crunchbase\\_2016.pdf](http://startupeuropepartnership.eu/wp-content/uploads/2016/09/Startup-Transatlantic-MAs_MTB-Crunchbase_2016.pdf).

68 Reuters, "EU Commission proposes looser rules for venture capital," July 14, 2016, <http://www.reuters.com/article/eu-funds-venturecapital-idUSL8N1A01S4>

69 German Startups Association, *European Startup Monitor*, 2015, p. 49, [http://europeanstartupmonitor.com/fileadmin/presse/download/esm\\_2015.pdf](http://europeanstartupmonitor.com/fileadmin/presse/download/esm_2015.pdf)

70 European Investment Fund, Working Paper 2016/34, *The European venture capital landscape: an EIF Perspective – Volume 1: The impact of EIF on the VC ecosystem*, June 2016, p. 11, [http://www.eif.org/news\\_centre/publications/eif\\_wp\\_34.pdf](http://www.eif.org/news_centre/publications/eif_wp_34.pdf)

71 Startup Heatmap Europe, "Where are startup investments in the EU coming from?" March 27, 2017, [http://www.startupheatmap.com/where-are-investments-in-the-eu-coming-from/?mc\\_cid=be456fde18&mc\\_eid=27c25beddd](http://www.startupheatmap.com/where-are-investments-in-the-eu-coming-from/?mc_cid=be456fde18&mc_eid=27c25beddd)

72 Tech.eu, "European Tech Funding Report 2016," January 2017, pp. 9–12.

73 Ibid., pp.13–14.

74 Tech.eu, "European Tech Exits Report 2016," January 2017, pp. 4, 7, 10, 16, and 24.

75 Pomerleau, Kyle, "U.S. Taxpayers Face the 6th Highest Top Marginal Capital Gains Tax Rate in the OECD," Tax Foundation, March 24, 2015, <https://taxfoundation.org/us-taxpayers-face-6th-highest-top-marginal-capital-gains-tax-rate-oecd/>

76 Pomerleau, Kyle, "How Scandinavian Countries Pay for Their Government Spending," Tax Foundation, June 10, 2015, <https://taxfoundation.org/how-scandinavian-countries-pay-their-government-spending/>

77 McLaughlin, Kim, "Spotify Co-Founder Calls for Reforms to shield Sweden's Startups," Bloomberg, June 16, 2016.

78 OpenAxel, White Paper on the Connection of Startups with Industry, May 2016, <http://openaxel.com/wp-content/uploads/2016/05/OpenAxel-white-paper.pdf> and George A. Tilesch, "Accelerating on a bumpy road—Collaborative innovation state of play in Europe: a view from Silicon Valley," May 27, 2016, <https://www.linkedin.com/pulse/accelerating-bumpy-road-george-a-tilesch>

79 Peter Ester and Arne Maas, *Silicon Valley: Planet Startup* (Amsterdam: Amsterdam University Press, 2016)

80 Love, Tessa, "Nestlé hits a sweet spot with S.F. innovation center," San Francisco Business Times, July 6, 2016, <http://www.bizjournals.com/sanfrancisco/news/2016/07/06/nestle-sf-innovation-center-food-startups.html>

81 Volkswagen Group, "Porsche Digital, Inc. opens location in Silicon Valley," May 2017, [https://www.volkswagenag.com/en/news/2017/05/Porsche\\_Digital.html#](https://www.volkswagenag.com/en/news/2017/05/Porsche_Digital.html#)

82 Cromwell Schubarth, "German VC Chief is glad he didn't set up Silicon Valley office 3 years ago," *Silicon Valley Business Journal*, March 7, 2016, <http://www.bizjournals.com/sanjose/blog/techflash/2016/03/german-vc-chief-is-gladhe-didnt-set-up-silicon.html>

83 Silicon Vikings, *State of Nordic Tech Startups in the Bay Survey*, 2017

84 Victor Basta, "Venture investing in the US and Europe are totally different industries," TechCrunch, June 7, 2017, <https://techcrunch.com/2017/06/07/venture-investing-in-the-us-and-europe-are-totally-different-industries/>

85 Scott Lucas, "It's App Annie's Business to Know the App Market," *San Francisco Business Times*, May 17, 2017, <http://www.bizjournals.com/sanfrancisco/news/2017/05/17/tech-awards-2017-enterprise-app-annie-schmitt.html>

86 Emil Eifrem, CEO Neo Technology, "Lessons in Moving Your Startup Overseas to Silicon Valley", TechCrunch, February 26, 2016, <https://techcrunch.com/2016/02/26/lessons-in-moving-your-startup-overseas-to-silicon-valley/>

87 Ibid.

88 Sudha David-Wilp and Andrew Chrismar, "Europe's Startup Movement: Boosting Growth Beyond Borders," unpublished GMF-Factory White Paper on European Startup Ecosystem, last modified May 26, 2017, p.8, Google Docs file.

89 European Commission, "Fact Sheet: Questions and Answers—Digital Single Market Strategy," May 6, 2015, [http://europa.eu/rapid/press-release\\_MEMO-15-4920\\_en.htm](http://europa.eu/rapid/press-release_MEMO-15-4920_en.htm)

90 For more detail on Privacy Shield's provisions see US Department of Commerce, "Fact Sheet: Overview of the EU-U.S. Privacy Shield Framework," February 29, 2016, <https://www.commerce.gov/news/fact-sheets/2016/02/fact-sheet-overview-eu-us-privacy-shield-framework>

91 Atlantic Council, *Building a Transatlantic Marketplace: 20 Steps Toward 2020*, Report of the Atlantic Council Task Force on Advancing a Transatlantic Digital Agenda, April 2016, [http://www.atlanticcouncil.org/images/publications/Building\\_a\\_Transatlantic\\_Digital\\_Marketplace\\_web\\_0406.pdf](http://www.atlanticcouncil.org/images/publications/Building_a_Transatlantic_Digital_Marketplace_web_0406.pdf)

92 PWC, *Capital Markets Union: Integration of Capital Markets in the European Union*, September 2015, <https://www.pwc.com/gx/en/banking-capital-markets/pdf/cmu-report-sept-2015.pdf>

93 Vivek Wadhwa et al., "America's New Immigrant Entrepreneurs: Then and Now," Ewing Marion Kauffman Foundation, October 2, 2012, <http://www.kauffman.org/what-we-do/research/immigration-and-the-american-economy/americas-new-immigrant-entrepreneurs-then-and-now>

94 Anderson, Stuart, "Immigrants and Billion Dollar Startups," National Foundation for American Policy, March 2016, <http://nfap.com/wp-content/uploads/2016/03/Immigrants-and-Billion-Dollar-Startups.NFAP-Policy-Brief.March-2016.pdf>

95 Federal Register, "International Entrepreneur Rule: A Rule by the Homeland Security Department on 01/17/2017," <https://www.federalregister.gov/documents/2017/01/17/2017-00481/international-entrepreneur-rule#p-10>

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