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Start-EU-up! International incubation practices to overcome the main challenges of the Western European entrepreneurial ecosystem

Marijn A Van Weele
Utrecht University
Innovation Studies
m.a.vanweele@uu.nl

Frank J Van Rijnsoever
Utrecht University
Innovation Studies
f.j.vanrijnsoever@uu.nl

Chris Eveleens
Utrecht University
Innovation Studies
c.p.eveleens@uu.nl

Abstract

Despite the continued efforts of policy makers, the Western European entrepreneurial ecosystem is still struggling. Further, as questions are being raised about the effectiveness of Western European incubators, there is a growing call for incubators around the world to learn from each other and improve themselves. Our paper enables Western European incubators to learn from their foreign counterparts by qualitatively identifying the challenges in the Western European entrepreneurial ecosystem and the practices that incubators around the world use to address these challenges. Our study thereby takes a two-step approach. First, using the components of the entrepreneurial ecosystem to structure data coming from 75 interviews with Western European entrepreneurs and incubator managers, we identify five interrelated challenges that constrain the ability of Western European start-ups to grow into high-impact businesses. In the second part of our study, we conduct a total of 191 interviews in Silicon Valley, the greater Boston area, Israel and Australia to identify practices that incubators in these regions use to address the five challenges identified in the first study. Our results show that, rather than addressing the institutional roots that cause the malfunctioning of entrepreneurial ecosystems, incubators primarily create an environment that protects start-ups from unfavorable institutions. Accordingly, we conclude that existing incubators have only limited potential to strengthen the Western European

entrepreneurial ecosystem, and we end our paper with a call for a new generation of ?systemic incubators? to address the institutional challenges that constrain start-up activity in Western Europe.

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1 Introduction

Stimulating the emergence and growth of technology-based start-ups (hereafter: start-ups) has become a central part of Western European policies to achieve economic growth (Ahmad and Ingle 2013; Brown and Mason 2014). Although these start-ups only constitute a small part of the total population of small businesses, they are responsible for the majority of employment and innovation (Michael and Pearce 2009; NESTA 2009; Schneider and Veugelers 2010). However, these start-ups suffer from high failure rates; about one third of Western European start-ups do not survive their second year (Bartelsman 2005; Scarpetta et al. 2002). To offset the risks associated with start-ups, European governments increasingly support them through incubators: organizations that provide start-ups with a broad range of services and resources needed for survival and growth (Aerts et al. 2007; Bergek and Norrman 2008; Bruneel et al. 2012). It is estimated that there are currently over 1000 European incubators, 85% of which is located in Western European countries, and that their number has seen a fivefold increase between 2007 and 2013 (Aerts et al. 2007; Ahmad and Ingle 2013; Salido et al. 2013). Accordingly, incubators are considered to be 'the mainstays of high-technology industrial development in Europe' (Oakey 2012 p. 67), and 'an institutionalized component of the EU's and its member states' national innovation systems' (Ahmad and Ingle 2013 p. 123).

The efforts of Western European policy makers to support start-ups through incubators are in line with a global trend: the number of incubators increases rapidly around the world, which has led to a diverse global population of incubators and related start-up support initiatives (Aerts et al. 2007; Chandra et al. 2012; Lee and Osteryoung 2004; Oakey 2012). This provides an 'immense opportunity' for incubators all over the world to learn from each other and improve themselves (Ahmad and Ingle 2013 p. 131; see also Aernoudt 2004; Terjesen et al. 2013). In Western Europe, such learning is urgently needed. Western Europe still seems to be lagging behind other economies in terms of start-up activity (Startup Manifesto 2013; The Economist 2012; Tijssen and van Wijk 1999), which raises questions about the effectiveness of incubators (Schwartz 2008, 2012; Tamasy 2007). However, cross-national comparative studies on incubators are rare (Ahmad and Ingle 2013; Phan et al. 2005; Rothaermel et al. 2007). Further, international studies that do exist (see e.g. Aernoudt 2004; Lalkaka 2002; Lee and Osteryoung 2004) have two limitations. First, they primarily provide comparisons of incubator attributes, such as configurations, objectives and historical underpinnings. Such analyses have been criticized for failing to explain how the incubation process unfolds. Accordingly, there is a growing call for scholars to move away from the incubator's *attributes* and towards the incubator's *practices* to explain in more detail how incubators provide their support to start-ups (Ahmad and Ingle 2013; Hackett and Dilts 2004; Phan et al. 2005). Second, existing studies pay little attention to the incubator's local context. Doing so is important, because incubators enable start-ups to overcome constraints that may be specific to the local entrepreneurial ecosystem, such as a lack of venture capital or a lack of legitimacy for start-ups (Amezcua and Grimes 2013; Degroof and Roberts 2004). Identifying effective incubation practices therefore requires a thorough understanding of the challenges in the entrepreneurial ecosystem that incubators should address.

To address these limitation we first qualitatively identify the main challenges of start-ups in Western Europe[1]. Next, we identify practices from around the world that incubators can use to overcome these challenges in the Western European context. We structure the identification of challenges around the concept of entrepreneurial ecosystems, which consist of the environmental components that interactively shape the performance of start-ups in a geographically and politically defined area (Cohen 2006; Qian et al. 2012; Roxas and Lindsay 2007). To create a comparable group of countries, we study innovation driven economies (Kelley et al. 2012). These economies have a relatively high share of opportunity-driven entrepreneurship, which includes technology based start-ups, and are home to the majority of incubators and are therefore relevant for our study (Aerts et al. 2007). Empirically, we base our conclusions on two studies that use semi-structured interviews with entrepreneurs, incubator managers, and other key stakeholders from the Netherlands, the UK, Switzerland, France, the United States (Silicon Valley and the greater Boston area), Australia and Israel.

The contribution of our paper is of a strong practical nature, as Western European policy makers and incubator managers can use our results to help start-ups overcome their major challenges. However, our paper is also of theoretical relevance. We respond to calls by incubator scholars for comparative studies to explain cross-national differences between incubators; we explicitly take into account the role of context in our comparison; and we focus on incubation practices rather than incubator attributes. We demonstrate that the main challenge of European start-ups is to grow into high impact businesses. The incubation practices we identify focus mainly on increasing interaction between start-ups and the entrepreneurial ecosystem. However, this is likely insufficient to completely address the underlying institutional challenges in the European entrepreneurial ecosystem.

In the remainder of this paper we discuss the components of the entrepreneurial ecosystem, which we use to identify the challenges of the Western European entrepreneurial ecosystem, and the support provided by incubators. We then present two empirical studies: one in which we identify challenges, and one in which we identify practices. We end our paper with a brief discussion and conclusion.

2 Background: entrepreneurial ecosystems and the role of incubators

Prior studies on entrepreneurial ecosystems identified various components or factors that should be present in an entrepreneurial ecosystem to facilitate the founding and growth of start-ups (Cohen 2006; Neck et al. 2004; Qian et al. 2012). First, there should be capital services, either from private investors or public organizations to provide financial resources. Second, a physical infrastructure is required in the form of office space or equipment, transportation services, and access to specialized equipment such as laboratories (Feldman and Florida 1994). Favorable entrepreneurial ecosystems also have high levels of human capital; well-educated individuals with technical and entrepreneurial skills who act as start-up founders or employees (Florida et al. 2008). Universities may play a catalyzing role, as they educate entrepreneurs and employees, create a culture of innovation and entrepreneurship, and provide specialized technological knowledge (Etzkowitz 2004). Finally, domestic or foreign markets should be accessible and large enough for start-ups to sell their products.

[1] With the term 'Western Europe' we refer to the UK, the Netherlands, Belgium, Luxembourg, Germany, France, Switzerland, Liechtenstein and Austria.

Within the entrepreneurial ecosystem, actors operate under an institutional environment that supports or constraints start-ups. Institutions can be defined as 'the rules of the game' (North 1990) that structure the actions of actors in the entrepreneurial ecosystem (Scott 1995). Governments can provide supporting institutions through favorable regulations, such as subsidies or easy company registration procedures. It should be attractive for actors in the ecosystem to interact and exchange resources through formal and informal networks. For example, it may be not attractive for a university and a firm to interact, and governments can give subsidies to support R&D collaboration (Rijnsoever et al. 2014). Another important, but more informal institution is the presence of an entrepreneurial culture. This culture should encourage people to start new businesses, it should ensure that (nascent) entrepreneurs think in terms of the market where they want to sell their products, it should make risk taking socially accepted, and it should celebrate successful start-ups.

If components in the entrepreneurial ecosystem are insufficiently developed, start-ups face challenges that may constrain their growth. Incubators can help start-ups overcome these challenges by providing resources or services. For example, incubators may compensate for a lack of capital services by providing financial support through subsidized services or by investing in start-ups in exchange for equity (Bruneel et al. 2012). Additional financial benefits are created through economies of scale, as start-ups share office space and other tangible resources such as car parks and meeting rooms (Bergek and Norrman 2008; McAdam and McAdam 2008). Incubators may contribute to the human capital of the entrepreneurial ecosystem by providing start-ups with specialized knowledge through seminars, workshops, mentor sessions or by encouraging peer to peer interaction (Audet and Couteret 2012; Rice 2002; Scillitoe and Chakrabarti 2010). Incubators can also provide access to technological knowledge, for example by connecting start-ups to scientists in universities (Acs et al. 1992; Etzkowitz 2002). By providing such relational connections to universities or other actors, incubators act as a mediator in connecting start-ups to the entrepreneurial ecosystem's formal and informal networks (Amezcua and Grimes 2013; Bergek and Norrman 2008). The incubator thereby enables start-ups to overcome institutional barriers to interact. When connecting to networks, start-ups also benefit from the added credibility that incubators bring, as acceptance into the incubator acts as a 'stamp of approval' to potential collaborators. Start-ups may also benefit from interacting with each other in the incubator community, as they engage in collaborative projects or exchange knowledge and networks (Mcadam and Marlow 2007; Tötterman and Sten 2005). The incubator's community also creates a unique entrepreneurial culture of support and encouragement (Cooper et al. 2010), which may compensate for the absence of such a culture in the entrepreneurial ecosystem.

3 Methods study 1

3.1 Research design and case selection

To gain insights into the challenges of Western European start-ups, we conducted 75 semi-structured interviews with entrepreneurs, incubator managers and other key stakeholders in the start-up process,

such as investors, university technology transfer officers, mentors and policy makers[2] in Western European countries. Our sample consisted of eight incubators, six of which were part of the Climate Knowledge and Innovation Community (Climate-KIC), a European initiative to stimulate clean tech innovation and entrepreneurship. These university-affiliated incubators were located in the Netherlands (3), France (1), Switzerland (1) and the UK (1). Although Climate-KIC has a focus towards supporting clean tech start-ups, the incubators were active in a wide variety of industries. The other two incubators were from the Netherlands and not university-affiliated. Among the interviewees were several European policy makers, as well as entrepreneurs that were active in multiple European countries, and incubator managers and investors overseeing an international portfolio of start-ups. The international background of these interviewees compensated for the limited number of European countries in which interviews were conducted. Overall, this resulted in a diverse sample that can inform us about the Western European entrepreneurial ecosystem

3.2 Data collection and data analysis

Interviewees were approached through the network of Climate-KIC, through the researchers' personal networks, through desk research and by asking interviewees to introduce the researcher to other interesting actors for this research. All interviews were conducted on-site between January 2012 and March 2014. Conducting interviews on-site enabled us to augment the dataset with observations and informal conversations. Table 1 below provides a breakdown of the number of interviewees per category and country. In addition, the researchers attended various start-up events and formal meetings organized by Climate-KIC during which challenges and solutions for European (clean tech) entrepreneurship were discussed. This enabled us to triangulate our findings and to enrich our interviews.

	Entrepreneurs	**Incubator staff**	**Other (e.g. investors, policy makers, university representatives)**	**Total**
Netherlands	24	13	12	49
Switzerland	8	1	2	11
France	8	2	0	10
United Kingdom	3	1	1	5
Total	43	17	15	75

Table 1. Interviews conducted for study 1

The interviews took 40 minutes on average. Every interview started with a brief introduction of the research goal and the interviewee's background. The core of the interviews then focused on the challenges of the Western European entrepreneurial ecosystem and, in the case of incubated entrepreneurs and incubator staff, the support provided by incubators. Initially, the questionnaire consisted primarily of generic, open questions to identify general challenges. As the study evolved, we included more specific questions to explore particular challenges in more detail. The semi-structured

[2] The interview data from the six university-affiliated incubators was also used in a prior study on incubator strategies (Van Weele et al. 2013).

nature of the interviews allowed for additional probing questions to let interviewees elaborate on their answers.

If possible, the interviews were recorded and transcribed. In two instances, recording was either unpractical or not allowed, so notes were taken based on which an interview report was written. Data was collected until no new relevant topics emerged, which suggests that theoretical saturation was reached. Data was analyzed using the qualitative data analysis program Nvivo. During the initial stage of coding, we based codes on the components of the entrepreneurial ecosystem as identified in section 2, while remaining open to new codes by staying close to the interviewees' own words. Next, we started exploring relationships between codes, and combined and categorized codes around the core concepts of this study: the challenges of the Western European entrepreneurial ecosystem.

4 Results study 1

Based on our data we identified the following five challenges:

- **Lack of market orientation.** The entrepreneurs in the incubators typically had a strong technological background, but the interviews showed that most entrepreneurs were unfamiliar with activities related to managing and growing their business such as presenting to investors, reaching out to customers or managing employees. Entrepreneurs were seen to underestimate the importance of fulfilling a customer need and were thus *struggling to create a scalable business* around their idea. One of the Swiss incubator managers said: *"There has to be a strong market focus. A lot of ideas we get, people think only from the product itself, like a researcher or so who hasn't thought of customers at all".* This lack of market orientation was partly seen as the result from education systems in Europe, which *pay little attention to the development of entrepreneurial skills* and a practical and commercial mindset. In addition, one of the interviewees said that Europeans are not as good as 'sales people' as Americans. Accordingly, this challenge is primarily rooted in cultural European institutions that are not easily changed.
- **Lack of an entrepreneurial culture.** Related to this, interviewees found that the culture of Western European countries did not encourage entrepreneurship. Entrepreneurs felt that entrepreneurship is perceived as a high risk career choice, and that their social environment was skeptic towards the entrepreneur's aspirations to start a business. Further, interviewees found that failure is not socially accepted and they were concerned about stringent bankruptcy laws. These factors contribute to a high fear of failure among entrepreneurs. These institutions inhibit entrepreneurial initiatives and they limit entrepreneurial ambitions. Investors and incubators found that those start-ups that do exist have *limited ambitions for growth*, as entrepreneurs were primarily motivated by a desire to be their own boss instead of aspiring to create a large company. One of the investors said: *"It's all about the entrepreneurial drive: what is your goal? Where do you want to go? Many entrepreneurs are happy when they have one or two customers … They're playing it safe".*
- **Small domestic market.** Compared to US or Asian markets, the individual European countries have relatively small domestic markets. In addition, foreign markets, even within Europe, are difficult to access: interviewees perceived the European market to be fragmented, as countries differ from one another in terms of language, local regulations, customer preferences, etc. These institutional

differences make it difficult for start-ups to capture the entire European market. Consequently, start-ups with similar businesses may co-exist in different European countries, but it is *difficult for start-ups to scale* their activities. The small domestic markets can partly explain the limited ambitions for growth of European entrepreneurs. As one Dutch investor and former entrepreneur illustrated, European *start-ups think local* instead of global: *"Our goal was to attract 100.000 users. Which is a lot by Dutch standards, but nothing from an international point of view. The problem is that you're not thinking big, and we made some wrong choice because of that".*

- **Lack of early stage capital.** Europe's capital services were perceived as underdeveloped. Although a small amount of 'seed funding', to get the company started, is relatively easy to obtain, entrepreneurs found that only a small number of investors were willing to provide larger amounts of 'early stage capital' necessary to scale technological development and marketing activities. Again, this makes it *difficult to scale start-ups*. As an explanation, multiple institutional causes were mentioned. Investors found it *unattractive to invest in start-ups* due to Europe's fragmented market and because start-ups lacked an experienced management team and a strong market focus. Second, entrepreneurs found *investors to be risk averse*, as they preferred to invest in real estate or family owned, low tech businesses. Third, the motivations of European entrepreneurs to be their own boss makes them *hesitant to give up equity* to investors (Audretsch et al. 2002; Fiedler and Hellmann 2001). One of the entrepreneurs illustrated: *"I don't want anyone to interfere. (…) I want to be the one in charge. That is my main concern".*
- **Universities are not focused on entrepreneurship.** European universities were perceived to fulfill their role as catalysts in the entrepreneurial ecosystem only to a limited extent. Although research and education at European universities were perceived to be of high quality, interviewees said that it was difficult to create start-ups based on university research, as the basic research conducted by universities is not ready for commercialization. Start-ups also struggled to access university equipment and felt that university technology transfer offices had little experience with start-ups, constraining the transfer of knowledge from universities to start-ups. Thereby, entrepreneurs were *unable to access cutting-edge knowledge and technology* that can form the basis of high-tech firms with a competitive advantage that leads to growth (Grant 1996; McEvily and Chakravarthy 2002). Finally, interviewees found that universities neglected entrepreneurship as a career choice and prepared students for careers in government, multinationals or universities instead. Although some universities organized courses in which students developed a business plan, these courses were not focused on creating technology-based start-ups with a high growth potential. Universities thereby *lack a culture of ambitious entrepreneurship*. When discussing the university's culture and curriculum, one student entrepreneur said: *"You're expected to pursue a career at a big multinational or to start a PhD. Entrepreneurship is just not an option"*. The institutional cause of this challenge is the strong incentive for universities to pursue academic research rather than to collaborate with industry or to commercialize knowledge (Rijnsoever et al. 2014).

Figure 1 below provides a conceptual overview of the challenges in the Western European entrepreneurial ecosystem. Overall, the image emerges that Western Europe's main challenge is for start-ups to grow into successful businesses. One Dutch incubator manager illustrated this as follows: *"Most start-ups are able to achieve some small successes: to think of a good idea, to attract some*

subsidies, to find a launching customer ... But they fail to make it out of that stage and experience real growth". The lack of successful start-ups creates a reinforcing, vicious cycle, as there are few successful entrepreneurs who could serve as inspiring *role models* or as *'angel investors'* who use their wealth as early stage capital to invest start-ups. The challenges identified all have institutional roots in European culture, norms and regulations. This makes it problematic to overcome the challenges, but incubators can be a means to mitigate some of the negative effects. The challenges as identified in Figure 1 are similar to those identified by more generic studies on European innovation and entrepreneurship (see e.g. Kelley et al. 2012; Schneider and Veugelers 2010; Tijssen and van Wijk 1999), and are also in line with recent European policies to support start-ups, such as the Entrepreneurship 2020 action plan and the Start-up Europe Partnership, (European Commission 2013, 2014), which validates our findings.

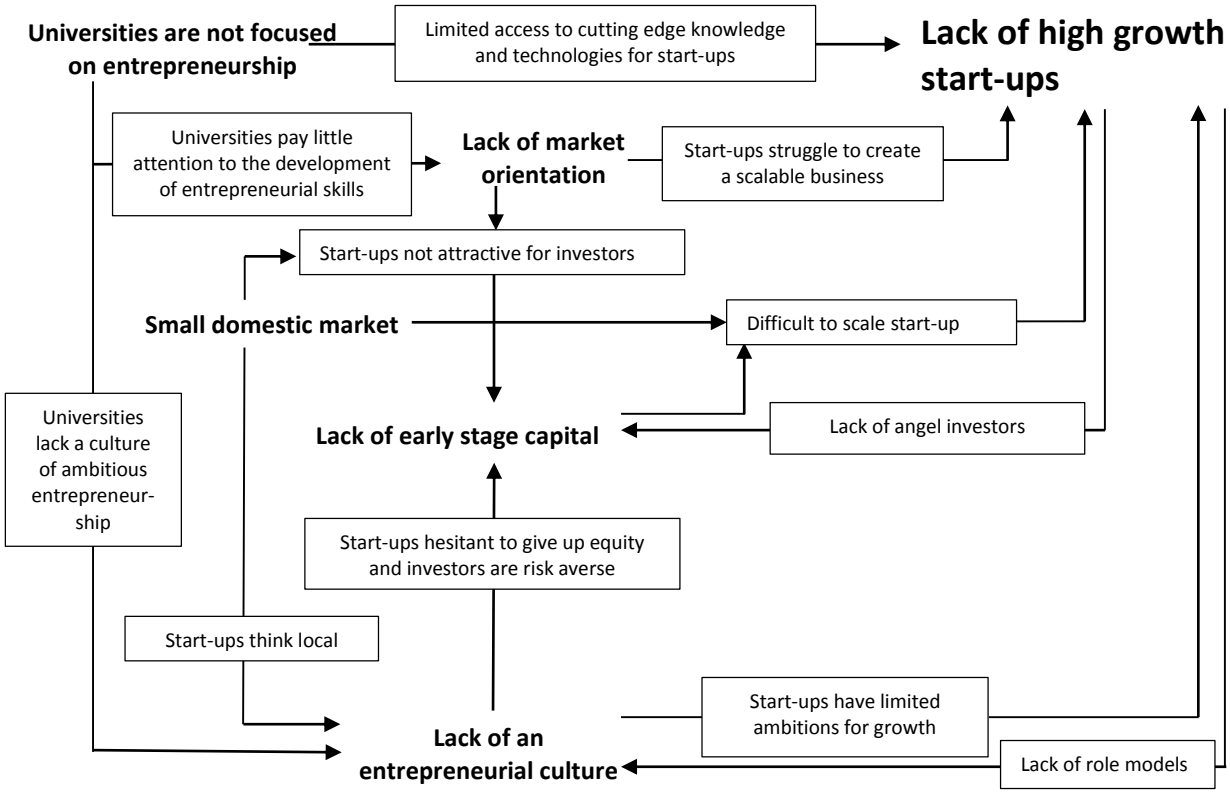

Figure 1. Challenges in the European entrepreneurial ecosystem.

5 Methods study 2

5.1 Research design and case selection

Next, we conducted a multi-case study to study start-ups and incubators in various entrepreneurial ecosystems. We used a theoretical sampling strategy to identify a specific case (i.e. a specific region or country) that would be likely to provide useful insights for every challenge identified in study 1[3]. These

[3] Although we connected every individual case to a specific challenge, we also derived incubation practices from other cases to overcome challenges. For the lack of early stage funding, we did not include a specific case, but identified incubation practices across all four cases. The interview data Australian was also used for a study on start-up communities (van Weele et al. 2014).

ecosystems were, similar to Western Europe, innovation driven economies (Kelley et al. 2012) that encourage entrepreneurship to achieve economic growth. Our sampling strategy resulted in the following four cases:

- **Silicon Valley.** We use Silicon Valley as a case study to identify incubation practices through which incubators make start-ups more market oriented, as Silicon Valley has the most developed entrepreneurial ecosystem and also the most mature and developed incubators (Aernoudt 2004; Herrmann et al. 2012). Consequently, Silicon Valley entrepreneurs and incubators are famous for their ability to translate technological ideas into successful, high-growth start-ups, and Silicon Valley is therefore a suitable case study. Data was collected between February and July 2013.
- **Australia.** We study start-ups in Australia to gain further insights on how start-ups are able to thrive in a country lacking an entrepreneurial culture. Although Australia has a rich history of small businesses, it also has a high fear of failure (Kelley et al. 2012) and the lack of an entrepreneurial culture has been recognized to constrain the development of technology based start-ups (PWC and Google 2013). Data was collected in Sydney, Melbourne and Canberra between February and July 2013.
- **Israel.** To identify incubation practices that enable start-ups to overcome a small domestic market we look at Israel. This country has a small domestic market that is isolated from foreign markets. However, this challenge has not stopped Israel from becoming a 'start-up nation' with Israeli start-ups having a global impact (Senor and Singer 2009). Data was collected in the high-tech regions of Tel Aviv and Haifa between May and July 2014.
- **The greater Boston area.** To identify incubation practices that facilitate the relationship between start-ups and universities we study the greater Boston area, which is the metropolitan area surrounding the city of Boston that covers cities such as Somerville and Cambridge. This area is not only home to many top-tier research institutes, but also to many start-ups in a variety of industries, such as IT, clean tech and life sciences. Data was collected between February and July 2014.

5.2 Data collection and data analysis

The authors visited the countries between two and six months, which enabled them to be submerged in the local entrepreneurial ecosystem and gain in-depth insights. For all countries, the second author assisted in data collection to discuss and interpret findings and to ensure a consistent and valid process of data collection and analysis. Similar to study 1, interviews were the primary data source, and we interviewed a similar group of entrepreneurs, incubator representatives and other stakeholders. In addition to incubators we studied related programs that aim to facilitate entrepreneurship, such as co-working spaces, university entrepreneurship programs and national entrepreneurship policies. Table 2 below provides a detailed breakdown of the number of interviews per category. Interviewees were identified and approached through desk research, by attending events, and by asking interviewees to make introductions to other interesting individuals after the interviews.

The interviews were semi-structured, and focused on the support provided by incubators based on the services as identified in section 2, and the strengths and weaknesses of the entrepreneurial ecosystem. In addition, we included case specific questions based on the country focus as outlined in section 5.1.

	Entrepreneurs	Incubator staff and other facilitators	Other (e.g. investors, policy makers, university staff)	Total
Silicon Valley	60	7	4	**71**
Israel	11	11	9	**31**
Australia	28	20	5	**53**
Greater Boston	12	7	17	**36**
Total	**111**	**45**	**35**	**191**

Table 2. Interviews conducted for study 2

Interviews were recorded, transcribed and analyzed in a similar manner as in study 1. Again, data was collected until theoretical saturation was reached and no new concepts emerged. Then, for every case, detailed country reports were written to create an in-depth understanding of the entrepreneurial ecosystem and incubation practices for every individual case. The final phase of data analysis consisted of a cross case comparison, in which we related the various incubation practices to the challenges in the Western European entrepreneurial ecosystems.

6 Results study 2

We now discuss how incubators in Silicon Valley, Australia, Israel and the greater Boston area can help entrepreneurs overcome the challenges that were identified in study 1. When doing so, we also relate the incubation practices to the institutions that are at the heart of the challenges. Table 3 provides an overview of the incubation practices.

6.1 Lack of market orientation

Incubators used a variety of practices to make start-ups more market oriented:

- **Push for interaction with customers**. Inspired by the lean start-up methodology (Blank 2013; Ries 2011), incubators encouraged start-ups to engage with customers in order to identify customer needs. Some incubators informally encouraged start-ups to do so through mentors who emphasized the importance of such 'customer development'. One of the Silicon Valley incubators had a formal requirement that every start-up should talk to at least 100 customers during their stay in the incubator.
- **Provide mentorship.** One of the incubator managers said that start-ups develop parameters or boundaries around their idea that result in implicit assumptions about their product or market. These assumptions may constrain the search for a suitable target market when they become taken for granted assumptions that are not questioned during daily operations. During 'tough' and 'stressful' one on one sessions, mentors forced entrepreneurs to explicate and challenge these underlying assumptions, making entrepreneurs re-evaluate their start-up: *"It's not that they tell you you're wrong, they'll … push back. Sometimes you need somebody to not assume everything you say. That was very useful".* These mentors were typically experienced entrepreneurs who had started multiple businesses in the past and were seen to have the credibility to make entrepreneurs re-evaluate their technology or business model.

Challenges and practices	Silicon Valley	Australia	Israel	Boston
1 Lack of market orientation				
- Push for interaction with customers	X	X	X	X
- Provide mentorship	X	X		X
- Provide small amounts of funding	X		X	
- Facilitate outsourcing		X		X
	X		X	
2 Lack of an entrepreneurial culture	X			
- Organize start-up tours		X	X	
- Create a supportive community	X	X	X	X
- Create a healthy competition among start-ups	X	X	X	x
3 Small domestic market				
- Create an international community			X	
- Create international partnerships	X	X	X	X
- Enable a soft landing in foreign ecosystems			X	
4 Lack of early stage capital				
- Selectively connect start-ups to funding sources	X	X	X	X
- Enable start-ups to be capital efficient	X	X	X	X
- Create a separate joint fund	X			
5 Universities are not focused on entrepreneurship				
- Provide access to technical expertise and equipment				X
- Mediate in internships				X
- Complement university curriculum				X
- Create a student board	X			X

Table 3. Incubation practices. An 'X' signals that a particular incubation practice was identified in a particular entrepreneurial ecosystem

- **Provide small amounts of funding.** To find a viable business model, one of the more prominent Silicon Valley incubators promoted an iterative development process in which start-ups continuously adjusted their product or idea based on the feedback of the market (being customers and investors). This incubator was skeptic of providing start-ups with too much money, as this eliminates the market pressures that force start-ups to iterate on their business model: *"If you give too much money in the beginning, good founders can work on bad ideas for too long"*. Accordingly, the incubator only provided a small amount of funding, just enough to cover the founders' living expenses during the duration of the incubator program.
- **Facilitate outsourcing.** Given the limited entrepreneurial experience of entrepreneurs, they struggled to get acquainted with the various aspects of setting up a company, such as incorporating the

company or filing for taxes. Instead of developing these skills in-house, the incubator enabled start-ups to outsource these unfamiliar activities. We found incubators to provide a wide range of in-house services, such as design, legal, or human resources. This enables start-ups to focus on developing their product and finding a market application: *"At this incubator you're only supposed to do two things: talk to your users and develop your product".*

All but the third practice are focused on networks, as incubators connect start-ups to each other, to mentors or to external networks. These practices primarily aim to help start-ups find a target market and to accelerate their development. They do not change the underlying cultural institutions that cause start-ups to be insufficiently market-oriented. Moreover, the practices raise questions about the tendency of European incubators to be founded and supported by governments and universities (Aerts et al. 2007; Barbero et al. 2012). The practices suggest that, to make start-ups more market-oriented, incubators need be more market-oriented as well. One way to do so is by relying more on private instead of public funding. Further, mentors and incubator staff require entrepreneurial experience to be credible. However, interviewees found that European incubator staff often had a policy or academic background, and therefore a lower market orientation. A French entrepreneur illustrated: *"We were in contact with the university. In which there are some coaches. But it was all ********. They have no idea what was the reality in the field. So it is really important to have people that have been in a startup. That have the experience".*

6.2 Lack of an entrepreneurial culture

Incubators can use several practices to create a culture of entrepreneurship and ambition:

- **Organize start-up tours.** Some Israeli and Australian incubators organized a start-up tour to foreign ecosystems such as Silicon Valley. These start-up tours aimed to expose start-ups to the cultural values of a different entrepreneurial ecosystem, by connecting them to start-ups and other stakeholders abroad, rather than changing the culture of the domestic entrepreneurial ecosystem. Some entrepreneurs explained that they were 'inspired' by the ambitious Silicon Valley start-ups, taking that mindset back home: *"Getting that mindset of how things operate down in the Valley. And adopting that to our... Not only to our business, but to ourselves".*
- **Create a supportive community.** The community of start-ups in an incubator forms a group of likeminded individuals that entrepreneurs can identify with. These communities created a shared 'sense of belonging', and provided motivation and comfort as entrepreneurs saw other start-ups going through similar challenges: *"It shows that things are not easy, and everyone has these issues that they go through … Hearing their struggles makes you feel like "o, we're not doing so badly"*. Selectively admitting start-up to the community was seen as important. Some of these communities had a selection process to decide who could join. Being embraced by the community provided motivation and confidence that helped entrepreneurs to justify their aspirations to their social environment. As one Australian entrepreneur illustrated: *"It makes me confident that I got picked by these twenty people … I might fail … but people can't tell me I was a fool, because I was picked".*
- **Create a healthy competition among start-ups.** The incubator's community contributed to a 'healthy competition' between start-ups, as start-ups were inspired by the positive results of others,

and aspired to achieve similar success. One entrepreneur said: *"You don't want to be the only team that did not get funded"*. This culture of peer pressure stimulated entrepreneurs to push themselves and set their ambitions higher. This culture can be stimulated by organizing weekly meetings during which entrepreneurs were encouraged to show each other their progress. These meetings 'pushed people to finish things in order to show them off'. One of the Australian incubator managers said: *"we have a Monday morning meeting. Everybody has a 'no fail goal' that you have to achieve. You don't want to be the guy that says "no, we didn't achieve our goal this week.""*

The above practices are all focused on encouraging interaction between start-ups. By doing so, the incubators create its own culture that encourages risk taking and ambitious thinking. The incubator thereby becomes a 'safe haven' for start-ups, rather than addressing the culture in the broader entrepreneurial ecosystem. An Australian incubator manager said: *"I think [entrepreneurs] need a place like this because it gives them a safe place to experiment, which is free from the negative Australian cultural traits"*. Being selective is a key feature of successful incubation programs in Silicon Valley like Y Combinator or 500 start-ups: creating a community of high quality entrepreneurs is important for start-ups to inspire each other. However, selection contradict the open nature of many publicly funded Western European incubators that often struggle to have enough applicants to fill their office space with high quality start-ups, or that aim to create as much start-ups as possible.

6.3 Small domestic market

Incubators can use various practices to enable start-ups to overcome the small domestic market constraint by facilitating the expansion into foreign markets:

- **Create an international community.** Israeli incubator managers emphasized the importance of having a mix of international teams in the incubator's community. This encouraged all start-ups to 'think big' and have a 'global mindset'; to use English in communications, and to see their start-up as a potentially global business.
- **Create international partnerships.** Incubators in all countries relied on their external network to connect entrepreneurs to foreign customers, thereby compensating for the start-up's lack of international networks. One Israeli incubator manager said that only providing introductions is insufficient, as start-ups suffer from a 'knowledge gap': start-ups were unaware of cultural differences between countries, and they did not always appreciate that foreign customers or investors may value the start-up's services differently. Consequently, to sell their products in foreign markets, start-ups first needed to gain in-depth understanding of these foreign markets. This incubator created structural and ongoing partnerships with foreign actors that enabled start-ups to do so: *"we realized that there were more pieces missing, and it led us to understand the need to bring in these organizations as partners, and not just introduce the start-ups to them"*.
- **Enable a soft landing in foreign ecosystems**. One of the Israeli incubators had their main office in Silicon Valley at which the entire incubator program took place. Entrepreneurs were provided with office space, and, more importantly, with advice and guidance on local regulations and customs. The incubator thereby enabled Israeli start-ups to have a 'soft landing' in Silicon Valley, facilitating the transition towards a different ecosystem and providing access to a larger market. The incubator

encouraged start-ups to have their sales office in Silicon Valley, while continuing R&D in Israel. This enabled start-ups to be 'immersed in the market', creating a deep understanding of local rules, norms and institutions.

One Silicon Valley incubator manager said: *"a strategy that is successful in their home country is not necessarily successful here. The rules of the game are different".* Through the above practices, incubators enable start-ups to understand institutional differences across countries by creating relationships with local customers and investors. Incubators provide guidance on where to adjust the start-up's strategy to ensure a fit with the local context, thereby enhancing the growth potential of the start-up. However, the incubator facilitates the transition to a different market environment without addressing the institutions that inhibit this transition itself. Further, as start-ups expand into foreign markets, the economic benefits of these start-ups also partly migrate abroad. Policies enabling start-ups to access foreign markets may therefore fail to create *domestic* economic growth, which does not align with the mission of European incubators. Some Israeli interviewees were concerned about a 'brain drain', because mostly foreign companies and countries benefited from the development of Israeli technologies and start-ups.

6.4 Lack of early stage capital

We found incubators to use various practices to help start-ups overcome the lack of early stage capital:

- **Selectively connect start-ups to funding sources.** With some incubators having an acceptance rate as low as five per cent, the incubator acted as a quality filter to investors: *"It's the ability to distinguish themselves in the crowd … [Investors know that] you've been screened, you've been trained, and you've already made it past these first bars".* As such, being part of an incubator gave the start-up a strong competitive advantage. Silicon Valley incubators in particular tried to connect start-ups to networks of investors, for example by organizing a 'demo day', during which all start-ups presented to a large group of investors in an attempt to raise capital. Incubators also connected their start-ups to banks, corporates or government funds. Again, the incubator acts as a quality filter, as one member of a grant review panel illustrated: *"You probably had to go through some sort of selection process to get admitted in an incubator. Even if it's as simple as talking about your technology a little bit. That's the kind of filter that even on a minimal level is important on a grant application"*. For corporates, incubators were not only a filter, but, by partnering with them, also a way to create a more 'entrepreneurial' company image, to attract talented future employees, or to engage in demand driven open innovation strategies. One of the Israeli incubators asked its corporate partners to identify challenges in their company, after which the incubator selected start-ups that offered potential solutions to these challenges.
- **Enable start-ups to be capital efficient.** Next to providing funds, incubators enabled start-ups to be 'capital efficient', by cutting the start-up's expenses. Besides facilitating access to economies of scale and providing subsidized office space, we also found incubators to negotiate deals with service providers (such as software companies or lawyers). Consequently, incubators can provide start-ups with 'perks' (e.g. free software or legal services) worth tens of thousands of dollars.
- **Create a separate joint fund.** One of the Silicon Valley incubators had a separate early stage venture capital fund, in which it invested together with local investors and corporates. However, It should be

noted that such a fund may also constrain the ability of start-ups to raise funding from external investors, as it may provide a negative signal when the incubator's fund decides not to invest in a particular start-up, as one entrepreneur illustrated: *"That's very confusing, to have a VC arm judging startups. ... I think it's a conflict of interest. It's confusing to the outside world. 'You're in the incubator, but they're not investing in you? What's going on?'.* This signaling issue can be overcome by ensuring that, although the incubator may help in creating the fund and finding partners, the fund has no official affiliation with the incubator, and that it is not only bound to invest in start-ups from the incubator.

With the exception of the third practice, these practices create networks between start-ups and investors. The first two practices enable start-ups to make better use of the existing funds available in the entrepreneurial ecosystem. The incubator thereby does not address the institutions that cause the lack of early stage capital. By creating a separate joint fund, the incubator has the potential to extend the pool of investors. In addition, by co-investing and by acting as a filter to investors, the incubator mitigates some of the risks associated with investing in start-ups. The incubator thereby addresses the risk-averse cultural institution that partly causes the lack of early stage capital. Inspired by Silicon Valley success stories, we found Western European incubators to connect start-ups to investors by organizing demo days. However, we argue that the potential to do so is limited, due to the underdeveloped capital services and because Western European incubators often lack the track record and selectiveness to raise the interest of investors. Moreover, attracting venture funding may conflict with entrepreneurs' desire to stay in control of their start-up.

6.5 Universities are not focused on entrepreneurship

Incubators may use several practices to improve the interaction between start-ups and universities:

- **Provide access to technical expertise and equipment**. By providing introductions to university staff and technology transfer offices, the incubator enables start-ups to access scientific knowledge that may give them a competitive advantage. Start-ups can access such knowledge by involving university staff as personnel, as consultants or as advisory board members. Start-ups may also benefit from accessing university specialized equipment, such as a wind tunnel or gene sequencing equipment. However, negotiating terms of use with the university was perceived as an obstacle. Incubators may help by, in addition to contacts, providing standardized contracts. These contracts ensure that the start-up's IP is protected, and enable start-ups affiliated with the incubator to have more favorable terms.
- **Mediate in internships.** Start-ups perceived the university as a valuable source of talented interns that can effectively transfer knowledge and technology from the university to the start-up. One university representative from the Boston area perceived internships as 'one of the most effective ways' to foster relationships between universities and start-ups. However, there are several barriers to start-up internships. Start-ups were concerned about the time required to host interns, students found it difficult to connect to start-ups, as they did not post internships on their website, and universities were concerned about the uncertain nature of start-ups: *"start-ups can blow up or implode. I think that we may be hesitant to devote too much time and energy to finding internships in start-ups because start-ups are very volatile"*. Incubators can mitigate these concerns. One of the Boston incubators organized 'intern fairs' to connect interns to start-ups. Further, incubators may help by providing

standardized internship agreements, or by guaranteeing internships and placing interns at different start-ups when the original hosting start-up exits the market.

- **Complement university curriculum.** One of the university-affiliated incubators in the Boston area organized courses, such as project-based marketing courses or business plan competitions, together with universities, and hosted the courses at the incubator facility. The incubator also provided course material through case studies or projects at start-ups. One interviewee said that the incubator thereby extends the university's theoretical curriculum with 'implementation education' that is more practical and hands-on. Another interviewee said that the incubator is 'co-curricular' as it complements the university's traditional courses: *"If the next Facebook were to come out of this [incubator] no one would complain but that is not the main goal because they're students, they're here for school … This execution part is still educational. And after they have left [the university], if they want to execute on something else, they'll be better prepared".*
- **Create a student board.** One of the incubators had created a 'student board' that organized guest lectures, coordinated workshops, and facilitated internships at start-ups. Both students and university staff found that the student board played an important role in fostering an entrepreneurial culture at the university. Having student members in the board creates close relationships between the incubator and the student community, and the board thereby creates a bridge between students and start-ups.

The above practices are focused on facilitating interaction between start-ups and university staff or students. By doing so, the incubator fosters a culture of ambitious entrepreneurship at universities, and provides start-ups with high quality scientific and entrepreneurial skills that are required for building a start-up with potential for high growth. However, the practices do not aim to change the regulatory incentives that make entrepreneurship an underexposed topic at universities. Further, although incubators may contribute to creating an entrepreneurial culture among students and university staff, the interviews suggest that the potential to do so is limited. One of the incubator managers said that the university culture takes a long time to change, and compared universities to an 'oil tanker' ship whose direction is difficult to change due to its size and momentum. Consequently, these practices primarily aim to facilitate entrepreneurship in a given institutional environment.

7 Discussion and conclusion

The five challenges we identified in the context of the Western European entrepreneurial ecosystem all contribute to the main problem for start-ups to scale their activities and grow into high impact businesses. The challenges all have institutional roots, which makes it difficult to overcome them entirely. The incubation practices identified fit the Western European context and can aid in mitigating part of the negative effects. Noteworthy is that most of these practices are based on connecting the start-up with other actors. Based on these practices we can conclude that the concepts of 'networked incubators' (Bøllingtoft and Ulhøi 2005; Hansen et al. 2000) and 'third generation incubators' (Aerts et al. 2007; Bruneel et al. 2012) are still applicable to the prominent entrepreneurial ecosystems we studied. By identifying different types of practices we added insights on how incubators actually create and manage their networks. However, the practices we identified primarily aim to provide a 'quick fix' to the existing challenges, by bridging institutional differences or by creating an incubator environment

that protects start-ups from unfavorable institutions. As such, incubators do not address the institutions that are at the heart of these challenges. Western European policy makers should therefore be careful to regard incubators as a silver bullet. Incubators are only a partial solution to institutional problems that run too deep for any single incubator to solve.

The practices identified are our main policy recommendation for Western European incubators. In addition, we add three more generic recommendations. First, policy makers should address the dependence of Western European incubators on public funds. The public nature of incubators contributes to the lack of market orientation of start-ups and encourages start-up quantity over quality. Instead, incubators should be more selective and focus on supporting start-ups with potential for high growth. Second, incubators operate in a specific context, and they partly mitigate the shortcomings of the entrepreneurial ecosystem. As such, it is important that incubators do not simply copy each other's best practices. Rather, they should first identify the challenges in the entrepreneurial ecosystem in which they operate, the consequences of these challenges, and the institutional roots of these challenges. Only then can the incubator implement practices to mitigate these challenges. Second, policy makers must realize that incubators are not the solution to the institutional problems in the Western European start-up ecosystem. If start-ups are indeed a vital component of future Western European economic growth, stakeholders, including incubators, have to collaborate to engage in a process of institutional transformation, through changing regulations, norms and underlying cultural roots (DiMaggio and Powell 1983; Scott 1995). Incubators can play a role in this process by taking the next step and to become the 'systemic', 'fourth generation' of incubators that actively engage in improving the systemic conditions that inhibit start-up growth. These incubators need to collaborate to create the critical mass that is necessary to foster institutional change across the entrepreneurial ecosystem. A first step can be found in the European Accelerator Assembly that aims to strengthen Europe's entrepreneurial ecosystem by connecting the incubator community to European policy makers. It should be noted that strengthening entrepreneurial ecosystems by transforming institutions will likely take decades, if it will ever happen. Until then, the incubation practices identified can aid in accelerating start-up growth.

We end our paper with some limitations and avenues for further research. First, given that it is the largest Western European economy, the absence of Germany presents a limitation to our data. We approached German incubators to participate in our research, but they were not willing to co-operate. However, the meetings and events that the researchers attended provided various opportunities to have informal discussions with German entrepreneurs, incubator managers and policy makers. These discussions, as well as the generic studies on Western European entrepreneurship that we consulted, suggest that the challenges as identified in our study are also applicable to the German context. Second, we are aware of cross country institutional differences within Western Europe that may affect the severity of the challenges we identified (Bosma and Schutjens 2011). However, as our findings from interviews are in line with European policies and studies, we are confident that the five challenges play a role in every Western European country, and that the variation lies mostly in the strength of certain challenges. However, the aim of our research was to identify challenges without measuring their relative importance, so further research is necessary to provide deeper insights into the importance of

these challenges. Finally, the incubators in our sample were not assessed on their output. Measuring incubator success is complex and controversial (Hackett and Dilts 2004), and doing so was therefore outside the scope of our study. Consequently, to translate our practices into best practices, further research is required to explore which practices in our study are associated with incubator success. Still, given that we studied incubators in successful entrepreneurial ecosystems such as Silicon Valley, the greater Boston area and Israel, we are confident that the practices as identified in our study form a good starting point to identify such best practices.

References

Acs, Z., Audretsch, D., & Feldman, M. (1992). Real effects of academic research: comment. *The American Economic Review*, *82*(1), 363–367.

Aernoudt, R. (2004). Incubators: tool for entrepreneurship? *Small Business Economics*, *23*(2), 127–135.

Aerts, K., Matthyssens, P., & Vandenbempt, K. (2007). Critical role and screening practices of European business incubators. *Technovation*, *27*(5), 254–267. doi:10.1016/j.technovation.2006.12.002

Ahmad, A., & Ingle, S. (2013). Business Incubators and HTSF Development: Setting an Agenda for Further Research. In R. Oakey, A. Groen, C. Cook, & P. Van Der Sijde (Eds.), *New Technology-Based Firms in the New Millenium, Volume 10t* (Vol. X, pp. 119–140). Bingley: Emerald Group Publishing Limited.

Amezcua, A., & Grimes, M. (2013). Organizational Sponsorship and Founding Environments: A Contingency View on the Survival of Business Incubated Firms, 1994-2007. *Academy of Management Journal*, *56*(6), 1–29.

Audet, J., & Couteret, P. (2012). Coaching the entrepreneur: features and success factors. *Journal of Small Business and Enterprise Development*, *19*(3), 515–531. doi:10.1108/14626001211250207

Audretsch, D., Thurik, R., Verheul, I., & Wennekers, A. R. . (2002). *Entrepreneurship: determinants and policy in a European - US Comparison*. Boston / Dordrecht: Kluwer Academic Publishers.

Barbero, J. L., Casillas, J. C., Ramos, A., & Guitar, S. (2012). Revisiting incubation performance. *Technological Forecasting and Social Change*, *79*(5), 888–902. doi:10.1016/j.techfore.2011.12.003

Bartelsman, E. (2005). Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries. *Industrial and Corporate Change*, *14*(3), 365–391. doi:10.1093/icc/dth057

Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. *Technovation*, *28*, 20–28. doi:10.1016/j.technovation.2007.07.008

Blank, S. (2013). Why the Lean Start-Up Changes Everything. *Harvard Business Review*, *91*(5), 63–72.

Bøllingtoft, A., & Ulhøi, J. P. (2005). The networked business incubator—leveraging entrepreneurial agency? *Journal of Business Venturing*, *20*(2), 265–290. doi:10.1016/j.jbusvent.2003.12.005

Bosma, N., & Schutjens, V. (2011). Understanding regional variation in entrepreneurial activity and entrepreneurial attitude in Europe. *The Annals of Regional Science*, *47*(3), 711–742. doi:10.1007/s00168-010-0375-7

Brown, R., & Mason, C. (2014). Inside the high-tech black box: A critique of technology entrepreneurship policy. *Technovation*, *34*(12), 773–784. doi:10.1016/j.technovation.2014.07.013

Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The Evolution of Business Incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, *32*, 110–121. doi:10.1016/j.technovation.2011.11.003

Chandra, A., Alejandra, M., & Silva, M. (2012). Business Incubation in Chile: Development, Financing and Financial Services. *Journal of technology management & innovation*, *7*(2), 1–13.

Cohen, B. (2006). Sustainable valley entrepreneurial ecosystems. *Business Strategy and the Environment*, *15*(1), 1–14. doi:10.1002/bse.428

Cooper, C. E., Hamel, S. A., & Connaughton, S. L. (2010). Motivations and obstacles to networking in a university business incubator. *The Journal of Technology Transfer*, *37*(4), 433–453. doi:10.1007/s10961-010-9189-0

Degroof, J.-J., & Roberts, E. B. (2004). Overcoming Weak Entrepreneurial Infrastructures for Academic Spin-Off Ventures. *The Journal of Technology Transfer*, *29*, 327–352. doi:10.1023/B:JOTT.0000034126.23592.23

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, *48*(2), 147–160.

Etzkowitz, H. (2002). Incubation of incubators: innovation as a triple helix of university-industry-government networks. *Science and Public Policy*, *29*(2), 115–128.

Etzkowitz, H. (2004). The evolution of the entrepreneurial university. *International Journal of Technology and Globalisation*, *1*(1), 64–77.

European Commission. (2013). *Entrepreneurship 2020 Action Plan – Reigniting the Entrepreneurial Spirit in Europe, COM (2012) 795 final, European Commission, 9 January 2013* (pp. 1–33). Brussels.

European Commission. (2014). Startup Europe Partnership. http://ec.europa.eu/digital-agenda/en/startup-europe-partnership. Accessed 7 January 2014

Feldman, M. P., & Florida, R. (1994). The geographic sources of innovation: technological infrastructure and product innovation in the United States. *Annals of the Association of American Geographers*, *84*(2), 210–229.

Fiedler, M.-O., & Hellmann, T. (2001). Against all odds: the late but rapid development of the German venture capital industry. *The Journal of Private Equity*, *4*(4), 31–45.

Florida, R., Mellander, C., & Stolarick, K. (2008). Inside the black box of regional development—human capital, the creative class and tolerance. *Journal of economic geography*, *8*(5), 615–649.

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic management journal*, *17*, 109–122.

Hackett, S. M., & Dilts, D. M. (2004). A Systematic Review of Business Incubation Research. *The Journal of Technology Transfer*, *29*(1), 55–82. doi:10.1023/B:JOTT.0000011181.11952.0f

Hansen, M. T., Chesbrough, H. W., Nohria, N., & Sull, D. N. (2000). Networked incubators. Hothouses of the new economy. *Harvard business review*, *78*(5), 74–84.

Herrmann, B. L., Marmer, M., Dogrultan, E., & Holtschke, D. (2012). *Startup Ecosystem Report 2012: Part One*.

Kelley, D. J., Singer, S., & Herrington, M. D. (2012). *Global Report: The Global Entrepreneurship Monitor*. Babson Park: Babson College.

Lalkaka, R. (2002). Technology business incubators to help build an innovation-based economy. *Journal of Change Management*, *3*(2), 167–176. doi:10.1080/714042533

Lee, S. S., & Osteryoung, J. S. (2004). A Comparison of Critical Success Factors for Effective Operations of University Business Incubators in the United States and Korea. *Journal of Small Business Management*, *42*(4), 418–426. doi:10.1111/j.1540-627X.2004.00120.x

Mcadam, M., & Marlow, S. (2007). Building Futures or Stealing Secrets?: Entrepreneurial Cooperation and Conflict within Business Incubators. *International Small Business Journal*, *25*(4), 361–382. doi:10.1177/0266242607078563

McAdam, M., & McAdam, R. (2008). High tech start-ups in University Science Park incubators: The relationship between the start-up's lifecycle progression and use of the incubator's resources. *Technovation*, *28*(5), 277–290. doi:10.1016/j.technovation.2007.07.012

McEvily, S. K., & Chakravarthy, B. (2002). The persistence of knowledge-based advantage: An empirical test for product performance and technological knowledge. *Strategic Management Journal*, *23*(4), 285–305. doi:Doi 10.1002/Smj.223

Michael, S. C., & Pearce, J. a. (2009). The need for innovation as a rationale for government involvement in entrepreneurship. *Entrepreneurship & Regional Development*, *21*(3), 285–302. doi:10.1080/08985620802279999

Neck, H. M. H., Meyer, G. D., Cohen, B., & Corbett, A. C. (2004). An Entrepreneurial System View of New Venture Creation. *Journal of Small Business Management*, *42*(2), 190–208. doi:10.1111/j.1540-627X.2004.00105.x

NESTA. (2009). *The vital 6 per cent: How high-growth innovative businesses generate prosperity and jobs*. London.

North, D. C. (1990). *Institutions, institutional change and economic performance*. New York, NY: Cambridge university press.

Oakey, R. P. (2012). *High-Technology Entrepreneurship*. London and New York: Routledge.

Phan, P. H., Siegel, D. S., & Wright, M. (2005). Science parks and incubators: observations, synthesis and future research. *Journal of Business Venturing*, *20*(2), 165–182. doi:10.1016/j.jbusvent.2003.12.001

PWC, & Google. (2013). *The startup economy - How to support tech startups and accelerate Australian innovation*.

Qian, H., Acs, Z. J., & Stough, R. R. (2012). Regional systems of entrepreneurship: the nexus of human capital, knowledge and new firm formation. *Journal of Economic Geography*, *13*(4), 559–587. doi:10.1093/jeg/lbs009

Rice, M. (2002). Co-production of business assistance in business incubators: an exploratory study. *Journal of Business Venturing*, *17*(2), 163–187. doi:10.1016/S0883-9026(00)00055-0

Ries, E. (2011). *The Lean Startup*. New York: Crown Publishing Group.

Rijnsoever, F. van, Welle, L., & Bakker, S. (2014). Credibility and legitimacy in policy-driven innovation networks: Resource dependencies and expectations in Dutch electric vehicle subsidies. *The Journal of Technology Transfer*, *39*(4), 635 – 661.

Rothaermel, F. T., Agung, S. D., & Jiang, L. (2007). University entrepreneurship: a taxonomy of the literature. *Industrial and Corporate Change*, *16*(4), 691–791. doi:10.1093/icc/dtm023

Roxas, H., & Lindsay, V. (2007). An Institutional View of Local Entrepreneurial Climate. *Asia-Pacific Social Science Review*, *7*(1), 27–44.

Salido, E., Sabás, M., & Freixas, P. (2013). *The Accelerator and Incubator Ecosystem in Europe*.

Scarpetta, S., Hemmings, P., Tressel, T., & Woo, J. (2002). *The role of policy and institutions for productivity and firm dynamics: Evidence from micro and industry data* (No. 329). Paris.

Schneider, C., & Veugelers, R. (2010). On young highly innovative companies: why they matter and how (not) to policy support them. *Industrial and Corporate Change*, *19*(4), 969–1007.

Schwartz, M. (2008). Beyond incubation: an analysis of firm survival and exit dynamics in the post-graduation period. *The Journal of Technology Transfer*, *34*(4), 403–421. doi:10.1007/s10961-008-9095-x

Schwartz, M. (2012). A control group study of incubators' impact to promote firm survival. *The Journal of Technology Transfer*, *38*(3), 302–331. doi:10.1007/s10961-012-9254-y

Scillitoe, J. L., & Chakrabarti, A. K. (2010). The role of incubator interactions in assisting new ventures. *Technovation*, *30*(3), 155–167. doi:10.1016/j.technovation.2009.12.002

Scott, W. R. (1995). *Institutions and organizations*. *Foundations for organizational science*. Thousand Oaks, CA.: SAGE.

Senor, D., & Singer, S. (2009). *Start-Up Nation: The Story of Israel's Economic Miracle*. New York: Twelve Hachette Book Group.

Startup Manifesto. (2013). Startup Europe - A manifesto for entrepreneurship and innovation to power growth in the EU. http://startupmanifesto.eu/. Accessed 8 January 2014

Tamasy, C. (2007). Rethinking technology-oriented business incubators: developing a robust policy instrument for entrepreneurship, innovation, and regional development. *Growth and change*, *28*(3), 460–473.

Terjesen, S., Hessels, J., & Li, D. (2013). *Comparative International Entrepreneurship: A Review and Research Agenda*. *Journal of Management*. doi:10.1177/0149206313486259

The Economist. (2012). Les misérables. http://www.economist.com/node/21559618. Accessed 8 January 2014

Tijssen, R. J. ., & van Wijk, E. (1999). In search of the European Paradox: an international comparison of Europe's scientific performance and knowledge flows in information and communication technologies research. *Research Policy*, *28*(5), 519–543. doi:10.1016/S0048-7333(99)00011-6

Tötterman, H., & Sten, J. (2005). Start-ups: Business Incubation and Social Capital. *International Small Business Journal*, *23*(5), 487–511. doi:10.1177/0266242605055909

Van Weele, M. A., van Rijnsoever, F. J., & Nauta, F. (2013). Take Them by the Hand ? Unconsciously Incompetent Entrepreneurs and Incubation Processes. In *Druid conference 2013*. Barcelona.

Van Weele, M. A., van Rijnsoever, F. J., & Steinz, H. (2014). Start-ups down under : How start-up communities facilitate Australian entrepreneurship. In *Druid Conference 2014*. Copenhagen.

WEF (2013). Entrepreneurial Ecosystems Around the Globe and Company Growth Dynamics. World Economic Forum: Davos.