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# THE DUTCH ENTREPRENEURIAL ECOSYSTEM

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# The Dutch Entrepreneurial Ecosystem

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## Executive summary

In this report we discuss, synthesize and further develop the entrepreneurial ecosystem approach. A dynamic entrepreneurial ecosystem approach is developed to analyze entrepreneurship in the Netherlands: how it has evolved, why the rate of solo self-employment has increased and how the entrepreneurial ecosystem can be adapted to increase productive entrepreneurship.

We summarize and extend the entrepreneurial ecosystem literature with a model that includes framework conditions (formal institutions, culture, physical infrastructure, and demand) and systemic conditions (networks, leadership, finance, talent, new knowledge, and support services) that affect entrepreneurial outputs (entrepreneurial activity) and outcomes indicating value creation (productivity, income, employment and well-being).

The Netherlands has seen a remarkable rise of independent entrepreneurship in the last decade. However, this rise of independent entrepreneurship reveals to be predominantly a rise in solo self-employment, not an increase in growth oriented and innovative entrepreneurship. This shift can partly be explained by the specific institutional context of the Netherlands. The rise of self-employment in the Netherlands seems to have lowered unemployment rates, but it is unlikely that the rise of self-employment and new firm formation has positively affected innovation and in the end productivity growth over the period 1987-2013. This rise of self-employment and new firm formation and stagnation of innovation is what we label the Dutch Entrepreneurship Paradox. Especially favorable fiscal treatment of self-employed, and an increasing demand for flexible labor, stimulated the growth in the number of solo self-employed since the early 2000s. There is a major policy task not to let entrepreneurship be a driver of productivity decline (or at best a flexible belt in the labor market), but to stimulate productive entrepreneurship instead.

In order to increase productive entrepreneurship in the Netherlands, we propose four policy actions. Each action addresses a change in one of the four framework conditions of the entrepreneurial ecosystem: changing formal institutions to enable labor mobility (development and circulation of talent); opening up public demand for entrepreneurs, to provide finance for new knowledge creation and application; stimulating a culture of entrepreneurship and entrepreneurial leadership; adapting or creating physical infrastructure to enhance knowledge circulation and networks.



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# | 1 - Introduction

The number of new firms and self-employed has increased dramatically in the Netherlands over the last twenty years. The rate of entrepreneurship<sup>1</sup> has more than doubled within a decade reaching the 10 percent level in 2012 (see Figure 9). This can be called the Dutch Entrepreneurship Miracle. There is no other innovation driven economy that has seen its entrepreneurship rate growing to this extent over a decade. This Dutch Entrepreneurship Miracle has partly been caused by public policies, intended and unintended. Entrepreneurship can be seen and measured in many ways, and can have multiple consequences. In spite of popular wisdom, entrepreneurship cannot be equated with innovation. The rise of entrepreneurship did not go hand in hand with an increasing innovativeness of the Dutch economy: The Dutch Entrepreneurship Paradox. More in general, self-employment and small business activity is not the same as entrepreneurship (Stam, 2008; Henrekson & Sanandaji, 2014). The rate of (young) high-growth firms is still rather mediocre, although this rate has increased somewhat over the last years. **The objective of this report is to analyze the Dutch entrepreneurial ecosystem in order to provide insights for new policy directions.**

Why would the Netherlands not be a 21st century leader in governing new forms of productive entrepreneurship<sup>2</sup> – entrepreneurial employees, networks of solo self-employed – just as it invented the joint-stock company form? How can the entrepreneurial ecosystem be adapted to stimulate productive entrepreneurship instead of overall rates of start-ups and self-employment? If the growth in the number of start-ups and self-employed has not led to an increase in innovation, what needs to be done to achieve this? The overall message is that innovation by entrepreneurs necessitates experiments in production, distribution and consumption. For this we need deep expertise and the interactions between sets of expertise at an optimal cognitive distance. Innovation by independent entrepreneurs is most strongly affected by community entrepreneurial ecosystems, while entrepreneurial action by employees is strongly conditioned by corporate entrepreneurial ecosystems. However, entrepreneurial employees can also enable the growth of independent start-ups and they may continue their career as self-employed and generate new value in coalitions with other self-employed.

**An entrepreneurial ecosystem is an interdependent set of actors that is governed in such a way that it enables entrepreneurial action.** It puts entrepreneurs center stage, but emphasizes the context by which entrepreneurship is enabled or constrained. Entrepreneurs are not only key objects of study, they are also seen as the leaders of entrepreneurial ecosystem, while others, like governments and service providers are seen as feeders of the entrepreneurial ecosystems (Feld 2012). The primary responsibility of the government is to get the framework conditions right (e.g. education, research, taxation, employment protection legislation, product market regulations). There is no other actor that will take the lead here. This is different at the local level: here entrepreneurs and other entrepreneurial actors are leading, and the government (local or national) might feed them (see Feld, 2012). At the local/sectoral level, public policy might enhance the ecosystem in two ways (Napier & Hansen, 2011): 1) identify and involve the key actors within each different group of stakeholder (e.g. serial entrepreneurs and established firms) and 2) engage in an entrepreneurship ecosystem dialogue together with the other relevant stakeholders. This paper will focus on the domain where government's role is most dominant, namely the national framework conditions. If these national framework conditions are not enabling initiatives at the local level, the effects of local initiatives are likely to remain suboptimal (see Bosma & Stam, 2012).

In this report we will discuss, synthesize and further develop the entrepreneurial ecosystem approach. Next we will set out how entrepreneurship outcomes in the Netherlands have evolved over the last twenty years. The insights from these two chapters will serve as a basis for discussing policy options for the Dutch Entrepreneurial Ecosystem.

## | 2 - Entrepreneurial ecosystems

### | 2.1 Entrepreneurial ecosystem literature

Entrepreneurial ecosystem is a rather recent concept, with no shared definition yet. It consists of the components entrepreneurial and ecosystem. Entrepreneurial refers to entrepreneurship. Entrepreneurship is a process by which opportunities to create novel goods and services are discovered, evaluated, and exploited (Shane & Venkatamaran, 2000). More broadly defined, it is the process by which individuals pursue opportunities for innovation. Innovation involves creating new value in society. This innovation can be oriented towards exploration, i.e. pursuing opportunities that are radically new, or towards exploitation, refining existing opportunities (see March, 1991; Lester & Piore, 2004). The entrepreneurial ecosystem literature frequently narrows entrepreneurial firms to “high-growth entrepreneurial firms” (Napier & Hansen, 2011; WEF, 2013), with the claim that this type of entrepreneurship is an important source of innovation, productivity growth and employment (WEF, 2013: 5),<sup>3</sup> or to tech start-ups (Senor & Singer, 2009; Economist, 2014). What is clear however, is that we should not mix up statistical indicators of entrepreneurship like self-employment and small businesses with the process of entrepreneurship (Stam, 2008; 2013; Henrekson & Sanandaji, 2014).

The second component is ‘ecosystem’. According to the Oxford Dictionary, an ‘ecosystem’ is a biological community of interacting organisms and their physical environment. This should not be taken too literal in the context of entrepreneurial ecosystems.<sup>4</sup> The entrepreneurial ecosystem concept emphasizes that entrepreneurship takes place in a community of interdependent actors. More in particular, the entrepreneurial ecosystem literature focuses on the role of the (social) context in enabling or constraining entrepreneurship, the interdependencies between actors within the system. The entrepreneurial ecosystem approach shares with more established concepts like clusters, industrial districts, innovation systems and learning regions the focus on the firm’s external conditions for innovation and business performance. However it does not do so from the starting point of the firm, but places the entrepreneur at the center. So it starts with (entrepreneurial) individuals instead of firms, but also emphasizes the importance of context. Another important distinction with previous economic development concepts is that the entrepreneurial ecosystem approach does not just see entrepreneurship as an outcome of the ecosystem, it also recognizes entrepreneurs as key players in generating and maintaining the ecosystem, with a somewhat more limited direct role of the government than in previous approaches.

The entrepreneurial ecosystem concept stresses how entrepreneurship is enabled by a comprehensive set of resources and actors, which have an important role to play in enabling entrepreneurial action. Most of these appear to be present locally, often requiring face-to-face contacts or local mobility. A critical role in the functioning of these ecosystems appears to consist of forms of governance that enable connections that are sufficiently stable to enable investments but sufficiently flexible to allow recombinations for innovation to take place. In addition, particular formal and informal institutions enable these forms of governance (see Williamson, 2000), and ultimately productive entrepreneurial action. We have defined an entrepreneurial ecosystem as an interdependent set of actors that is governed in such a way that it enables entrepreneurial action.<sup>5</sup> This governance is situated in a context with particular institutional and physical characteristics that enable or constrain this governance and subsequent entrepreneurial action. The interdependencies between actors may be traded and untraded (Dosi, 1984; Lundvall, 1988; 1990; Storper, 1995): actors are tied into various kinds of networks, both through formal exchanges (i.e. market transactions) and through untraded interdependencies (e.g. formal and informal institutions).

The concept of entrepreneurial ecosystems has received increasing attention from policy makers. However, it suffers from several shortcomings: it is tautological - entrepreneurial ecosystems are recognized and praised where high levels of (some form of) entrepreneurship are perceived to be present; it only provides laundry lists of relevant factors (e.g. Isenberg, 2010; WEF, 2013), without a clear analysis of how these are interdependent in space and over time, and what the key mechanisms are; and it does not provide a clear ‘dependent’ variable on what is a successful entrepreneurial ecosystem (either in entrepreneurial terms, or in broader welfare goals<sup>6</sup>). In addition, it is not clear

what the adequate unit of analysis is: the national economy, the regional economy, a sector, or a corporate system. Summarizing the critique: the entrepreneurial ecosystem concept lacks causal depth and is not properly demarcated. In spite of the critique, the concept includes several valuable elements for understanding the performance of meso-economic systems: it explicitly addresses the interdependencies in the context of entrepreneurship (going beyond a narrow market-hierarchy view of governance), and it provides a bottom-up account of the performance of meso-economic systems, and the rise of the entrepreneurial economy (Thurik et al., 2013) more broadly, while precluding the trap to focus on entrepreneurs themselves. However, if it remains a fuzzy concept, this will seriously constrain policy implications, and limit public and private value creation.

What needs to be unraveled is: what are the proximate and fundamental causes of entrepreneurial ecosystems, and what are the proximate and final consequences of these entrepreneurial ecosystems? There are several laundry lists of key factors for entrepreneurial ecosystems.

Case and Harris (in Feld, 2012: 186-187) state that of course start-ups are key (and their visibility and interconnectedness), but beyond that there are nine attributes of successful entrepreneurial ecosystems (see Table 1). They especially emphasize the visibility of key actors and events.

Table 1. Nine attributes of a successful start-up community

<b>Attribute</b>	<b>Description</b>
<b>Leadership</b>	Strong group of entrepreneurs who are visible, accessible and committed to the region being a great place to start and grow a company
<b>Intermediaries</b>	Many well-respected mentors and advisors giving back across all stages, sectors, demographics, and geographies as well as a solid presence of effective, visible, well-integrated accelerators and incubators
<b>Network density</b>	Deep, well-connected community of start-ups and entrepreneurs along with engaged and visible investors, advisors, mentors and supporters. Optimally, these people and organizations cut across sectors, demographics, and culture engagement. Everyone must be willing to give back to his community
<b>Government</b>	Strong government support for and understanding of start-ups to economic growth. Additionally supportive policies should be in place covering economic development, tax, and investment vehicles.
<b>Talent</b>	Broad, deep talent pool for all level of employees in all sectors and areas of expertise. Universities are an excellent resource for start-up talent and should be well connected to community
<b>Support services</b>	Professional services (legal, accounting, real estate, insurance, consulting) are integrated, accessible, effective, and appropriately priced
<b>Engagement</b>	Large number of events for entrepreneurs and community to connect, with highly visible and authentic participants (e.g. meet-ups, pitch days, startup weekends, boot camps, hackatons, and competitions)
<b>Companies</b>	Large companies that are the anchor of a city should create specific departments and programs to encourage cooperation with high-growth start-ups
<b>Capital</b>	Strong, dense, and supportive community of VCs, angels, seed investors, and other forms of financing should be available, visible, and accessible across sectors, demographics, and geography.

Source: Feld, 2012: 186-187

Even though Isenberg (2010) states that there is no exact formula for creating an entrepreneurial ecosystem,<sup>7</sup> (public) leaders should follow nine key principles that will help build an entrepreneurial ecosystem (see Table 2). These principles especially emphasize the sensitivity to local conditions.

Table 2. Key principles to build entrepreneurial ecosystems

Stop emulating Silicon Valley
Shape the ecosystem around local conditions
Engage the private sector from the start
Favor the high potentials
Get a big win on the board
Tackle cultural change head-on
Stress the roots of new ventures
Don't over engineer clusters; help them grow organically
Reform legal, bureaucratic, and regulatory frameworks

Source: Isenberg, 2010

WEF (2013) lists eight pillars that make up a (successful) ecosystem, and each pillar has a set of components (see Table 3).

Table 3. Entrepreneurial ecosystem pillars and their components

Pillar	Components
<b>Accessible markets</b>	Domestic market: Large/medium/small companies as customers, governments as customer Foreign market: Large/medium/small companies as customers, governments as customer
<b>Human capital/workforce</b>	Management talent, technical talent, entrepreneurial company experience, outsourcing availability, access to immigrant workforce
<b>Funding &amp; finance</b>	Friends and family, angel investors, private equity, venture capital, access to debt
<b>Support systems / mentors</b>	Mentors/advisors, professional services, incubators/accelerators, networks of entrepreneurial peers
<b>Government &amp; regulatory framework</b>	Ease of starting a business, tax incentives, business-friendly legislation/policies, access to basic infrastructure, access to telecommunications/broadband, access to transport
<b>Education &amp; training</b>	Available workforce with pre-university education, available workforce with university education, entrepreneur-specific training
<b>Major universities as catalysts</b>	Promoting a culture of respect for entrepreneurship, playing a key role in idea-formation for new companies, playing a key role in providing graduates to new companies
<b>Cultural support</b>	Tolerance for risk and failure, preference for self-employment, success stories/role models, research culture, positive image of entrepreneurship, celebration of innovation

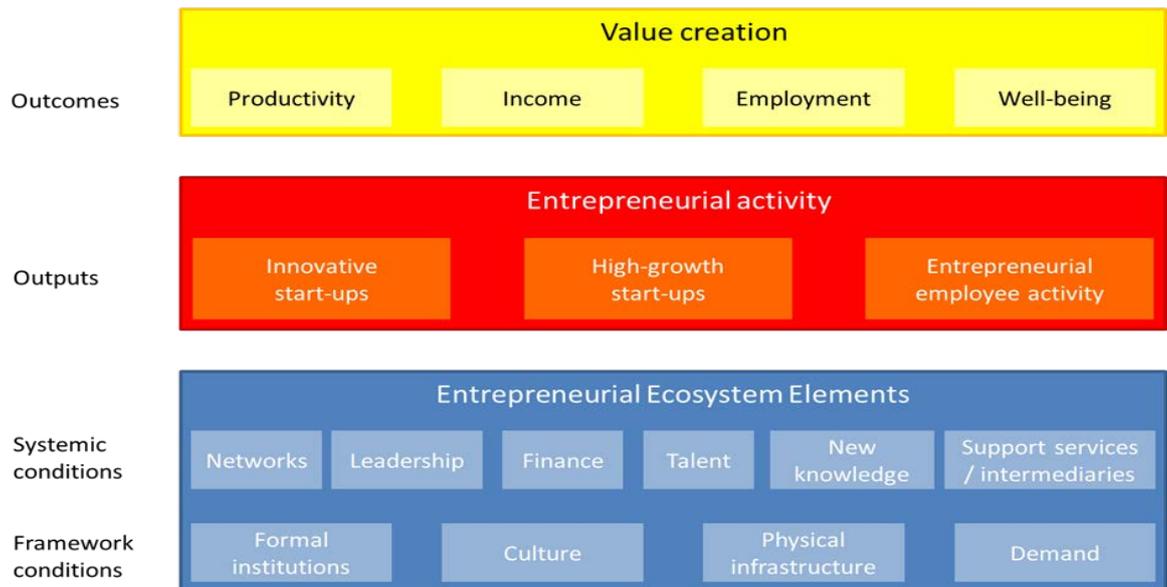
Source: WEF, 2013: 6-7

These attributes, principles and pillars nicely show that the entrepreneurial ecosystem approach presents a shift from traditional economic thinking on firms and markets (and market failures) to new economic thinking about people, networks and institutions (the formal and informal rules of the game). People are creating new value, organized with a variety of governance forms, enabled and constrained by particular institutional conditions. This is not to say that firms and markets (and market failures) are irrelevant, not at all. Markets and firms are modes of governance, that will always fail to be “perfect” (just like any other governance form; see WRR 2012), and entrepreneurship is frequently about firms and markets ‘in the making’, and not about situations that come close to “perfect efficiency of markets in equilibrium” (Beinhocker, 2007: 295). Such perfect efficiency might even constrain innovation on the long term, and also reveals one of the weaknesses of entrepreneurship and innovation policy dominated by market failure arguments (Nooteboom & Stam, 2008; Dodgson et al., 2011).

These entrepreneurial ecosystem approaches provide useful pointers for public policy, they even perceive the role of the government to be very central. They all also emphasize the role of intermediaries and support services (from the private sector) and cultural change, while most of them also explicitly recognize the role of talent and finance. However, they do not provide insights into the fundamental causes of entrepreneurial ecosystems (cf. Acemoglu et al., 2005) and the subsequent possibilities for public policy interventions. The WEF (2013) study for example concludes that accessible markets, human capital/workforce and funding & finance are most important for the growth of entrepreneurial companies. These are likely to be proximate causes, not fundamental causes of ecosystem success (e.g. human capital and funding is likely to depend on underlying institutions with respect to education and financial markets), and it is far from clear what the necessary and contingent conditions are for successful ecosystems, and what the role of the government and other public organizations is (which are said to ‘follow the electoral cycle’, WEF, 2013: 5), especially in more fuzzy public-private arrangements. With respect to consequences, the evidence is even thinner: how do ecosystems perform with respect to entrepreneurship rates (as a proximate consequence, output) and more aggregate welfare (as a final consequence, outcome)?

We have summarized the key elements of the entrepreneurial ecosystem approach in Figure 1. We have defined an entrepreneurial ecosystem as an interdependent set of actors that is governed in such a way that it enables entrepreneurial action (output). Entrepreneurial action refers to the process by which individuals pursue opportunities for innovation. Innovation involves new value creation in society, which is the ultimate outcome of an entrepreneurial ecosystem. Entrepreneurial ecosystems can be decomposed into framework conditions (the formal and informal institutions, and physical conditions that enable or constrain human interaction in general, and entrepreneurial action in particular; demand for new value) and systemic conditions. The systemic conditions (networks, leadership, finance, talent, new knowledge, and support services / intermediaries) interact with each other, and are constrained and enabled by the framework conditions. Networks enable a smooth division of labor, and flow of information and capital within the entrepreneurial ecosystem. Leadership provides guidance and role models within the entrepreneurial ecosystem. This leadership is crucial in building up and sustaining a healthy ecosystem: a set of visible entrepreneurial leaders who are committed to the region. Accessibility to finance, preferably provided by actors with knowledge of the entrepreneurial process, is of crucial importance for investments in uncertain entrepreneurial projects with a longer term pay-off. Perhaps the most important element for a thriving entrepreneurial ecosystem is the presence of a diverse and skilled workforce. An important source of entrepreneurial opportunities can be found in new knowledge, both in public and private organizations. Finally, the provision of support services by all kind of intermediaries may substantially lower the entry barriers for new entrepreneurial projects, and might speed up the time to market of innovations.

Figure 1. Key elements, outputs and outcomes of Entrepreneurial Ecosystem



The entrepreneurial ecosystem approach lacks a dynamic view on entrepreneurial ecosystems: how do they emerge, what keeps them ‘vital’ and what causes their decline. The entrepreneurial ecosystem approach could learn from the recent literature on cluster emergence and evolution (Braunerhjelm & Feldman, 2006; Menzel & Fornahl, 2010; Stam & Martin, 2012). In this literature cluster formation is seen as a sequential process with an evolutionary logic: a triggering event coupled with an entrepreneurial spark sets in a process of coevolution in which technology, institutions, and business models arise and reinforce increasing returns that improve the competitive advantage of the region in attracting talent, finance, and firms (Braunerhjelm & Feldman, 2006). Recent empirical studies on entrepreneurial ecosystems reveal two models of entrepreneurial ecosystem emergence (OECD, 2013). The first model shows how one exceptional firm expands rapidly and creates a whole ecosystem along with it (Napier & Hansen, 2011; WEF, 2013; Feldman, 2014). The second (“start-up community”) model shows how a group of successful entrepreneurs, by cashing out and reinvesting in the ecosystem (see Mason & Harrison, 2006), acts as connectors, and also provide role models for nascent entrepreneurs (Feld, 2012). In the first model the corporate ecosystem might be a dominant entity, while in the second model the critical mass of triggering actors is much more dispersed. With the first model the triggering corporation might leave a much stronger imprint on the nature of the entrepreneurial ecosystem, than in the second model. One should be able to separate causes from consequences. For example, the entrepreneurial ecosystem literature claims that venture capital firms and support organizations are critical ingredients for building an entrepreneurial ecosystem. However, this frequently appears to be more of a consequence of ecosystem emergence than a cause (see Braunerhjelm & Feldman, 2006), as the second model of ecosystem emergence also seems to suggest.

There have been many academic studies on famous entrepreneurial ecosystems like Silicon Valley (Saxenian, 1994; Lee et al., 2000) and the Cambridge Cluster (Garnsey & Heffernan, 2005; Stam & Martin, 2012) which might provide first insights. However, these insights have first to be translated into more abstract mechanisms, and then translated back into implications for specific other contexts (with their own history and location).

We will improve the causal depth and policy relevance of the entrepreneurial ecosystem concept, with providing better insights into a) the micro level mechanisms involved (especially for different types of entrepreneurship) and b) the meso/macro level mechanisms involved (especially those related to the institutions and network theory). This will lead to a multilevel theory on the governance of entrepreneurial ecosystems, providing insights in how to stimulate innovation and the productivity of entrepreneurial ecosystems at the organizational, regional and societal levels.

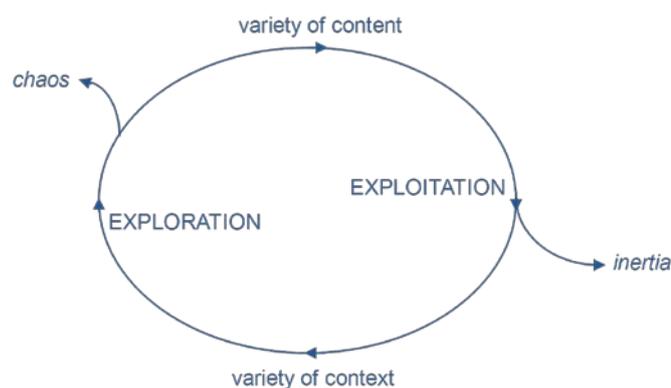
## |2.2 A dynamic view on entrepreneurial ecosystems: the cycle of innovation

From a conceptual point of view, we will start with a dynamic, cumulative view on innovation: the so-called cycle of innovation (Nooteboom, 2000; Stam & Nooteboom, 2011) (see Figure 2). This enables us to specify different types of entrepreneurship along the cycle of innovation in different types of entrepreneurial ecosystems. Innovation involves the growth of knowledge, introduced to the economy. This means that it starts with the cognition of the actors involved. This cognition is constructed from interactions of practices (see Nooteboom, 2000; 2008). Innovative performance is the outcome of combining multiple bases of knowledge that are dissimilar enough to deliver transformative new combinations, but not so different that this is too hard to bridge: optimal cognitive distance (Nooteboom, 2000). Based on these insights we arrive at an innovation process as a cycle or spiral starting with exploration, variety of content, converging to exploitation, subsequently diverging to different contexts, which may then lead to exploration again (see Figure 2).

There are multiple roles for entrepreneurs along the cycle of innovation: entrepreneurs who make a new idea technically feasible, commercially feasible, productively efficient (scaling up; e.g. Henry Ford in the automobile industry), eliminate entry barriers, carry it into new markets or applications, differentiate it, bring in new elements, in hybrids, or bring together elements from different practices in new architectures and thereby produce new concepts. Note that every step along the cycle of innovation may be taken by another entrepreneur: for example, the actor who takes an existing product or practice into a new context is not necessarily an existing producer or practitioner. It may be an outside entrepreneur or user stepping in, or an employee spinning off from an existing firm, adopting the product or practice with his own specific experience and perspective.

The cycle of innovation explains how exploitation and exploration succeed each other and emerge from each other: innovation is highly cumulative – building on earlier inventions, development, and applications but also discontinuous in its creative destruction. The continuity of the cycle reflects the accumulation of useful knowledge in society (Metcalfe, 2002; Metcalfe et al., 2006), an increased ability to solve problems in society (Beinhocker, 2007). For continued prosperity, a country needs to invest in both explorative innovation and exploitative innovation.

Figure 2. Cycle of innovation (source: Stam & Nooteboom 2011)



Ongoing progress throughout the cycle is by no means guaranteed: progress along the cycle is full of stress and potential conflict. In order to survive in novel contexts, innovators need to adapt their existing practices. In novel combinations innovators encounter stress in trying to have their innovation accepted, and established practices encounter the stress of creative destruction. The cycle is not to be seen as a logically necessary sequence but as a heuristic that generally works. In trying novel combinations, one may get caught in ongoing uncertainty and chaos (see Figure 2), unable to settle the inconsistencies between new goals, means, and connecting causalities. Prototypes may continually

fail to become viable, either technically or commercially. Rival designs, prototypes, or technical standards may continue to compete for a long time, and for the duration potential users are hesitant to commit themselves. After consolidation, one may get caught in inertia (see Figure 2), particularly if there are no opportunities or incentives to escape to new contexts of application, or barriers to novel conditions being imposed from outside. In consolidation, institutions shift to accommodate the innovation, and once that has happened there are often strong pressures to conserve these institutions. Vested economic interests protect existing institutions with installed bases of both tangible and intangible investments, existing competencies and efficiencies (accumulated in learning by doing), as well as market positions. Therefore, innovation requires openness to novel contexts of application, e.g., global markets, or new users or suppliers, as arenas for exploration and sources of novel challenges. Stages of the cycle may be skipped, in a leap to novel combinations without much intervening differentiation or reciprocation. The process may not proceed beyond any given stage.

The cycle of innovation provides the dynamic basis for the systemic view of innovation and entrepreneurship policy, in which policy is concerned with stimulating and matching the knowledge producing actors (exploration) and knowledge exploiting actors (exploitation) of an economy. Such innovation policy is about 'protecting' the innovation process, not the firms (see Rodrik, 2013). Knowledge circulation is the life blood of the innovation cycle, and absorptive capacity a necessity to make use and contribute to this knowledge circulation (see WRR, 2008; 2013). The cycle of innovation operates, more or less perfectly, depending on institutional conditions that inhibit or enhance the component processes of generalization (opening up to new contexts); differentiation (deviation from established practice to survive in the new context); reciprocation (opening up to contributions from unfamiliar ideas or practices); experimentation with hybrids and new principles, interpretive schemes or architectures; convergence to a dominant design; and institutional change to accommodate the novelty. This policy is not about the determining the content of innovation, but about enabling innovation processes. Crucial in this policy is the opening to new contexts with new challenges and opportunities, opening to collaboration for the exploration of novel combinations, opening in the form of curiosity and attention to foreign practices, and the preparedness to engage in experiments with elements from those and with surprising hybrids.

This cumulative and interactive theory of innovation provides the more fundamental basis for understanding entrepreneurial ecosystems. This theory of innovation is mainly a theory of knowledge and value creation. But, how is this knowledge and value creation governed? We focus on the two most obvious forms of governance: governance by firm organization and governance by community organization.

### | 2.3 Governance of entrepreneurial ecosystems

Based on two dominant forms of governance (firm and community) we distinguish two types of entrepreneurial ecosystems: corporate ecosystems and community ecosystems. Corporate ecosystems are delimited by the legal boundaries of the corporation, while community ecosystems are likely (but not necessary) defined by territorial boundaries. Community entrepreneurial ecosystems can be seen as exploded corporations (Economist, 2014: 8). Finance departments have been replaced by venture capital funds, legal departments by law firms, research departments by universities, communication departments by PR agencies, and so on. On the other hand corporations are turning themselves into (corporate) entrepreneurial ecosystems, with internal corporate venturing units, new ways of work and incentives to stimulate entrepreneurship amongst their employees (Hamel, 1999). Also new hybrids emerge, often under the label of "open innovation strategies". A key example in the Netherlands is the development of an entrepreneurial ecosystem by DSM internally (Kirschbaum, 2005) and externally, most tangible on the Chemelot Campus (see Box 1), but reaching out to other actors in the Netherlands and abroad.

Chemelot is a chemical and materials community that aims to accelerate business growth through the open exchange of ideas. It is located on the site of its anchor firm, DSM, in the South of the Netherlands. Chemelot has planned to bring together the knowledge and skills normally found only in major organizations, and to apply these within a flexible community of small and large chemical businesses, radically changing the view of the chemical industry.

Box 1. Chemelot Campus

This distinction between corporate and community entrepreneurial ecosystems has direct implications for the conceptualization of innovation. As mentioned before we also distinguished to types of innovation: explorative and exploitative (see March, 1991). Within corporate systems, explorative innovation involves the pursuit of opportunities that are radically new to the corporation, while exploitative innovation involves opportunities to refine and sustain competitive advantages in areas in which the corporation currently operates. Corporations that want to achieve a sustainable competitive advantage need to be ambidextrous, that is, they need to pursue both exploration and exploitation-type opportunities, as this helps to dynamically balance the short and long-term needs of the corporation (O'Reilly & Tushman, 2007). In contrast to corporate ecosystems, this exploration and exploitation can take place in different organizations within a community ecosystem. Within community ecosystems, i.e. constellations of organizations within a certain territory, innovation needs to be conceptualized differently (see Stam & Nooteboom, 2011). In this context, explorative innovation involves the pursuit of opportunities that are radically new to society, while exploitative innovation involves opportunities to refine and sustain opportunities. The cycle of innovation applies to the societal level as well as to the corporate level (Nooteboom, 2000).

Beinhocker (2007) views corporations as complex adaptive systems in a way that has many similarities with the entrepreneurial ecosystem approach. In his view corporations, as organizations, are made up of individual agents who dynamically interact with each other in order to realize the purpose of the collective (i.e. the goal, rationale of the organization; corporation, a body with a purpose). Such a shared purpose is less clear for community ecosystems, in which collective action problems are more likely to arise (see Ostrom, 1990; Storper, 1997). The agents' rules of behavior and networks of interactions also change in response to changes in the environment. Beinhocker (2007) formulates a list of ten norms that contribute to the successful achievement of the collective purpose, grouped in three categories: performing norms, cooperating norms, and innovating norms (see Table 4). These norms are much more specific than the context conditions mentioned in the previously mentioned entrepreneurial ecosystem approaches, and could be seen as a specification of the formal institutions and culture elements of figure 1.

Most of these norms are likely to be effective in a community ecosystem as well, but less likely so in more market-based ecosystems. These norms can also be tied in with the conditions that are favorable for intrapreneurship (Stam et al., 2012, chapter 3): rewarding entrepreneurial action, providing resources/time for entrepreneurial action, corporate leadership that supports and stimulates entrepreneurial action, and a favorable work group climate that encompasses a shared vision towards opportunity pursuit, participative safety,<sup>8</sup> striving for excellence, and enacted support for innovation beyond applauding words. In addition job autonomy, job variety and external work contacts reflect mechanisms enabling recombination of knowledge that are also relevant in a community ecosystem.

Table 4. Norms for successful performance of a corporate entrepreneurial ecosystem

<b><i>Performing norms</i></b>	
<b>Performance orientation</b>	Always do your best, go the extra mile, take initiative, and continuously improve yourself
<b>Honesty</b>	Be honest with others, be honest with yourself, be transparent and face reality
<b>Meritocracy</b>	Reward people on the basis of merit
<b><i>Cooperating norms</i></b>	
<b>Mutual trust</b>	Trust your colleagues' motivation, and trust in their skills to get the job done
<b>Reciprocity</b>	Live the golden rule; do unto others as you would have them do unto you
<b>Shared purpose</b>	Put the organization's interests ahead of your own, and behave as if everyone is in it together
<b><i>Innovating norms</i></b>	
<b>Nonhierarchical</b>	Junior people are expected to challenge senior people, and what matters is the quality of an idea, not the title of the person saying it
<b>Openness</b>	Be curious, open to outside thinking, and willing to experiment; seek the best, wherever it is
<b>Fact-based</b>	Find out the facts; it is facts, not opinions, that ultimately count
<b>Challenge</b>	Feel a sense of competitive urgency; it is a race without a finish line

Source: Beinhocker, 2007: 371

Corporations have long been, and perhaps still are the foundation of prosperity in capitalist economies, and they are by a very considerable margin the most successful organizational innovation in the economic world over the past few centuries. The Netherlands was the cradle of this organizational innovation, with the invention of the first joint stock corporation, the Vereenigde Oost Indische Compagnie (VOC, Dutch East India Company) in 1602. However, with the proliferation of new information and communication technologies (but also with the crisis of shareholder capitalism; Davis, 2013) it may be questioned whether the corporation is still the foundational organizational form for creating prosperity. Perhaps the more fundamental question is why we would still need firms at all in entrepreneurial ecosystems. One of the rationales of firms as a form of governance is that they provide focus (Nooteboom, 2009). In this report we emphasize ambitious entrepreneurship, not just entrepreneurship to 'make a living' (Stam et al., 2012). This involves the ambition to create high impact innovations. The success of these innovations depends on several factors, like (access to) the stock of knowledge and the ability to recombine knowledge, but also focus (Ghosh et al., 2014). The entrepreneurial ecosystem is well known for the accumulation of a stock of knowledge, providing access to knowledge and enabling novel combinations, but it is not clear whether the (community) ecosystem provides sufficient focus. The question is whether firms are still needed to provide focus, or whether other organizational arrangements (e.g. constellations of self-employed) can provide this within an entrepreneurial ecosystem. The need for focus also has a flipside, namely the risk of myopia: relevant threats and opportunities to the ecosystem are not perceived. To compensate for this, outside intelligence is needed, to utilise 'external economy of cognitive scope' (Nooteboom 1992). This is likely to be an important driver of exploration, and the question is how this is best organized, inside or outside the ecosystem.

In the next section we will analyze how entrepreneurship has evolved in the Netherlands as an indication of the functioning of the entrepreneurial ecosystem.

## | 2.4 The history and geography of entrepreneurial ecosystems

One of the key lessons of the entrepreneurial ecosystem approach is to never start from scratch or copy good practices from other contexts without taking into account the historically evolved local conditions (see Isenberg, 2010). This context sensitivity is a strength of the entrepreneurial ecosystem approach, as it provides both insight into the causes of the (dis)functioning of the ecosystem and the limits of adapting the system on the short term. Entrepreneurial ecosystems, like all national and regional economies are liable to path dependencies, and the options for the creation of new paths of development are always constrained by current structures (Henning et al. 2013). In addition to path dependencies, increasing and decreasing returns or virtuous and vicious cycles are important for explaining the non-linear development of entrepreneurial ecosystems (cf. Stam & Martin, 2012)

What is the appropriate scale of an entrepreneurial ecosystem? Is it cities (Feld, 2012), regions (Saxenian, 1994), companies (Hamel, 1999), or countries (Senor & Singer, 2009)? All scales can be relevant, and they can also be nested, in the sense that multiple cities can share a national entrepreneurial ecosystem, or perhaps even a supranational ecosystem: some perceive Europe as one entrepreneurial ecosystem, with several interconnected cities, like Berlin, London, Stockholm and Helsinki (Holmes, 2014). Corporate entrepreneurial ecosystems can also span several community ecosystems at the city or country level. Even if the proper scale for an entrepreneurial ecosystem is the city level, this does not mean that regional, national, and perhaps even supra-national contexts do not matter: policies on all these levels may have intended and unintended effects on the local entrepreneurial ecosystem (cf. Bosma & Stam, 2012).

Entrepreneurial ecosystems should not be treated as a localized 'container', enabling local interactions only: national and global connections might be as important for the flourishing of entrepreneurship. It remains unclear as how entrepreneurial ecosystems enable or constrain such productive extra-local connections. Most current entrepreneurial ecosystems research is focused on the internal functioning of entrepreneurial ecosystem, but ignores interaction between entrepreneurial ecosystems: between corporate ecosystems, between key actors (like universities, entrepreneurial leaders, venture capitalists) in different community ecosystems.

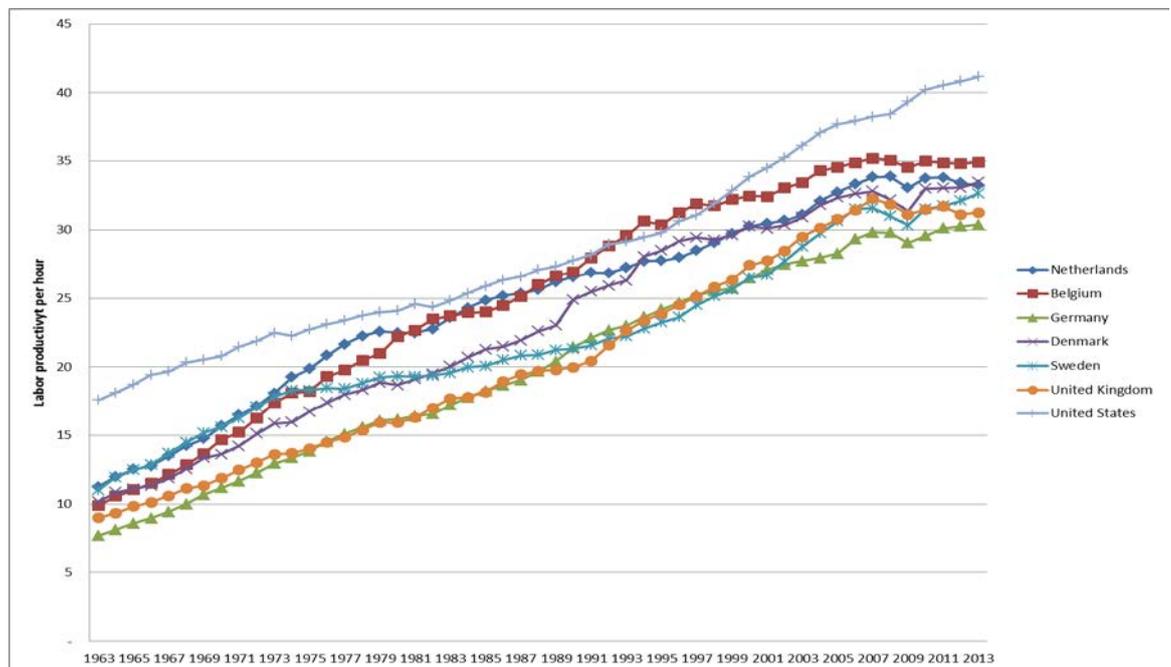
## | 3 - Entrepreneurship and macroeconomic performance in the Netherlands

The Netherlands is a small country that has been one of the most prosperous countries of the world for centuries. Entrepreneurship has been an important mechanism in the realization of this prosperity. The Netherlands had not been a leader in the industrial revolution, but had been a leader in changing the institutions needed for productive entrepreneurship. This started with the invention of the joint stock corporation (the VOC, Dutch East India Company), in 1602, accompanied by the establishment of the first modern stock exchange and the Bank of Amsterdam (in 1609). Entrepreneurship has been important for wealth creation in the golden age (17<sup>th</sup> century; see Gelderblom, 2010), and in the so-called second golden age (late 19<sup>th</sup>-early 20<sup>th</sup> century; see Willink, 1998), with the creation of (predecessors of) multinationals like Philips, Shell, and Unilever. In this section we will describe the outcomes (aggregate value creation, measured by labor productivity and employment) and outputs (rates of different types of entrepreneurship) of the Dutch entrepreneurial ecosystem.

### | 3.1 Labor productivity

The 'earning capacity' (cf. WRR, 2013), i.e. the capacity to create new value has been rising in the Netherlands over a long period. The labor productivity per hour in the Netherlands is also one of the highest in the world. Over the last half century, there have only been two periods of stagnation; one in the late 1970s-early 1980s, and one from 2008 until today (see Figure 3).

Figure 3. Labor productivity (per hour), 1963-2013



Source: Groningen Growth and Development Centre

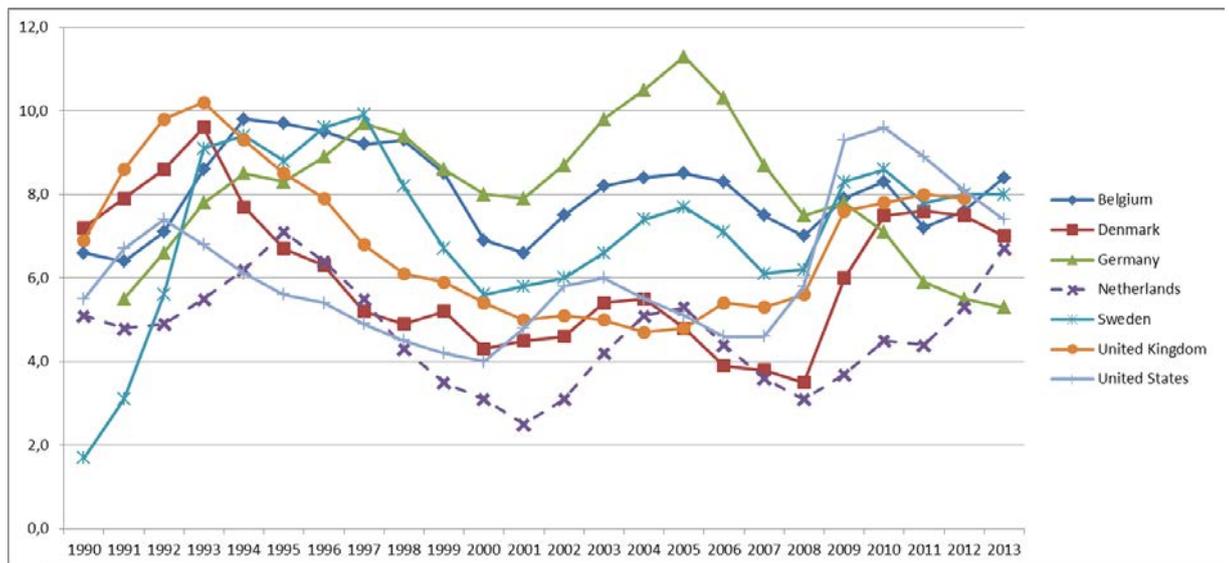
In 1982 the decline in labor productivity growth was reversed. This break of trend coincides with the treaty of Wassenaar, in which the key stakeholders in Dutch society decided to keep labor costs low in order to improve the competitiveness of Dutch exporting industry and to lower unemployment levels (Visser & Hemerijck, 1997). In the 1990s this has been accompanied with policies to deregulate

markets and increase competition.<sup>9</sup> This not only led to lower levels of public sector employment (see Figure 5), but also has lowered the barriers to entry for new firms, with a resulting increase in new firm formation (which however already started to increase in the late 1980s; see Figure 7 and Figure 8). Some remarkable findings from the international comparison is that the Netherlands was close to becoming the leader in labor productivity after the early 1980s crisis, and that the most of the European benchmark countries (just like the Netherlands), have stagnated since 2008 (with the exception of Sweden and Germany), while the US has accelerated its lead.

### | 3.2 Employment

The unemployment rates in the Netherlands have been relatively low over the last decades, especially in comparison to other similar countries (see Figure 4). In the 2000s unemployment remained relatively low due to large number of solo self-employed that did not choose to become unemployed but started their own business (CPB, 2010; De Vries et al., 2011). The Dutch labor market, and the economy more in general, has become more dynamic with the Entrepreneurship Miracle, with many more entrants and exits than before. The growing group solo self-employed has also increased labor market flexibility in the Netherlands and has acted as a buffer against rising unemployment.

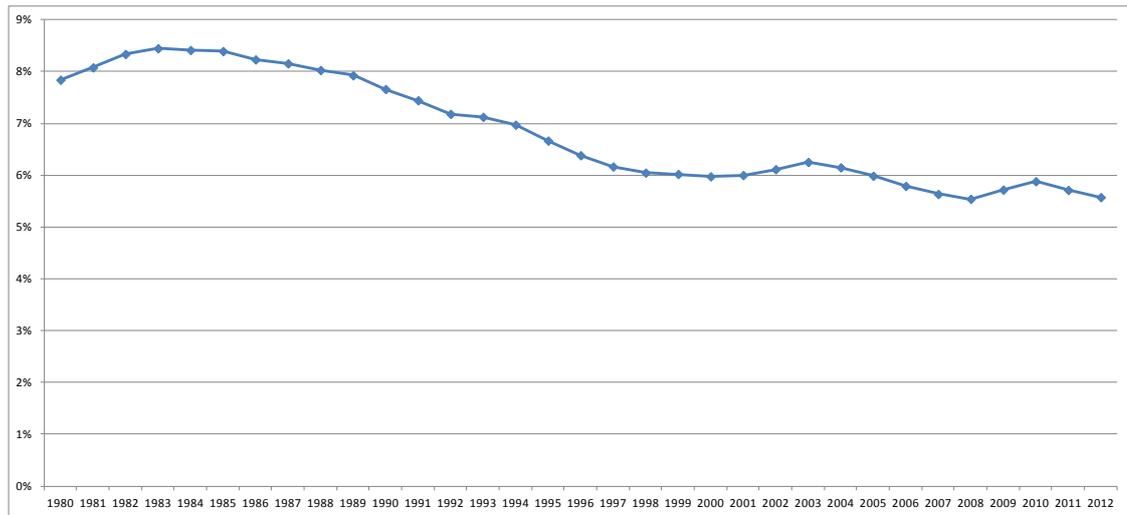
Figure 4. Unemployment rates, 1990-2013



Source: Eurostat

Just like in many other European countries employment in the government sector<sup>10</sup> and the largest firms is declining (see Figure 5 and Figure 6). Almost all of the large firms in the Netherlands (just like in most of Europe: Veron & Phillipon, 2008) have been established decades or even more than a century ago. The group of large firms is rather stable in European countries, while this group in the US, but also emerging economies like India and China is much more dynamic, in the sense that relatively many firms have entered and exited more recently (i.e. in the last decades). The few more recent high-growth start-ups that went beyond the 1000 employees in the Netherlands (e.g. TomTom, Jumbo, ASML) did not enter the top 10 with respect to employment size.

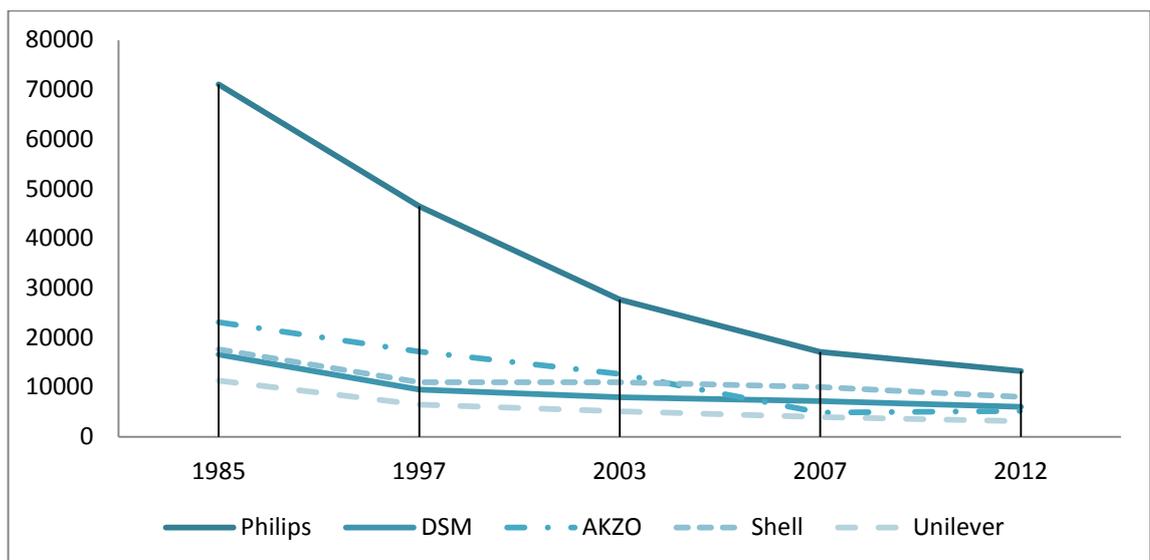
Figure 5. Public sector employment in the Netherlands, 1980-2012



Source: CBS

This lack of dynamics in the top 10 or top 100 of largest firms is not necessarily a bad situation, as long as these long established large firms are able to renew themselves and are able to remain competitive and create jobs. However, these large long established firms in the Netherlands seem to be declining in employment size (see Figure 6). The five largest Dutch multinationals – Shell, Philips, Unilever, Akzo and DSM – have seen their employment in the Netherlands decline from about 140 thousand in 1985 to 36 thousand in 2012, a net decline of 74 percent.<sup>11</sup> This is not necessarily because the large firms have been cutting jobs – which they did overall, but somewhat less dramatic (from 829 thousand in 1985 to 452 thousand in 2012; a net decline of 45 percent) – but especially because all of them have diminished the share of Dutch jobs within their corporations. This decline in employment is bad news for national employment in general, but might be good news for new firms in need of labor to develop, introduce and scale up innovations. However, it seems that most of this labor is absorbed by solo self-employed, not by high growth start-ups in the Netherlands.

Figure 6. National employment of the 5 largest firms in the Netherlands

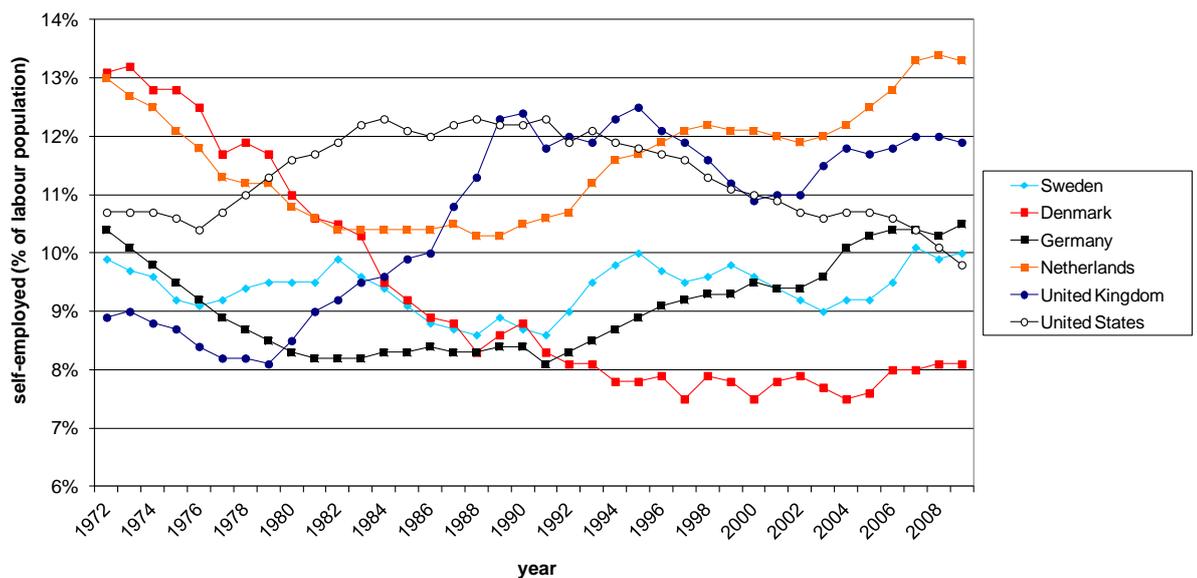


Source: Atzema & Wever 1999; annual reports of corporations

### | 3.3 Self-employment and new firms

The long term decline of self-employment since the industrial revolution has been reversed during the 1980s in several developed economies (see Figure 7). The UK and US took the lead in this reversal, already in the late 1970s/early 1980s, but in these two countries the increase also already stagnated in the 1980s. The rise in self-employment took off in the Netherlands, but also in Germany, in the 1990s, and the Netherlands has even recently become the leader with respect to the self-employment rate. The rapid growth of self-employment in the Netherlands during the 2000s sets the Netherlands apart from other benchmark countries.

Figure 7. Share self-employed in the labor population, international comparison, 1972-2009

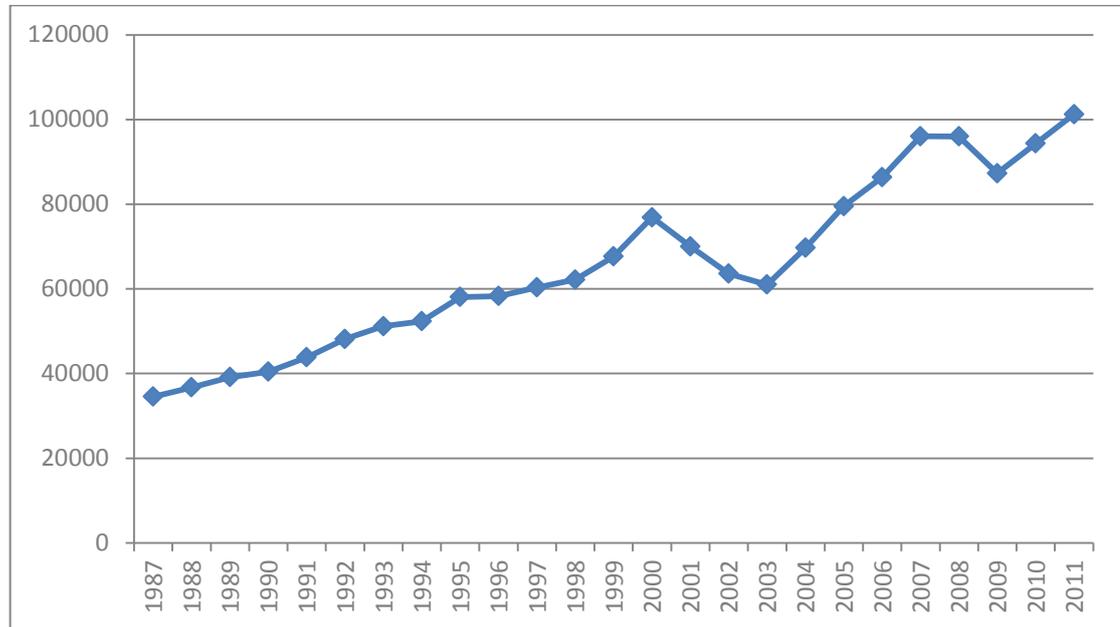


Source: Compendia, Panteia

This growth in independent entrepreneurship can also be traced in the number of new firms in the Netherlands, which has been growing steadily (with a few setbacks) since the mid-1980s. The internet bubble in the late 1990s accelerated this trend of increasing new firm formation (see Figure 8). Just like in other countries there was a real IT frenzy, with many high growth start-ups. Some young firms even realized to get valuations beyond 1 billion dollar through IPOs, a rather rare phenomenon in the Netherlands. However, two of these very successful IT firms, Baan Company (a world leader in ERP software) and World Online (a world leader in Internet Service Provision) subsequently disappointed the entrepreneurial ecosystem with misleading financial procedures to either artificially pump up share prices (Baan Company) or by hideously allocating large returns from the IPO to private accounts (World Online). Perhaps this had been the moment in time that the Netherlands was really developing an entrepreneurial ecosystem to support high-growth start-ups, but in all turbulence of the dot.com boom the system did not prove to be effective in steering or enforcing responsible financial behavior, with the resulting loss of momentum, and no continued growth of the number of high-growth start-ups (Stam & Gerritsen, 2009; see Figure 13).<sup>12</sup> This did however not mean that entrepreneurship, albeit in the form of self-employment, declined as well in the next decade. Favorable fiscal treatment of self-employed, and an increasing demand for flexible labor, stimulated the further rise of new firm formation, especially with the growth in the number of solo self-employed since the early 2000s. A recent international comparison of the sources of job creation in national economies (in the period

2001-2011) also showed that the shares of employment in firms never growing above one employee is very high in the Netherlands (OECD, 2013: 24).

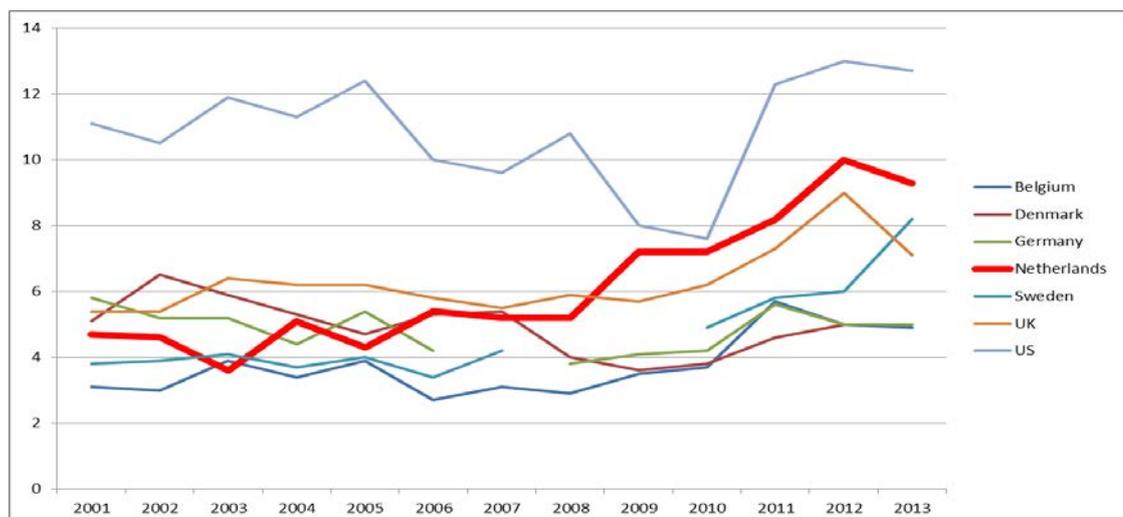
Figure 8. New firm formation, 1987-2011



Source: Kamer van Koophandel

This trend is also confirmed in GEM data on total entrepreneurial activity in the Netherlands and the benchmark countries over the period 2001-2013, which shows a distinctive increase in the Netherlands, especially in the period 2005-2012 (see Figure 9).

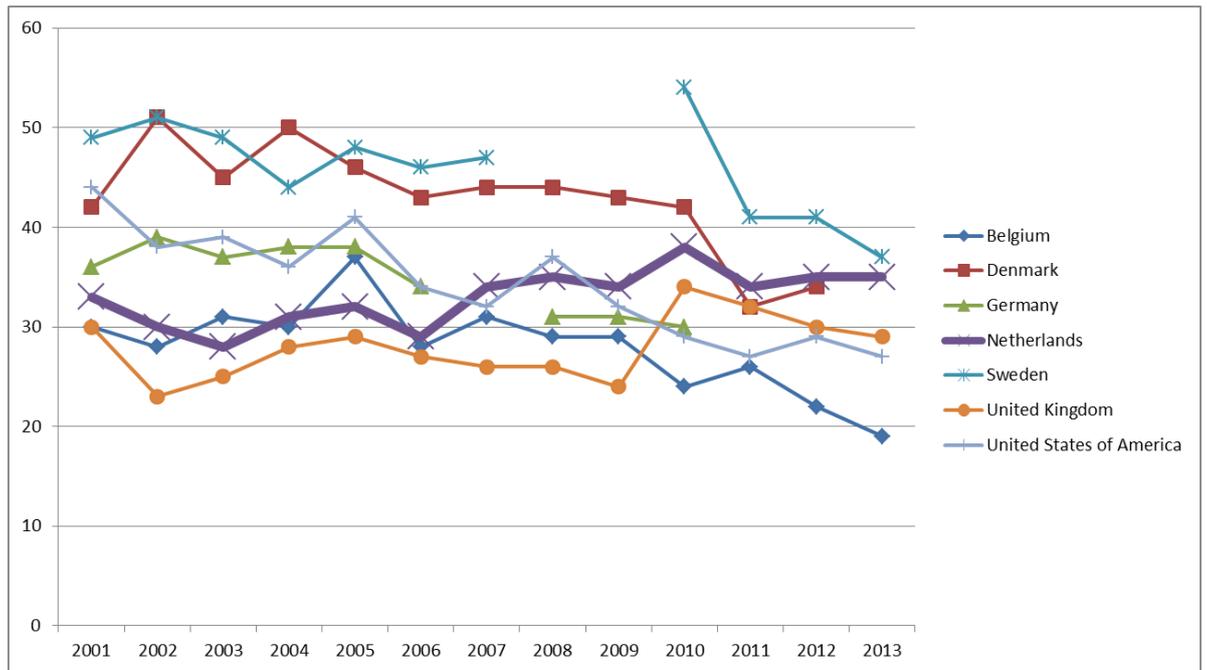
Figure 9. TEA rate 2001-2013



Source: Global Entrepreneurship Monitor

Perhaps a bit surprisingly, the share of the adult population who know someone that started a new business in the last two years, has not increased substantially, from about 30 percent in the early 2000s to 35 percent in 2012 and 2013 (See Figure 10). However, this rate is higher than in all benchmark countries, except Sweden. Combining Figure 9 and Figure 10, it shows that start-ups were not very prevalent and known in the Netherlands in the early 2000s, but that currently the prevalence and knowledge about start-ups is one of the highest in the group of benchmark countries.

Figure 10. Know start-up entrepreneurs rate

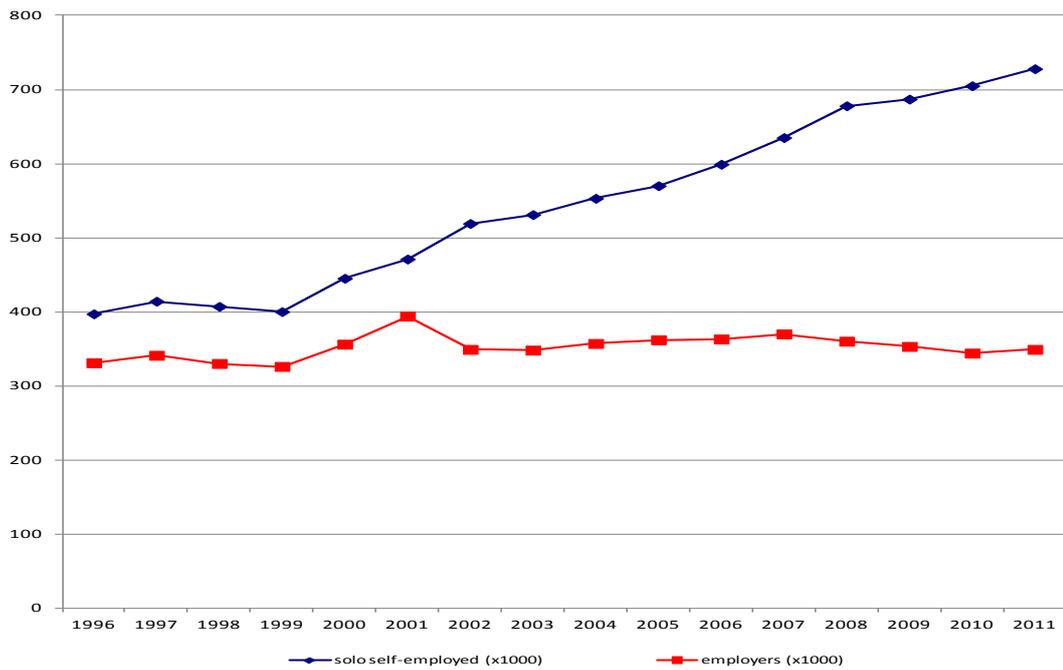


Source: Global Entrepreneurship Monitor

### | 3.4 Employer firms

The growth in self-employment during the 2000s has also largely been a growth in the number of solo self-employed (see Figure 11), making it a less visible phenomenon than it would be if it concerned the growth in the number of (substantial) employer firms.

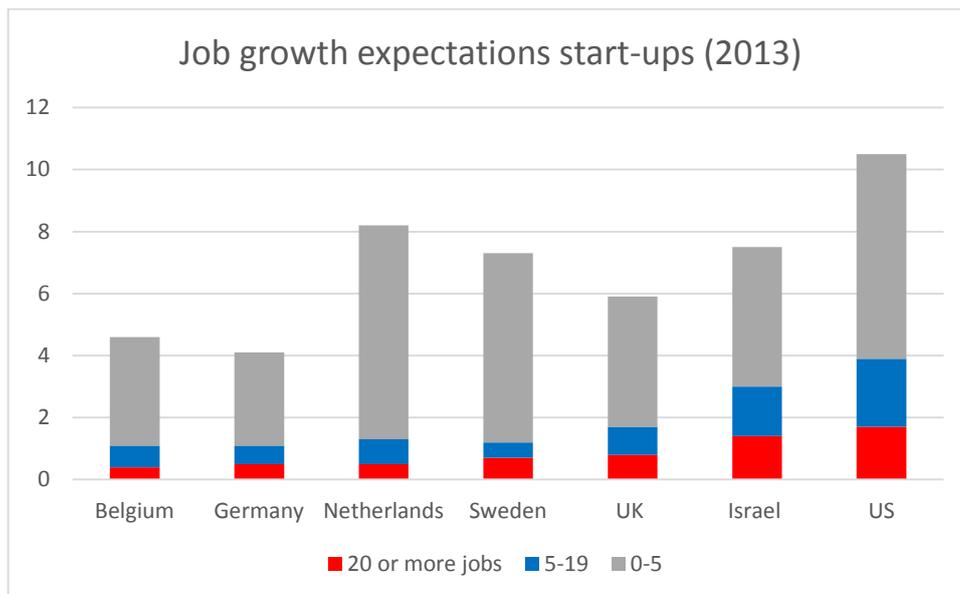
Figure 11. Solo self-employed and employer firms, 1994-2011



Source: CBS

The dominance of solo self-employed is also confirmed with the GEM data. Figure 12 shows that the rate of low-growth oriented independent entrepreneurship is very high in the Netherlands, but that the rate of high growth oriented independent entrepreneurship (0.5 %) is similar to the rate in Belgium (0.4 %) and Germany (0.5 %), but considerably lower than Sweden (0.7 %), the UK (0.8 %) and the US (1.7 %). This is a rather stable situation, with similar rates of high growth oriented independent entrepreneurship in the period 2000-2006 (Bosma et al., 2008: 26).

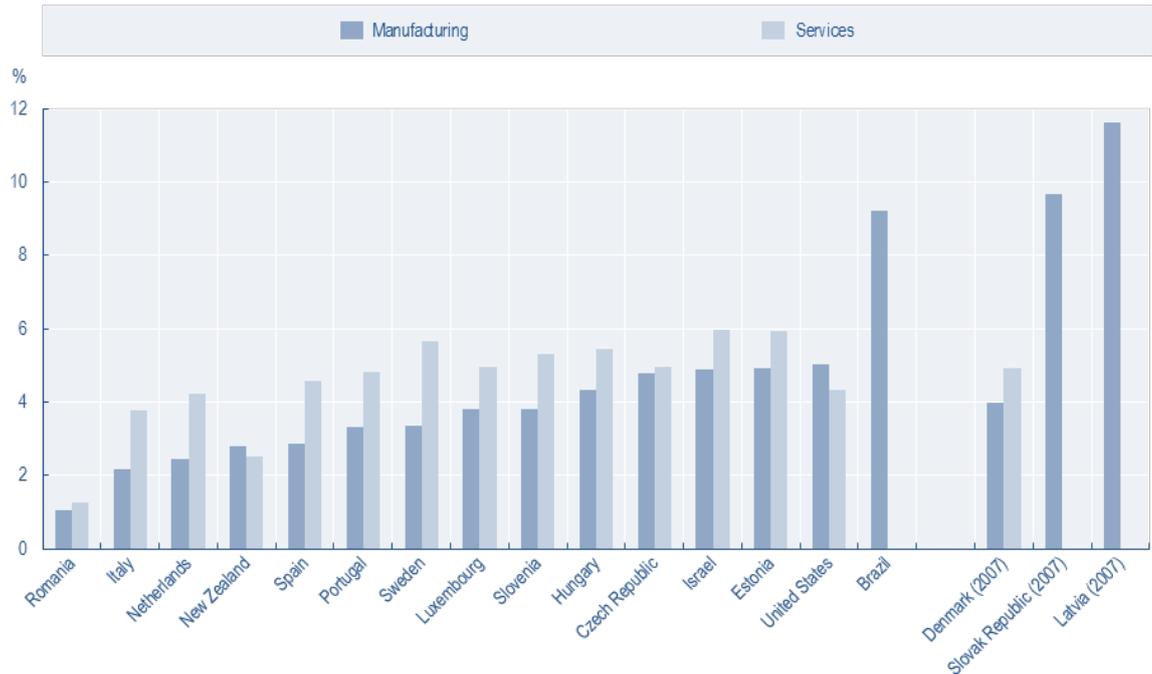
Figure 12. Growth-oriented TEA rate 2013 (share of the adult population)



Source: Global Entrepreneurship Monitor

Just like the rate of high growth oriented independent entrepreneurship, the rate of high-growth firms is also relatively low in the Netherlands (Figure 13). However, the rate of low growth oriented entrepreneurship increased substantially in the Netherlands in the last decade, which is exceptional in this group of countries.

Figure 13. Share of high growth firms, 2009

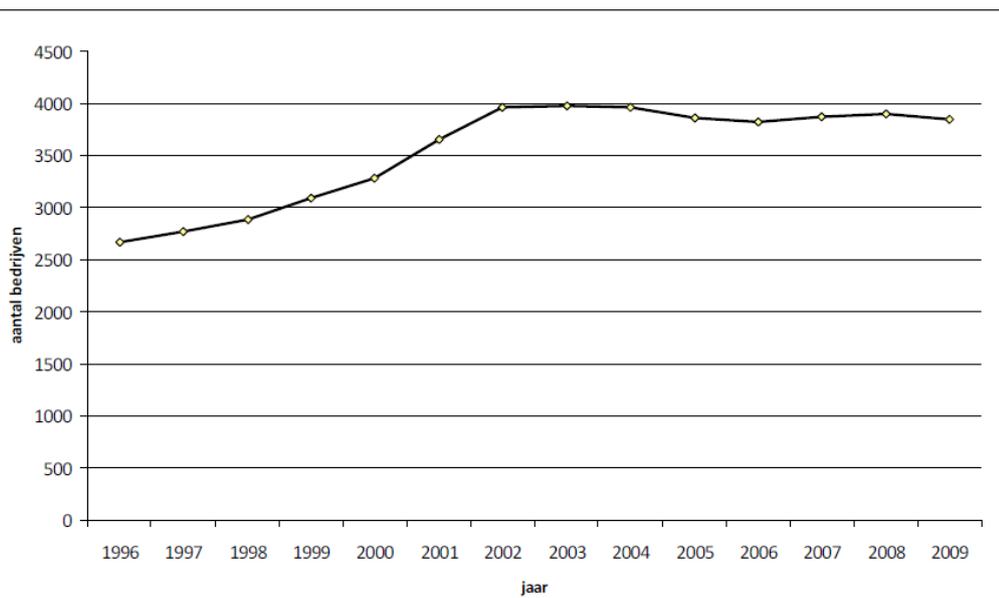


Source: OECD

\*High-growth firm OECD-Eurostat definition: 1) Annual average growth in employment (or turnover) of 20% or higher over 3 years; 2) 10 or more employees at the beginning of the period

The trend of stagnation in high growth start-ups has been confirmed in a study by Stam & Gerritsen (2009) on gazelles in the Netherlands (see Figure 14). This also showed that even though there was a rise in the number of Gazelles during the period 1996-2002 (largely overlapping with the dot.com boom), the number of Gazelles seems to stagnate after 2002.

Figure 134. Gazelles, 1996-2009 (KvK)

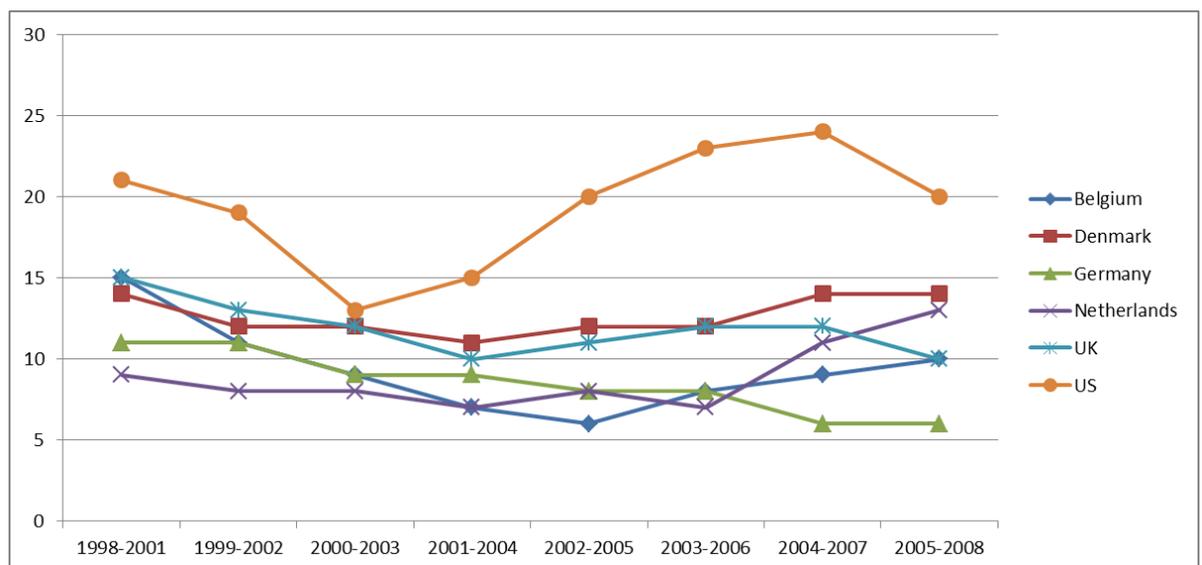


Source: Stam & Gerritsen , 2009 (based on Kamer van Koophandel)

\*Gazelles are defined as young firms (aged 5-10 yrs) with at least 20 employees

If we focus on the segment of medium to large sized companies only, the share of high-growth firms in the Netherlands has been declining until 2007, but has been increasing afterwards, and has moved beyond its bottom position in the early 2000s (Figure 15). However, one should keep in mind that this is a rather specific group of firms (most new firms never reach the 50 employees size category), and that this growth might also be caused by mergers and acquisitions, instead of organic growth (i.e. new value creation).

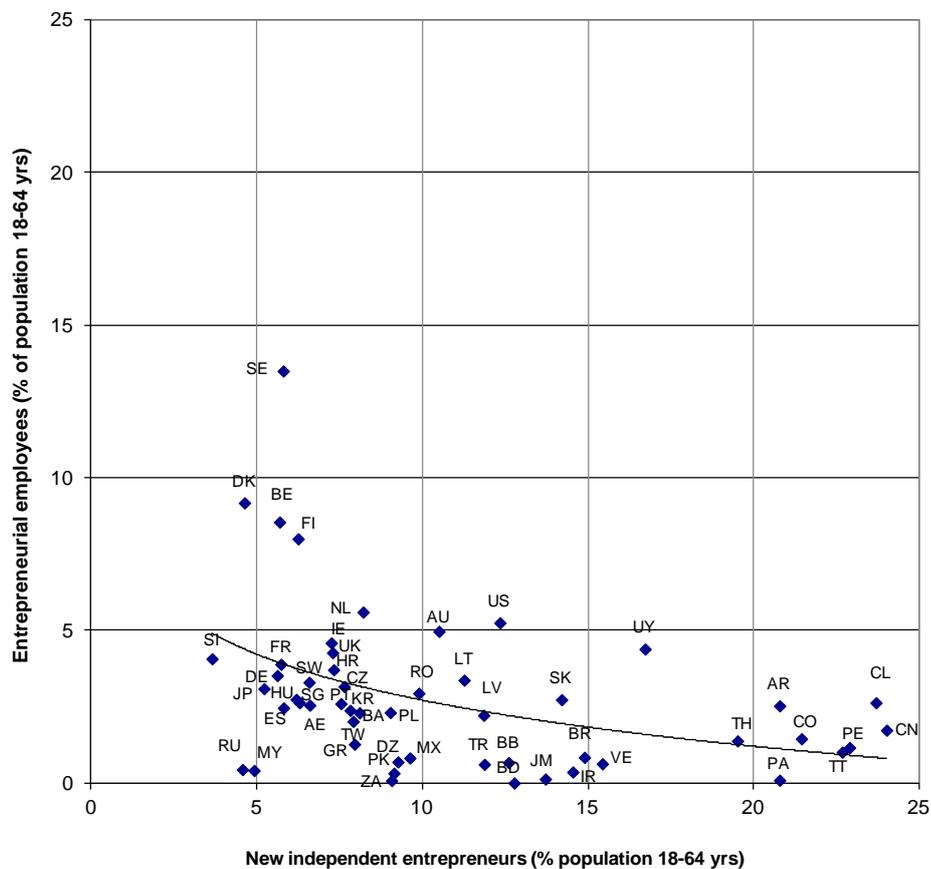
Figure 15. Percentage of high growth firms (50-1000 employees, with at least 60% employment growth over 3 year period)



Source: EIM Panteia (based on Bureau Van Dijk, Amadeus)

One might say that not all entrepreneurship takes place in start-up or high-growth firms, it might also be that employees in other established corporations pursue entrepreneurial opportunities, which do not necessarily emerge as new legal entities, or as overall firm growth, for example because they compensate declining or divested parts of the overall corporation. This entrepreneurial employee activity has only recently been studied with large international data collection (see Bosma et al., 2010; 2012; Stam, 2013). Figure 16 shows that the Netherlands performs relatively well with an entrepreneurial employee activity rate of almost 6 percent, with only the Scandinavian countries and Belgium revealing higher rates. The Netherlands has a similar rate as the Anglo-Saxon economies Australia, US, Ireland and the UK.

Figure 16. Entrepreneurial employee activity and independent entrepreneurship



Source: Global Entrepreneurship Monitor

### | 3.5 The Dutch Entrepreneurship Paradox

After this overview of macroeconomic performance indicators and all kind of entrepreneurship indicators, one might wonder how these two are related. It is extremely difficult (and perhaps even impossible) to trace a causal relationship between these two dynamics. The data suggests that the rise of self-employment in the Netherlands has lowered unemployment rates, but it seems unlikely that the rise of self-employment and new firm formation has positively affected innovation and in the end

productivity growth over the period 1987-2013. This rise of self-employment and new firm formation and stagnation of innovation is what we label the Dutch Entrepreneurship Paradox.<sup>13</sup>

In the 1990s and 2000s independent entrepreneurship has been stimulated with several fiscal facilities and other government policies. This policy has been effective in increasing the start-up rates and the number of self-employed. This has made the 'labor' market more flexible. In this respect, the growth of the number of self-employed, in combination with the high share of temporary labor, part-time labor, and more recently the increase of fixed contracts, has been a means to circumvent labor regulations (like high employment protection of employees with a continuous contract) that have resulted in a relatively inflexible core of the labor market. In addition, the growth of the number of self-employed seems to have acted as a cushion against rising unemployment in the first post-2008 crisis years (CPB, 2010).

This – partly policy induced – rise of self-employment in the Netherlands should not be regarded as a stimulus of innovation as well. This is the Dutch Entrepreneurship Paradox: a rise in entrepreneurship that did not lead to a similar rise innovation. The underlying idea has been that more independent entrepreneurship should lead to more innovation and in the end economic growth. This assumed relationship does not seem to hold in the Netherlands, especially due to the large share of (non-innovative and non-growth oriented) solo self-employed (Stam et al., 2012; Stam, 2013). Solo self-employed seem to be responsible for resilience (a flexible belt in the labor market), but not for innovation. The rise of self-employment and new firm formation has made the labor market more flexible (improved static efficiency), but without an increase in innovation (improved dynamic efficiency).

We should be careful to place too much weight on the effects of entrepreneurship and ecosystems on traditional macroeconomic performance indicators. As Brynjolfsson & McAfee (2014) have argued, the rise of digital products is on the one hand largely initiated by high-growth start-ups (like Netscape, Google, Skype, Facebook)<sup>14</sup> but is on the other hand unlikely to stimulate GDP growth (as most of their products and services are for free) and might even lower paid employment (e.g. Wikipedia 'volunteers' pushing previous paid employees of Encyclopedia producers out of work). In a similar way, many of the new applications of software are developed by users, for users, leading to more use value or problem solving which is however not priced as a market transaction. This does not mean that these high growth start-ups and user entrepreneurs, drivers of the digital economy, do not have favorable welfare effects: many digital products and services have provided solutions to everyday problems and have lowered the price of many services (e.g. navigation services, telecom services).

In the next section we will discuss how a shift towards more productive entrepreneurship can be realized by changing the framework and systemic conditions of entrepreneurial ecosystems in the Netherlands.

## | 4 - Adapting the Dutch entrepreneurial ecosystem

In the previous section we have shown that there has been an enormous rise of self-employment and new firm formation in the Netherlands. However, this was not accompanied by a rise in innovation in the Netherlands: the Dutch Entrepreneurship Paradox. The assumed relationship between entrepreneurship and innovation does not seem to hold in the Netherlands, especially due to the large share of (non-innovative and non-growth oriented) solo self-employed. Solo self-employed seem to be responsible for resilience (a flexible belt in the labor market), but not for innovation. The rise of self-employment and new firm formation has made the labor market more flexible (improved static efficiency), but without an increase in innovation (improved dynamic efficiency). From a less optimistic perspective, one can argue that the rise of solo self-employment has created a new class of (independently) working poor. In any case there is a major policy task not to let entrepreneurship be a driver of productivity decline (or at best a flexible belt in the labor market), but to stimulate *productive entrepreneurship* instead.<sup>15</sup>

**How can the entrepreneurial ecosystem be enhanced in such a way that it stimulates productive entrepreneurship, rather than a further increase of relatively unproductive self-employed as we have seen in the past?** If the growth in independent entrepreneurship has not led to an increase in innovation, what needs to be done to achieve this? The overall message is that innovation necessitates experiments by people interacting in production, distribution and consumption. For this we need deep expertise and interactions between sets of expertise at an optimal cognitive distance. Three areas of entrepreneurial outputs in the Dutch context will be emphasized. First, stimulate innovation by independent entrepreneurs in high-growth start-ups. Second, stimulate innovation by independent professionals in collectives of self-employed. Third, enable and stimulate entrepreneurial action for significant value creation by employees. Innovation by independent entrepreneurs is most strongly affected by community entrepreneurial ecosystems, while entrepreneurial action by employees is strongly conditioned by corporate entrepreneurial ecosystems. We thus call for a shift away from statistical or legal entities like self-employed and SMEs towards people interacting to create new value, however governed.

We will discuss a limited set of policy actions, derived from the entrepreneurial ecosystem approach, to stimulate entrepreneurship in these areas. We have defined an entrepreneurial ecosystem as an interdependent set of actors that is governed in such a way that it enables entrepreneurial action. The entrepreneurial ecosystem can be decomposed into framework conditions (the formal and informal institutions, and physical conditions that enable or constrain human interaction in general, and entrepreneurial action in particular; demand for new value) and systemic conditions, the more proximate causes of entrepreneurial action (see Figure 1). Which framework conditions of entrepreneurial ecosystems in the Netherlands can be changed by public policy, and how would these enhance systemic conditions and entrepreneurial outputs in the end? For each of the four framework conditions we propose a policy action: changing formal institutions to enable labor mobility (development and circulation of talent); opening up public demand for entrepreneurs, to provide finance for new knowledge creation and application; stimulating a culture of entrepreneurship and entrepreneurial leadership; adapting or creating physical infrastructure to enhance knowledge circulation and networks.

### | 4.1 Enabling labor mobility

Labor mobility is an important way to enhance the recombination of knowledge by people and to expose and diffuse existing knowledge to new contexts: it stimulates talent diversity and new knowledge creation and diffusion. Two specific labor market regulations that constrain this labor mobility in the Netherlands are strict employment protection and non-compete covenants. Strict employment protection constrains labor mobility in several ways: it increases the opportunity costs for entrepreneurial talent to move from a tenured position to a less secure position as founder or employee of an innovative (potentially high-growth) start-up. In a similar way, non-compete covenants constrain the mobility of talents to pursue entrepreneurial opportunities outside the borders of their employer's organization. In this way, it might constrain the recombination of knowledge with actors

outside the initial employer's organization, and the generalization and reciprocation of knowledge in novel contexts.

Employment protection, especially firing costs and costs for sick absence, also constrains labor mobility on the demand side, by putting a large burden of responsibility on a relatively small (start-up) organization. The relative costs of having to pay an unproductive employee are much higher for a small organization than for a large organization.<sup>16</sup> In order to lower the barrier to become an employer, the employment protection and costs for sick absence for smaller (young) firms might be lowered. A size of 10 or 20 employees seems to be needed to make employers robust for carrying the responsibility for the (longer term) payment of one sick employee and the internal replacement of an employee. Twenty to fifty people also seems to be the upper group size limit for entrepreneurial endeavors (see Ouchi & Dowling, 1974; Stam, 2003; and for a more popular account: Wintzen, 2007). Larger organizations might also be incentivized to create organizational units smaller than 20-50 employees, and to provide (access to) employee training and internal job mobility in order to stimulate entrepreneurial employee activity.

Even though labor mobility might enhance cross-fertilization between related areas of expertise and application, it might incur substantial costs to society. Ad-hoc contractual relations might lead to opportunistic contracting with low investments in human capital and complementary assets, which erodes the collective capacity for new value creation in society. For example, the rise in the number of independent professionals might lead to such a low collective capacity situation. However, this is not necessary, as new forms of governance (e.g. cooperatives) can be created to stimulate commitment to enhance mutual investments. More research is needed to gain insight into the effects of labor mobility and new governance forms in entrepreneurial ecosystems on entrepreneurial outputs and economic outcomes.

#### | 4.2 Opening up public demand for entrepreneurs

In order to stimulate demand for entrepreneurial opportunities and to finance the development of these opportunities by (groups of) entrepreneurs (and subsequent development of new knowledge), governments at both the national and local level can open up public procurement to (collectives of) innovative start-ups. Public procurement schemes typically have a large established firm bias, due to lower levels of transaction costs: procurement to a large set of small and new firms incurs more search costs, contract costs, and control costs. This problem is even more severe when the procured good or service involves high levels of uncertainty and many intangible assets, as is the case more innovative products.

Opening up such schemes to young and small firms might increase transaction costs for public procurement, but it might also increase the scope of solutions for public problems, and if designed properly this does not need to push up total costs for development of new solutions. Governments at the national level could more frequently make use of public procurement programs like the Small Business Innovation Research (SBIR) program: a public procurement program to subcontract socially relevant (i.e. fulfilling a public need) innovative research and development to small businesses. Adaptations of this program might be needed to implement this to the local level. This might be tied in with efforts on the local level to stimulate social entrepreneurship, i.e. entrepreneurship to solve societal problems.<sup>17</sup> More research is needed to gain insight into the effects of the design of these procurement schemes, and the structure of entrepreneurial ecosystems more broadly to enhance productive entrepreneurship.

#### | 4.3 Stimulating a culture of entrepreneurship and entrepreneurial leadership

Changing culture might be a task too difficult to realize by government on the short term. However, there are several measures on the short term that might enable the creation of such a culture of entrepreneurship. This might include incentivizing (public) educational programs to include entrepreneurial leaders in their curricula, to act both as role models (to stimulate entrepreneurial awareness) and to communicate good practices (as skills training). Here, cognitive distance seems to

matter as well, as these role models should not be too similar, but also not too dissimilar to the relevant audience (Bosma et al., 2012).

The central role of these entrepreneurial leaders should also be reflected in local civic organizations, like economic boards that combine public and private leaders to enhance the functioning of the local entrepreneurial ecosystem. In practice this means that these boards should be populated predominantly by leading entrepreneurs and not by local captains of industry, politicians or governors of public bodies. One might argue that with the current Triple Helix fashion, there is too much emphasis on players from the government, established industry and universities in sectoral or regional growth coalitions, at the expense of entrepreneurial leaders.

In addition, the literature on corporate entrepreneurial ecosystems has also shown the importance of participative and transformative leadership and leadership support for entrepreneurial employee activity (see Stam et al., 2012: chapter 3). Governments and public organizations might play a role in communicating good practices in this area.

In spite of the popularity of role models and mentoring in entrepreneurship policy, there is not much evidence on how and to what extent role models and mentoring affects entrepreneurial outputs and economic outcomes, and what the most efficient and effective types of government intervention are in this respect.

#### | 4.4 Physical infrastructure: third spaces

In order to enhance knowledge circulation and networks between public research and education institutes and societal organizations and businesses, governments might enhance the creation of so-called third spaces, in between these actors, that lower the barriers for interaction, and provide a visible place for these kind of interactions. In these meeting places different types of talent and entrepreneurs meet to recombine and learn from each other. When potential entrepreneurs become real entrepreneurs there is an increasing demand for mentors, incubators and accelerators. This can be stimulated with all kind of meet ups and other regular meetings of (not too) similar people. These meeting places enable entrepreneurs to recruit (entrepreneurial) employees, and form networks and alliances with other parties within and outside the ecosystem in order to recognize new opportunities and to pursue new opportunities and scale up the production and diffusion of promising innovations.

There has been substantial research on the role of science parks, incubators and accelerators in stimulating entrepreneurship and economic outcomes. This research has however largely been descriptive and does not provide much insight into the effectiveness of the physical and institutional design of such third spaces and meeting places, and the optimal government involvement in developing and maintaining such spaces and places.

#### | 4.5 Monitoring entrepreneurial ecosystems

In order to safeguard the proper adaption and functioning of entrepreneurial ecosystems, there should be an effective and efficient monitoring of the elements, outputs and outcomes of the entrepreneurial ecosystem(s). This monitoring should provide early warning signals about bottlenecks in the system. This should enable policy makers and other stakeholders to articulate the problems more specifically and to evaluate policy options. As it is unlikely that a monitoring tool will provide all relevant context knowledge and possibilities, a monitoring tool should be used as a means to discuss the state and direction of the entrepreneurial ecosystem, not as a strict guideline for how to optimize the system. Monitoring could again be helpful to see and discuss whether the most important measures are taken effectively. This monitoring should include 'objective facts' about the state of the entrepreneurial ecosystem, but should especially function as a means to start and continue a dialogue between the relevant stakeholders.

## | 5 - Conclusions

In this report we have provided a constructive critique of the entrepreneurial ecosystem approach. In combination with an analysis of entrepreneurship and macroeconomic performance in the Netherlands this has led to several suggestions for adapting the Dutch entrepreneurial ecosystem. This ecosystem has been tailored to enhance the large established firms in the Netherlands and more recently to stimulate new firm formation and self-employment. Large established firms have seen their employment in the Netherlands declining dramatically over the last 30 years, while the number of new firms and self-employment has gone up enormously over the same period. Even though the rise of independent entrepreneurship seems to have compensated for some of the employment losses of large established firms, it seems not to have led to innovation and productivity growth.

The key challenge addressed in this report is how to adapt the entrepreneurial ecosystem(s) of the Netherlands to increase productive entrepreneurship. For this challenge, policy should not enhance the interaction between (established) actors at a short cognitive distance and should not include measures to stimulate solo self-employment. We suggest four policy directions to stimulate productive entrepreneurship in the Netherlands, which tackle bottlenecks in the Dutch entrepreneurial ecosystem. These bottlenecks include a lack of labor mobility, a lack of access to enter markets for public goods and services, a lack of leadership to stimulate ambitious entrepreneurship, and suboptimal knowledge circulation between public research and education institutes and society. We provide specific policy suggestions to take away these bottlenecks, and formulate proposals for research to improve our insight into this areas. Finally, we emphasize the necessity to monitor entrepreneurial ecosystems, in order to properly signal bottlenecks, articulate the problems more specifically and to evaluate policy options, and to make sure the most important measures are taken effectively.

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## | Notes

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<sup>1</sup> Total Entrepreneurial Activity (TEA) rate, which reflects the percentage of the adult population currently involved in starting a new business (nascent entrepreneurship) or that owns a business less than 42 months old, see the Global Entrepreneurship Monitor 2012.

<sup>2</sup> Productive entrepreneurship refers to any activity by individuals that is novel to the relevant context and contributes directly or indirectly to aggregate value creation (Baumol 1990; 1993; Foss & Foss 2002). Unproductive entrepreneurship then refers to entrepreneurial activity, without a (negative or positive) contribution to aggregate value creation, and destructive entrepreneurship involves entrepreneurial activity that lowers aggregate value creation. Note that an innovative start-up that failed may deliver insights that contribute to aggregate value creation, and that a high-growth start-up might have net negative aggregate effects, e.g. in the form of pollution or corruption, eroding the long term viability of societies (cf. Acemoglu & Robinson 2012).

<sup>3</sup> High growth firms in general are unlikely to grow after the initial growth period (see Parker et al., 2010; Daunfeldt & Halvarsson, 2014), which makes it doubtful whether policy should target them (after growth). The strength of the entrepreneurial ecosystem approach is that it does not target such outcomes, but the conditions for entrepreneurship (e.g. for innovative start-ups or the organic growth of established firms).

<sup>4</sup> The usage of the term ecosystem is a bit problematic in the context of entrepreneurship (a social phenomenon). The term ecosystem originates from the natural sciences, and “natural systems” are different from “artificial systems” (Simon, 1981). Other scholars have also pointed to the inappropriate biological metaphors in this context (e.g. Saxenian, 1999). On a more positive note, it can be a performative label for a complexity approach (Beinhocker, 2007) to study entrepreneurship and wealth creation on the aggregate/system level. Artificial systems, as contrasted with natural systems, are those that are shaped by environment, specifically by man’s purposes rather than by natural law (Simon, 1981). Artificial systems are of course situated in natural systems (see Witt’s (2003) continuity hypothesis), but are mainly governed by man-made rules and interactions. In that sense, the “entrepreneurial ecosystem” should be relabeled as “entrepreneurial system” (see also Neck et al. 2004; Acs et al., 2013; Qian et al., 2013). However, the entrepreneurial ecosystem concept has already taken off its journey in the public and academic debate, so we will not change it into the more scientifically correct label “entrepreneurial system”.

<sup>5</sup> A much more elaborate (but also chaotic) definition can be found in Mason and Brown (2013: 5): “A set of interconnected entrepreneurial actors (both potential and existing), organizations (e.g. firms, venture capitalists, business angels and banks), institutions (universities, public sector agencies and financial bodies), and processes (business birth rate, rate of HGFs, number of serial entrepreneurs and blockbuster entrepreneurs, and levels of entrepreneurial ambition and sell-out mentality in the society)”.

<sup>6</sup> Feld (2012) for example mentions innovation, new business formation, job growth, and future progress of cities, regions, countries and society at large as outcomes of entrepreneurial ecosystems. The most assumed consequence of a well-functioning entrepreneurial ecosystem is a competitive region or country (Porter 1990), sometimes phrased in a narrative way as a high “earning capacity” (WRR 2013). In more technical terms this means a high (labor, total factor) productivity (Krugman 1996).

<sup>7</sup> He uses the terms “entrepreneurial economy” and “vibrant business sector” as well. The latter reminds us of connections to a much broader literature on private sector development (see e.g. Rodrik 2009), and “entrepreneurial economy” links to publications by Audretsch and colleagues (see e.g. Thurik et al. 2013).

<sup>8</sup> To speak up and raise concerns or propose ideas without the fear of negative consequences.

<sup>9</sup> Most explicitly in the so-called MDW (Marktwerking, Dereguleren en Wetgevingsskwaliteit) policy program, which aimed to increase competition, deregulation and the quality of laws.

<sup>10</sup> The absolute employment size of the public sector has remained rather stable from 500 thousand in 1985 to 484 thousand in 2012.

<sup>11</sup> This does not necessarily reflect the net loss of jobs for the Dutch economy either, as corporate divestments may take place in the Netherlands. In the case of Philips, this has led to new firms like NXP that have been net-job creators (worldwide at least; e.g. NXP, until 2006 Philips Semiconductors, has 26 thousand employees worldwide, of which only 3 thousand work in the Netherlands. ASML, initially a joint venture of Philips and ASM International and now an independent stock listed corporation is a special case, with 10 thousand employees worldwide, but with still about 7,5 thousand in the Netherlands. However, these firms hardly grew by taking over high growth start-ups, like Google, Cisco and Intel do in the Silicon Valley ecosystem. The only exceptions being Philips and DSM, but still on a comparatively small scale.

<sup>12</sup> The founders (and several employees) of BAAN did start high-growth start-ups (e.g. Cordys) and invest in new start-ups (with the Noabur Foundation), but this has not led to a (localized) emergence of a whole entrepreneurial ecosystem, like other anchor firms did in e.g. Silicon Valley (Fairchild-Intel) and Cambridgeshire (Cambridge Consultants).

<sup>13</sup> A comparable situation is the expansion of self-employment in Canada over the period 1987-1998 which resulted in downward pressure on the growth in aggregate labor productivity in the business sector (Baldwin & Chowhan 2003).

<sup>14</sup> Some of these start-ups have not grown that much in employment: Instagram (2010) only had 10 employees when it was acquired by Facebook for \$1 billion in 2012, and WhatsApp (2009) only had 55 employees when it was acquired by Facebook for \$19 billion in 2014. Skype (2003) had about 500 employees when it was acquired by Microsoft for \$8.5 billion in 2011.

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<sup>15</sup> One might also argue that generic fiscal measures to stimulate self-employment or new firms are much less effective (or even ineffective) for new value creation in society than fiscal policies targeted towards new innovative firms (see Hoekstra & Van Vuuren 2013).

<sup>16</sup> On the other hand, employers in small organizations are more likely to have personal ties to employees, and might be more committed to their employees for this reason.

<sup>17</sup> Next to opening up public procurement to young and small firms, this might also involve setting up new ways to finance social entrepreneurship, like social impact bonds.