Global Entrepreneurship Monitor

2009 The Netherlands

Entrepreneurship on the rise

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1 Introduction

1.1 The Global Entrepreneurship Monitor (GEM)

History

The Global Entrepreneurship Monitor (GEM) is a research program executed annually with the aim to obtain internationally comparative high quality research data on entrepreneurial activity at the national level. This academic research consortium started as a partnership between the London Business School and Babson College in 1999 and started with 10 participating countries in this same year. Over the years GEM has expanded to comprise 54 countries in 2009. Currently, GEM is the single largest study of entrepreneurial activity in the world. The GEM research program provides a harmonized assessment of the level of national entrepreneurial activity and conditions to which it is subject for all participating countries. The Netherlands has participated in GEM since 2001.

The role of entrepreneurship in economic development

Although it is widely acknowledged that entrepreneurship is an important force shaping a country's economy, the understanding of the relationship between entrepreneurship and economic development is still far from complete. The quest to unravel this complex relationship has been hampered particularly by a lack of cross-national harmonized data on entrepreneurship. Since 1999, the GEM Research program has sought to address this by collecting relevant cross-national harmonized data on an annual basis. GEM focuses on three main objectives:

- To measure differences in the level of entrepreneurial activity between countries
- To uncover factors determining national levels of entrepreneurial activity
- To identify policies that may enhance the national level of entrepreneurial activity.

In addition to these three main objectives GEM's goal is to study the contribution of entrepreneurship to national economic growth. Traditional analyses of economic growth and competitiveness have tended to neglect the role played by new and small firms in the economy. GEM takes a comprehensive approach and considers the extent of involvement in entrepreneurial activity within a country, identifying different phases of entrepreneurship and stages of a country's economic development level. As far as the phases of entrepreneurship are concerned, GEM distinguishes between potential entrepreneurship, prospective entrepreneurship, early-stage entrepreneurship (which can be split into nascent entrepreneurship and new/young business entrepreneurship), established business entrepreneurship, entrepreneurial exit and entrepreneurial reengagement.

The role and nature of entrepreneurship are considered to differ according to a country's stage of economic development. Three major stages of economic development can be identified (ordered from least developed to most developed): (1) *factor-driven economies* which are based primarily on the extraction of natural resources; (2) *efficiency-driven economies* in which industrialization and increasing scale-intensity are the major drivers of development; and (3) *innova-*

tion-driven economies in which the service sector strongly expands and the industrial sector evolves in terms of variety, R&D and knowledge intensity[1].

It should be noted that elements of all three principal stages of economic activity are present in all national economies, whether factor-driven, efficiency-driven or innovation-driven. But their relative prevalence - and their contribution to economic development - may vary. A nation could be marked as primarily factor-driven, efficiency-driven or innovation-driven depending on the activities that are most significant for a nation's economic development. We follow the Global Competitiveness Report (GCR) proposition to classify a country into a certain stage of economic development on the basis of its level of per capita income (Schwab, 2009). See Table 1 for the precise income thresholds.

Table 1 Income thresholds for establishing stages of economic development

Stage of economic development	*GDP per capita (in US$)*
Stage 1: Factor-driven	< 2,000
Transition from stage 1 to stage 2	2,000 - 3,000
Stage 2: Efficiency-driven	3,000 - 9,000
Transition from stage 2 to stage 3	9,000 - 17,000
Stage 3: Innovation-driven	≥ 17,000

Source: The Global Competitiveness Report (GCR) 2009-2010 (Schwab, 2009).

1.2 The GEM Adult Population Survey (APS)

The main survey conducted within the GEM research program is the Adult Population Survey (APS). The GEM APS data collection covers the complete life cycle of the entrepreneurial process. GEM data are collected by a standardized telephone survey in all participating countries, from approximately 2,000 or more respondents per country. The data are reweighted by the actual distribution of a country's population in terms of age, gender, educational level and (if possible) region to make them representative for the Dutch adult population (18-64 years of age).

Participating countries in GEM APS 2009

In the 2009 GEM APS, research was conducted in 54 countries across the globe with a high variation in terms of economic development. Among this number, there are 17 OECD[2] member countries and 14 countries that are a member of the European Union, see Table 2. The countries are classified according to the three major stages of economic development: *factor-driven economies*, *efficiency-driven economies*, and *innovation-driven economies*. The sample size (the number of surveyed persons aged between 18-64 years) for each participating country is also presented in Table 2. As far as the Netherlands is concerned 2,534 in-

[1] These phases correspond to the classification of the World Economic Forum (WEF) into factor-driven, efficiency-driven and innovation-driven economies, presented in the Global Competitiveness Reports (GCRs).

[2] Organisation for Economic Co-operation and Development.

dividuals between 18 and 64 years of age were interviewed in 2009. The sample size ranges from 1,046 in Tonga to 28,888 in Spain. The average sample size equals 3,075, but this is strongly influenced by the relatively large Spanish and British samples (28,888 and 22,881 respectively)[1].

Table 2 Participating countries in the GEM Adult Population Survey (APS) 2009

Countries	*Member OECD*	*Member EU*	*Sample size*
Factor-driven economies			
Algeria*			2,000
Guatemala*			2,163
Jamaica*			1,877
Lebanon*			2,000
Morocco*			1,500
Saudi Arabia*			1,881
Syria*			2,002
Tonga			1,046
Uganda			2,094
Venezuela*			1,578
West Bank & Gaza Strip			2,080
Yemen			2,065
Efficiency-driven economies			
Argentina			1,676
Bosnia and Herzegovina			1,999
Brazil			2,000
Chile**			4,307
China			3,608
Colombia			2,055
Croatia**			1,665
Dominican Republic			2,007
Ecuador			2,200
Hungary**	✓	✓	1,976
Iran			3,328
Jordan			2,006
Latvia		✓	2,003
Malaysia			2,002
Panama			2,000
Peru			2,021
Romania**		✓	1,639
Russia**			1,695

[1] The average sample size without Spain and the United Kingdom equals 2,207.

Countries	*Member OECD*	*Member EU*	*Sample size*
Serbia			1,766
South Africa			2,807
Tunisia			1,994
Uruguay			1,624
Innovation-driven economies			
Belgium	✓	✓	3,989
Denmark	✓	✓	2,012
Finland	✓	✓	2,002
France	✓	✓	1,631
Germany	✓	✓	6,032
Greece	✓	✓	2,000
Hong Kong			2,000
Iceland	✓		1,736
Israel			1,843
Italy	✓	✓	2,969
Japan	✓		1,600
Korea Republic	✓		2,000
Netherlands	✓	✓	2,133
Norway	✓		1,685
Slovenia		✓	3,030
Spain	✓	✓	28,888
Switzerland	✓		1,532
United Arab Emirates			1,987
United Kingdom	✓	✓	22,881
United States	✓		3,412

* *Transition country: from factor-driven to efficiency-driven.*

** *Transition country: from efficiency-driven to innovation-driven.*

Source: EIM/GEM.

1.3 The GEM National Expert Survey (NES)

The entrepreneurial sector is shaped by a country's social, cultural and political context. A survey was completed by national experts in a large number of GEM countries to make it possible to capture the extent to which features of this context are developed in a specific country. This National Expert Survey (NES) was conducted in the GEM countries presented in Table 3, where the sample size is reported between brackets. In each participating country, experts had to rate a small number of statements about different components on a 5-point likert-scale (1=completely false, 5=completely true). Based on these results, factors were constructed that summarized the national perceptions of experts for each component.

Table 3 Participating countries in the GEM National Expert Survey (NES) 2009, sample size between brackets

Factor-driven economies	*Efficiency-driven economies*	*Innovation-driven economies*
Guatemala* (36)	Argentina (35)	Belgium (38)
Jamaica* (36)	Bosnia and Herzegovina (36)	Denmark (33)
Saudi Arabia* (34)	Brazil (36)	Finland (36)
Syria* (36)	Chile** (36)	Germany (40)
Tonga (30)	Colombia (34)	Greece (36)
Uganda (36)	Croatia** (40)	Hong Kong (36)
Venezuela* (37)	Dominican Republic (36)	Iceland (36)
	Ecuador (36)	Israel (33)
	Hungary** (41)	Italy (38)
	Latvia (14)	Korea Republic (62)
	Malaysia (36)	Netherlands (21)
	Panama 45)	Norway (36)
	Peru (44)	Slovenia (36)
	Russia** (36)	Spain (53)
	Serbia (36)	Switzerland (36)
	South Africa (36)	United Arab Emirates (36)
	Tunisia (36)	United Kingdom (25)
	Uruguay 39)	United States (36)

* *Transition country: from factor-driven to efficiency-driven.*

** *Transition country: from efficiency-driven to innovation-driven.*

Source: EIM/GEM.

1.4 Entrepreneurship and the economic crisis

The worldwide economic recession has impacted entrepreneurial activity in at least three ways. First, the demand for products and services provided by entrepreneurs has dropped sharply, leading to a decrease in entrepreneurial activity in many countries. Second, the nature of early-stage entrepreneurship has changed in the sense that the share of necessity-based entrepreneurs has increased in many countries. Third, by changing the economic landscape, the economic crisis also created new entrepreneurial opportunities for a significant minority of the adult population.

In quantitative terms, the first-mentioned impact is most important. In large parts of the world, including Europe, the United States and Japan, exports and private investments decreased sharply with a double digit decline in 2009, while private consumption also decreased (European Commission, 2010). The decreased demand on the product market is the main reason that entrepreneurial activity declined in most GEM countries in 2009 (Bosma and Levie, 2010). In addition, it is likely that in many countries an increased number of exits among young businesses contributed to a decrease in total early-stage entrepreneurial activity as well. GEM data show that in 2009 the TEA index decreased particu-

larly strongly in many innovation-driven economies such as Denmark, Finland, France, Greece, Italy, Slovenia, Spain, the United States and Japan. However, as this report will show, the Netherlands is one of the exceptions where TEA increased in 2009.

As far as the share of necessity-based entrepreneurs in total entrepreneurial activity is concerned, many individuals (threaten to) lose their job as a consequence of the recession and hence, are forced to look for a different occupation. Some of these individuals start a new business out of necessity. On the other hand, new business opportunities become scarcer, reducing the potential for opportunity-driven entrepreneurship. In the GEM 2009 Adult Population Survey entrepreneurs were asked additional specific questions concerning the recession. One of these dealt with the effect of 'the global economic slowdown' on business opportunities for their start-up or existing businesses. An analysis of these data reveals that, for all types of entrepreneurs, and all types of economies, the group answering that they saw fewer business opportunities (instead of more or about the same) was by far the largest (Bosma and Levie, 2010, pp. 41-43). Opportunity perception during the economic downturn is more positive in the Netherlands as 43% of Dutch early-stage entrepreneurs and 44% of Dutch established entrepreneurs perceive fewer business opportunities (instead of more or about the same). Consistent with the global observations on opportunity perception, GEM data for 2009 indeed show that, compared to 2008, the share of necessity entrepreneurs has increased in many countries, including Germany, France, Japan, the United Kingdom and the United States (European Commission, 2010, p. 23). Relative to the number of opportunity-driven entrepreneurs, the number of necessity-driven entrepreneurs also increased in the Netherlands.

Third, for a significant minority of people, the crisis also creates new entrepreneurial opportunities. This is related to the changing personal circumstances of many individuals (e.g. due to the loss of their wage job) combined with a rapidly changing economic environment. In addition, the increasing number of business exits releases resources and human energy which can be redeployed elsewhere (e.g. in new entrepreneurial ventures). The GEM 2009 additional specific questions reveal that, in innovation-driven economies as well as in the Netherlands, more than 20% of early-stage entrepreneurs see *more* entrepreneurial opportunities as a result of the current crisis. These individuals tend to be younger and better educated, and they also tend to have higher ambition levels in terms of job expectations (Bosma and Levie, 2010, p. 41). In addition, starting a business during the crisis is perceived as more difficult than the year before by 48.5% of Dutch early-stage entrepreneurs. Growth ambitions do not seem to be so much affected by the economic crisis; 22.3% of Dutch early-stage entrepreneurs indicate that growing a business during the crisis has become more difficult as compared to the year before.

1.5 The Dutch GEM Report 2009

This report is organized as follows. First, perceiving involvement in entrepreneurial activity as a process rather than a single time event, chapter 2 provides an overview of entrepreneurial activity throughout the different phases of the entrepreneurial process. This entrepreneurial process includes potential entrepreneurs, prospective entrepreneurs, early-stage entrepreneurs, established entrepreneurs, exiting entrepreneurs and reengaging entrepreneurs. In addition to

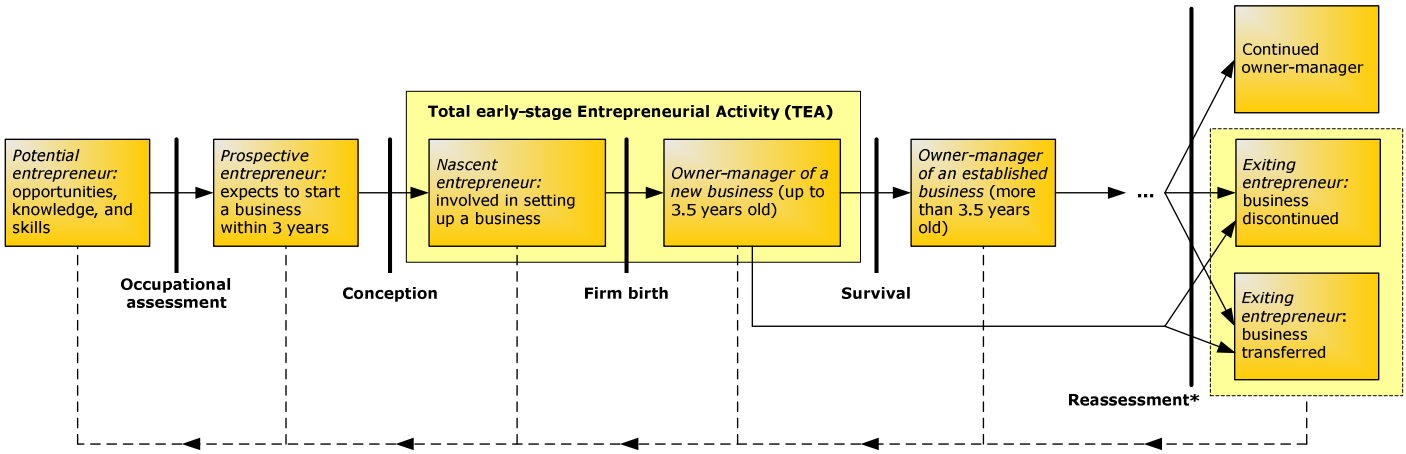
different phases in the entrepreneurial process, GEM also distinguishes different types of entrepreneurs, for instance opportunity- versus necessity-driven entrepreneurs, social entrepreneurs, and ambitious, innovative and export-oriented entrepreneurs. Chapter 3 pays attention to the various types of entrepreneurship. Chapters 2 and 3 present data from the Adult Population Survey (APS). Both chapters present developments in the Netherlands over time (2001-2009) and compare the most recent year with other (groups of) countries participating in GEM 2009. The social, cultural and political context, in which entrepreneurship is embedded, is discussed in chapter 4. This chapter mainly presents 2009 data from the National Expert Survey (NES) and focuses specifically on the Netherlands. The following two chapters, chapter 5 and 6, have a different structure as they each outline a particular topic. Chapter 5 focuses on human capital and entrepreneurship while chapter 6 deals with consumer innovations. Insofar as it is relevant the role of the economic crisis will be highlighted in each of these chapters.

2 Phases of entrepreneurship

This chapter sheds light on the development of entrepreneurial activity in various phases of the entrepreneurial process[1] in the Netherlands in the period 2001-2009. In addition, the position of the Netherlands in 2009 is compared to that of other countries participating in GEM. This international comparison is based mainly on a classification in factor-driven, efficiency-driven and innovation-driven economies, as discussed in the introduction (chapter 1), and on the EU and OECD areas[2].

Entrepreneurial activity is best seen as a process rather than a single time event. We make use of the entrepreneurial process[3] life cycle model depicted in Figure 1.

Figure 1 The entrepreneurial process



* *A reassessment may be implicit or explicit and continual or incidental. Note also that a reassessment can take place at any time after the birth of the firm.*

Source: EIM/GEM.

Various phases (or engagement levels) in the entrepreneurial process can be distinguished as follows.

– *Potential entrepreneur*: Individuals differ in the extent to which they consider themselves capable of setting up a firm and in the extent to which they recognize actual opportunities for setting up a firm. Those individuals who believe they have the skills, knowledge and expertise to set up their own firm and/or perceive good opportunities for setting up a firm are considered to be part of the pool of potential entrepreneurs.

[1] The various phases in the entrepreneurial process are also known as entrepreneurial engagement levels.

[2] EU and OECD averages presented in this report are based on the EU and OECD countries that participated in GEM in the year concerned. EU and OECD countries participating in GEM 2009 are reported in Table 2.

[3] Also known as the 'entrepreneurial engagement ladder' (Van der Zwan, Thurik and Grilo, 2010).

– *Prospective entrepreneur*: When individuals have actual start-up intentions they are labelled prospective or pre-nascent entrepreneurs.

Next, the cycle refers to individuals who are on the point of committing resources to start a business they expect to own themselves (nascent entrepreneurs), and when they currently own and manage a new/young business (new/young business entrepreneurs).

– *Total early-stage Entrepreneurial Activity*: The aggregate of the prevalence of nascent entrepreneurs and that of owner-managers of new/young businesses is referred to as Total early-stage Entrepreneurial Activity (TEA). More precisely, the group of *nascent entrepreneurs* refers to individuals within the adult population (18-64 years of age) who are actively involved in their own new firm start-up, as full- or part-time owner and for whom no salaries or wages have yet been paid for over three months. The group of *new/young business entrepreneurs* refers to individuals who are, as owner and manager, actively involved in operating a business that is less than 42 months old and which has paid salaries or wages for between 3 and 42 months.[1]

Once an individual has become an owner-manager of a new business, the stylized model in Figure 1 acknowledges two distinct further steps in the entrepreneurial process: survival and reassessment.

– *Established business owner*: During the survival step, also known as the step of persistence or consolidation, the owner-manager of a new/young business becomes the owner-manager of an established business (EB), which is defined as a business of more than 3.5 years old.

The final step on the entrepreneurial engagement ladder (reassessment) may take place either before or after a new/young firm has become an established business.

– *Existing entrepreneur*: In the end, any owner-manager will exit a business, either with business closure or through a transfer of the business to another business owner.
– *Reengaging entrepreneur*: Some of the exited entrepreneurs may reengage in the entrepreneurial process and again enter one of the earlier phases.

Note that Figure 1 represents the general entrepreneurial process. This does not mean that there are no exceptions. It may, for instance, be the case that an individual becomes a nascent entrepreneur without having had concrete start-up intentions. It may also be the case that an individual suddenly acquires an existing business, older than 3.5 years or not. Another possibility is that someone suddenly becomes co-owner of a business that just started.

2.1 Potential entrepreneurship

The extent to which individuals have entrepreneurial capabilities and/or perceive opportunities for starting a business can be used as an indicator for the number of potential entrepreneurs[2]. If both opportunities for entrepreneurship and entrepreneurial activities already exist in a country this is a favorable situation for entrepreneurial activities. However, it is also important that individuals *perceive* opportunities for starting a business and that they *perceive* that they possess the

[1] It should be noted that if a person is both a nascent entrepreneur and a young business owner, this person is counted as one active person in the adult population when calculating TEA.

[2] Consequently, the potential entrepreneurs also include many individuals who are already self-employed.

capabilities to start a business. The quantity and quality of perceived opportunities and capabilities may be enhanced by national conditions such as economic growth, population growth, culture, and national entrepreneurship policy.

Developments in the Netherlands over time

Perceptions of the Dutch population regarding their capabilities to start a new business and their entrepreneurial opportunities are shown in Table 4 for the period 2001-2009. As far as perceived capabilities are concerned, the share of the adult population that states it possess the required knowledge, skills and experience to start a business increased from 38% in 2008 to 47% in 2009. One (psychological) explanation for this increase could be that in a recession entrepreneurship suddenly becomes a more realistic (or even inevitable) occupational option for employees who (expect to) become unemployed. Consequently they might re-evaluate their entrepreneurial skills from the new perspective of potentially getting involved in entrepreneurship.

Another possible reason for the increase of self-perceived capabilities is that the recently increased attention for entrepreneurship in education and government programs is beginning to bear fruit. In the Netherlands, for instance, an extensive list of action plans for each phase of the entrepreneurial process (start-up, survival, exit) was drafted in 2003/04 in order to design specific entrepreneurship policies with the aim to encourage entrepreneurial activity (Ministry of Economic Affairs, 2004). Furthermore, in 2007 the Education and Entrepreneurship Action Program was set up with the aim to create a closer link between education and entrepreneurship at all levels of education (from primary to university education). An increasing number of students in secondary and tertiary education now consider self-employment as a serious occupational choice. Compared to 2007, these students are not only more frequently marked as potential or prospective entrepreneur, they are also significantly more often involved in an actual business start-up (Gibcus, Overweel, Tan and Winnubst, 2010).

Table 4 Perceptions regarding starting a new business in the Netherlands, 2001-2009, percentage of the adult population (18-64 years of age) that agree with the statement

	Item	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Potential entrepreneur	Perceived capabilities: You have the knowledge, skills, and experience required to start a new business	37	37	32	37	42	38	39	38	47
	Perceived opportunities: In the next 6 months there will be good opportunities for starting a business in the area where you live	42	49	29	38	39	46	42	39	36
	Fear of failure: Fear of failure would prevent you from starting a new business	25	24	28	32	29	29	21	26	27

Source: EIM/GEM.

With reference to perceived opportunities, Table 4 shows that in line with the economic downturn, a somewhat diminished percentage of the Dutch adult population in 2009 perceived good opportunities for starting a business in the area where they live. The decline in perceived opportunities is, however, remarkably smaller than during the previous recession in 2003. Finally, the level of fear of failure provides an indication of an individual's risk-attitude which may also be an indicator for potential entrepreneurship. In 2009, about a quarter of the Dutch adult population said that fear of failure would prevent them from starting a new business, as was also the case in 2008.

All in all the three indicators of potential entrepreneurship reported in Table 4 either hardly decreased or even increased in 2009 compared to 2008. This suggests that the level of potential entrepreneurship in the Netherlands has not been negatively affected by the present economic downturn, which appeared to be the case during the previous recession in 2003.

Looking at the working status of potential entrepreneurs in the Netherlands in 2009, that is those who were positive concerning perceived capabilities and opportunities and did not fear failure (n=128), it follows that nearly two-fifth of the potential entrepreneurs were employed in full-time work, 29% were currently self-employed, and 14% employed in part-time work. In addition, 7% is not currently employed because of retirement or disablement, and about 6% of the potential entrepreneurs were then students. There was thus a large variety in the working status of potential entrepreneurs, but the greater majority was either currently employed in full-time work or self-employed.

A global comparison

As far as the international results of the three indicators measuring an individual's perception towards entrepreneurial skills are concerned, opportunities and fear of failure, Table 5 shows that the share of the adult population being positive about their entrepreneurial capabilities decreases by stage of economic development. Dutch citizens, with a percentage of 47% are on average slightly more positive than innovation-driven countries in general (43%). As regards the perceived entrepreneurial opportunities, it follows from the table that these perceptions vary widely across countries in different stages of economic development. Compared to all innovation-driven countries, the Dutch observe significantly more good conditions/opportunities for starting a business in the area where they live.

As to the fear of failure, the table shows that this rate is more or less at the same level in countries at different stages of economic development. In the Netherlands, the percentage of the adult population that states that fear of failure would prevent them from starting a business is surprisingly low. A possible reason that only 27% of the Dutch adult population experiences fear of failure about starting a business could be that entrepreneurs in the Netherlands start only when they have considered carefully and are well prepared. In other words, The Dutch possibly think twice before they actually set up a new business. In most countries, the fear of failure prevalence rate becomes lower when moving from the general population to a focus on people who see good opportunities for starting a business (Bosma and Levie, 2010). So from an international point of view, Dutch attitudes and perceptions toward entrepreneurship are quite positive particularly in a year of economic crisis.

Table 5 Entrepreneurial perceptions, by stage of economic development (unweighted average), 2009, percentage of adult population (18-64 years of age) that agree with the statement

	Item	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Perceptions	You have the knowledge, skill and experience required to start a new business	66	54	43	47
	In the next 6 months there will be good opportunities for starting a business in the area where you live	50	36	28	36
	Fear of failure would prevent you from starting a new business	35	36	38	27

Source: EIM/GEM.

Perceptions by gender

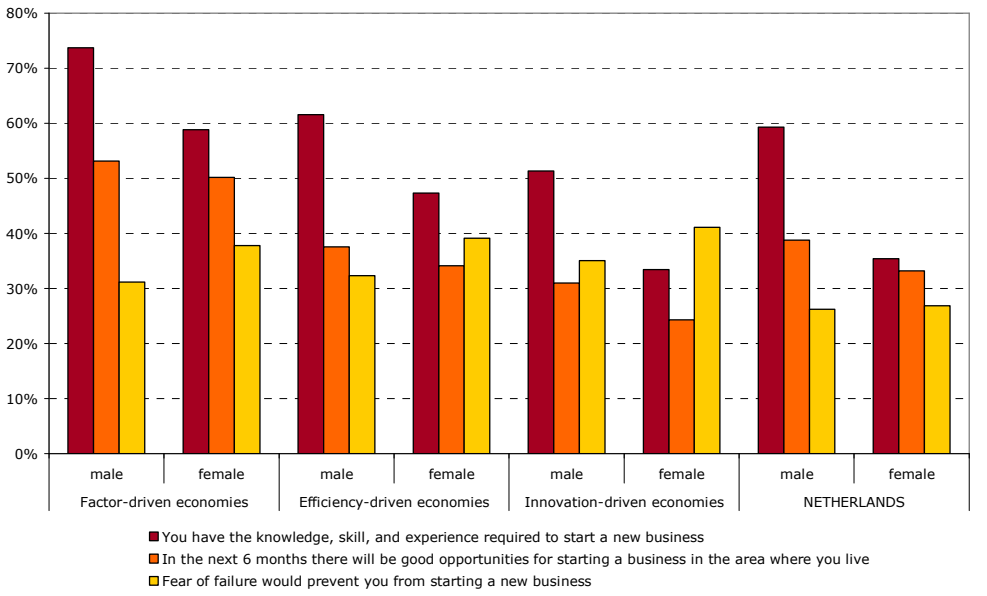
Gender plays a considerable role in (explaining) entrepreneurship (e.g. Verheul, 2005; Verheul, Van Stel and Thurik, 2006; Langowitz and Minniti, 2007). Zhang, Zyphur, Narayanan, Arvey, Chaturvedi, Avolio, Lichtenstein and Larsson (2009) explore the genetic basis of entrepreneurship and to what extent gender and personality influence the likelihood of becoming involved in entrepreneurial activity. They show that the genetic basis strongly influences females as to their propensity to become an entrepreneur, while males have a strong shared-environmental influence[1] on their propensity to become an entrepreneur.
In addition, regarding the likelihood of becoming engaged in entrepreneurial activity, several studies and data sources (e.g. GEM) show that the actual rate of entrepreneurship is significantly higher for males than for females. Perceptions of entrepreneurial activity also differ strongly between men and women (e.g. Langowitz and Minniti, 2007; Minniti and Nardone, 2007). The literature shows that self-confidence in one's own entrepreneurial skills, as well as risk tolerance (i.e. a reverse proxy for fear of failure), knowing other entrepreneurs and opportunity perceptions are of strong influence in explaining gender differences in involvement in entrepreneurial activity.

Figure 2 shows the rates of perceived entrepreneurial capabilities, perceived opportunities and fear of failure for men and women separately for each stage of development. It indicates that there are on average relatively large dissimilarities when it comes to the perceptions of men and women. This also holds for the Netherlands, particularly for skill-perceptions. Although 59% of the Dutch males think that they have the required knowledge, skills and experiences for starting a

[1] 'Shared-environmental effects' is the extent to which growing up in the same family makes people similar.

new business, only 35% of Dutch females are convinced they have the required entrepreneurial capabilities. Maybe this implies that women are more critical and more realistic concerning their entrepreneurial skills. The perception of whether there are good opportunities for setting up a new business differs more marginally between men and women: 39% of Dutch males perceive good business opportunities as opposed to 33% of Dutch females. Finally, in the Netherlands, 26% of the Dutch males state that fear of failure would prevent them from starting a new business. At a level of 27% this rate is about the same for women.

Figure 2 Perceptions regarding starting a new business by gender, by stage of economic development (unweighted average), 2009, percentage of the adult population (18-64 years of age) that agree with the statement



Source: EIM/GEM.

2.2 Prospective entrepreneurship

If an individual exhibits positive perceptions toward entrepreneurship, it is by no means certain that he or she will actually become involved in entrepreneurial activity. Several assessments need to be made, which may or may not be aware. First, there is the assessment of opportunity costs of self-employment, that are related to the various expected returns of an alternative occupation[1]. The most common alternative is wage employment. Wage employment may be a more attractive option to many, especially in countries with a generous social security system (Hessels, Van Stel, Brouwer and Wennekers, 2007) and/or favorable employment protection legislation. Second, there is a risk-reward assessment. Even if the expected returns from entrepreneurship are considerably higher than the best alternative, the (perceived) risks involved may be too high for a person who is thinking about starting a business. An individual's risk-avoidance preference

[1] For literature on opportunity costs of entrepreneurship see e.g. Lucas (1978), Shane and Venkataraman (2000) and Parker (2004).

may be a significant factor in the transition from potential (or latent) entrepreneurship to actual entrepreneurial activity (Kihlstrom and Laffont, 1979). The greater the fear of failure for starting a business, the less likely it is that an individual will make the transition from potential to actual entrepreneurship. At the same time, the individual's occupational decision may also be influenced by demographic characteristics such as age, gender, origin, or ethnicity and also by institutions.

Even though intentions are not (always) directly transformed into action (Katz, 1994), studying pre-organizational phenomena, such as having the intention to start a new business, may be of great value since they offer means to understand and predict future entrepreneurial activity (Krueger, Reilly and Carsrud, 2000). Also perceptual variables are shown to be strongly correlated with new business creation (Arenius and Minniti, 2005). In other words, assessing intentions might be valuable in understanding trends in entrepreneurial activity.

Developments in the Netherlands over time

The development of start-up intentions in the Netherlands over time (2002-2009) is illustrated in Table 6.

Table 6 Intention to start a new business in the Netherlands 2002-2009, percentage of the adult population (18-64 years of age)

	Item	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Prospective entrepreneur	You are, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years	5.1	5.7	6.5	6.2	5.6	5.5	5.3	7.4

Source: EIM/GEM.

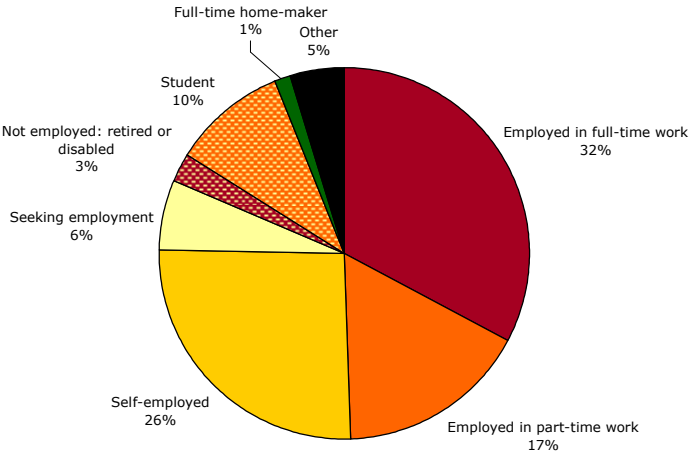
This shows that start-up intentions remained relatively stable prior to 2009. However, the share of the Dutch adult population that expects to start a new business within the next three years experienced a notable rise from 5.3% in 2008 to 7.4% in 2009. This may partly have been caused by the global economic crisis which also left strong imprints on the Dutch economy. For example, unemployment in the Dutch economy rose from 3.9% of the total labor force in 2008 to an (estimated) level of 5.3% in 2009 (CPB, 2010). (The threat of) unemployment may then be a recession-push factor[1], stimulating (future) entrepreneurial activity. However, other factors causing a rise in start-up intentions might also

[1] Theoretically speaking unemployment can be a recession-push or a (negative) prosperity-pull factor for self-employment (Storey, 1991). In times of economic recession, higher levels of unemployment encourage individuals to set up their own business (recession-push). On the other hand, high unemployment rates can also pull individuals out of self-employment because market demand is low - reducing an entrepreneur's income - the availability of capital is scarce and the risk of bankruptcy increases (prosperity-pull).

be involved (e.g. the recent growth in attention for entrepreneurship[1]). In this respect, we also note that the rise of start-up intentions in 2009 is consistent with the rise of perceived entrepreneurial capabilities as reported in Table 4.

In fact, when looking at the working status of prospective entrepreneurs in the Netherlands in 2009 (n=151), it can be seen that 'only' 6% of the Dutch adult population with start-up intentions is actually currently seeking employment. The majority of prospective entrepreneurs is currently employed in full-time work (32%), part-time work (17%) or are self-employed (26%). About 10% of the prospective entrepreneurs are currently students. Hence, in particular students, self-employed and wage-employed individuals expect to start a new business within the next three years, see Figure 3. This finding may be linked to decreased job security. If, for instance, employees fear becoming redundant they might look for alternative job opportunities in self-employment. However, it may also be the case that in spite of the economic crisis students, self-employed and wage-employed individuals actually perceive business opportunities. This seems to be counterintuitive at first sight but De Vries, Bangma & Vroonhof (2010), who investigated the impact of the economic crisis on self-employed without employees showed, for example, that self-employed without employees (solo self-employed) are mainly positive or neutral towards the economic crisis. Possibly the economic circumstances also provide opportunities for new business start-ups due to the increased number of business exits (e.g. Bangma and Bruins, 2010).

Figure 3 Main employment status of prospective entrepreneurs, the Netherlands, 2009, percentage of the adult population (18-64 years of age), n=151



Source: EIM/GEM.

[1] See for example the foundation of HOPE: HOlland Program on Entrepreneurship which is a centre for entrepreneurship jointly developed by the Erasmus University Rotterdam, Delft University of Technology and Leiden University. (http://www.hope-entrepreneurship.nl/). See also the introduction of the Education and Entrepreneurship Action Program in 2007 (Gibcus, Overweel, Tan and Winnubst, 2010).

As regards gender differences in entrepreneurial intentions, it seems that the considerable dissimilarities in the way males and females perceive their entrepreneurial capabilities and (to a lesser degree) opportunities also find their expression in the relatively large gap in start-up intentions for males and females. In 2009 10.2% of all Dutch males had the intention to start a new business within the next three years as opposed to only 4.7% of all females. Hence, men are twice as likely to have the intention to start a new business as women.

A global comparison

Table 7 lists the intentions to start a new business by stage of economic development. Some countries have favorable perceptions of entrepreneurship combined with low rates of intentional entrepreneurship. This is the case for many innovation-driven economies in Europe and particularly for the Netherlands. In other words, although attitudes and perceptions toward entrepreneurship are fairly positive, the attractiveness of becoming involved in entrepreneurship appears to be low for many Europeans compared to other possible sources of income. In fact, the Netherlands had the highest ranking of all innovation-driven countries when it comes to entrepreneurship as a desirable career choice - and even though the prevalence of intentional entrepreneurship increased between 2008 and 2009 - still only 7.4% of the Dutch adult population expects to start a business within the next three years, which is significantly lower than both the OECD average (10.1%) and the EU average (9.5%).

A variety of (national) characteristics could underlie this phenomenon. First, since the crisis seems to have hit the Netherlands less severely than other countries (the Dutch unemployment rate is still one of the lowest in the OECD area), fewer individuals are forced to consider starting up a business out of a necessity motive.

Second, it may be that Dutch individuals perceive the many bureaucratic and legal hurdles attached to starting a business, will reduce the attractiveness of entrepreneurship for them. In this respect, the administrative hurdles an entrepreneur must overcome to start and own-manage a business in the Netherlands are at an average level, according to 2009 data from the World Bank Doing Business project. In particular, the Netherlands ranks 17th out of 27 OECD countries concerning the ease of starting a business.[1]

[1] However, according to a study by Van Stel, Storey and Thurik (2007), the administrative hurdles attached to starting a business are unrelated to the rate of either nascent or young business entrepreneurship.

Table 7 Entrepreneurial intentions, by stage of economic development (unweighted average), 2009, percentage of adult population (18-64 years of age) that agree with the statement

	Item	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Intentions	You are, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years	32.2	24.8	11.9	7.4

Source: EIM/GEM.

Third, levels of employment protection and social security entitlements are relatively high in the Netherlands. This may discourage employees with positive entrepreneurial perceptions from actually switching to self-employment. In this respect, it could be that the Dutch population acknowledges a trade-off between entrepreneurship and security (Hessels, Van Stel, Brouwer and Wennekers, 2007). On the one hand Dutch adults like to be flexible and entrepreneurial, while on the other hand they prefer the relative income security of wage employment. Hence, once Dutch adults become a prospective entrepreneur, they have considered their choice carefully and are relatively well prepared. Besides, as explained by Hessels, Hartog and Wennekers (2009), there also seems to be comparatively much space in the Netherlands for entrepreneurial behavior within businesses[1]. The relatively high number of safe and well-paid jobs as well as the relatively participatory and permissive management style in many organizations in the Netherlands creates much space for entrepreneurial behavior inside businesses, that is, entrepreneurial employee behavior or intrapreneurship.

2.3 Total early-stage Entrepreneurial Activity (TEA)

When entrepreneurial intentions are followed by concrete actions to set up a new business (e.g. committing resources, arranging an office), the corresponding individual has moved on to the next phase of the entrepreneurial process: he/she has become a nascent entrepreneur[2]. Naturally, an individual may also become a nascent entrepreneur without having had concrete start-up intentions. However, the fraction of the adult population that is currently engaged in a new firm start-up[3] is referred to as the nascent entrepreneurial activity rate. After firm birth,

[1] This is also known as intrapreneurship. For an extensive analysis of the rate of intrapreneurship in eleven countries, see Bosma, Stam and Wennekers (2010).

[2] Note, however, that whether an individual is in this phase is based on self-assessment. It has not been objectively determined.

[3] In addition, the corresponding person should expect to be a full or part owner, and no salaries or wages should have been paid at the start-up during more than three months.

the entrepreneur has again moved up the entrepreneurial engagement ladder and become the owner-manager of a new/young firm. The fraction of adults that are currently involved as owner-manager of a business that is less than 42 months old (i.e. a young firm)[1] is referred to as the 'baby business' rate, or the young firm entrepreneurial activity rate. The aggregate of nascent entrepreneurial activity and young firm entrepreneurial activity is known as Total early-stage Entrepreneurial Activity (TEA). The precise definition reads as follows:

> *Total early-stage Entrepreneurial Activity (TEA) refers to the percentage of the adult population (18-64 years of age) that is actively involved in setting up a business that they will (partly) own and/or currently own and manage a business that is less than 42 months old.*

Developments in the Netherlands over time

The development of the TEA rate for the Netherlands over time (2001-2009) is summarized in Table 8. The table shows that early-stage entrepreneurial activity increased from 5.2% in 2008 to 7.2% in 2009. This is slightly above OECD-average (6.3%) and significantly above EU-average (5.8%). As we will see in Figure 4, the increase consists of an increase from 2.1% to 3.1% in nascent entrepreneurship and an increase from 3.2% to 4.1% in young business entrepreneurship.

The increase in nascent entrepreneurship is consistent with the increase in perceived entrepreneurial capabilities and the increase in start-up intentions reported in Tables 4 and 6. The increase of these indicators in 2009 compared to 2008 is likely to be related to the economic crisis when more individuals were forced to (re-)evaluate the option of entrepreneurship. In addition to the extent that the crisis causes the preparation time for actually starting a business to become longer, individuals on average may find themselves in the state of nascent entrepreneurship for a longer period of time. This has a positive impact on the number of nascents at a given point in time. Finally, to some extent the crisis may also have created new opportunities for entrepreneurship.

Conversely, the increase in young business entrepreneurship is still somewhat surprising. Indeed, national statistics for the Netherlands report a decline in the number of new businesses in 2009. In 2009 a total of 35,400 new businesses were started, which corresponds to a drop of 9% relative to 2008 (Konen, 2010). In this respect, we do not rule out the possibility that the increase of young business entrepreneurship may be partly related to sample fluctuations in GEM's adult population survey. In addition, we reason that four more explanations may be behind the high young business entrepreneurship rate.

First, opportunities for marginal entrepreneurs to switch (back) to paid employment are quite limited in the current crisis. Therefore, many of these solo entrepreneurs may decide to hang on to their marginal business and hence remain in entrepreneurship. In this respect, the relatively low but rising unemployment rate of the Netherlands in 2009 may reflect growing hidden unemployment

[1] In addition, salaries or wages should have been paid for 3 to 42 months.

among self-employed individuals (i.e. solo self-employed with only a few business assignments).

Second, the crisis also offers new opportunities for small entrepreneurs as many larger businesses are hesitant to hire new employees, even on a temporary basis. As a result, business activities may increasingly be outsourced to small entrepreneurs.

Third, in 2009 the economic downturn revealed itself through a large decline in exports and investments, whereas private consumption dwindled more gradually (European Commission, 2010). And since small and medium-sized enterprises (and hence most of young business entrepreneurs) are heavily oriented towards the market for domestic consumption, many entrepreneurs may not have been affected so badly yet in 2009, at least not to the point that they would have to go out of business.

Fourth, regarding the decrease in the number of new businesses according to Statistics Netherlands, we have grounds to expect that not all new entrepreneurial activity (in particular by freelancers) is being captured by business registers.

Table 8 Total early-stage Entrepreneurial Activity (TEA) in the Netherlands, 2001-2009, percentage of the adult population (18-64 years of age)

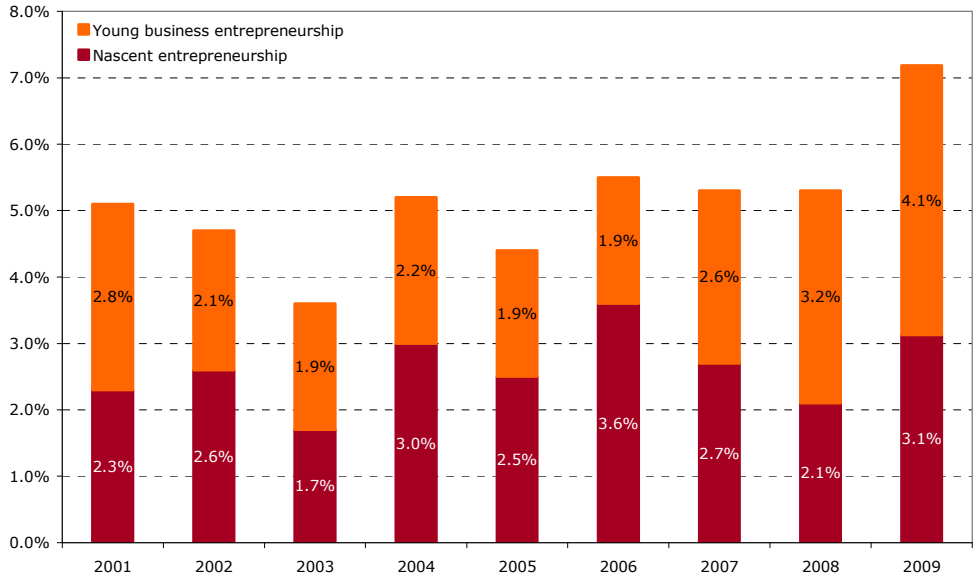
	Item	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
TEA	You are actively involved in setting up a business that you will (partly) own and/or you currently own and manage a business that is less than 3.5 years old	4.9*	4.6	3.6	5.1	4.4	5.4	5.2	5.2	7.2

** Revised figure.*
Source: EIM/GEM.

Looking at the main working status of early-stage entrepreneurs in the Netherlands in 2009 (n=153), it follows that over two-thirds of the early-stage entrepreneurs is mainly self-employed, 15% was mainly involved in full-time paid-employment and 10% in part-time paid-employment. So it appears that the worsened economic situation caused many individuals to look for alternative employment options (i.e. consider entrepreneurship as a secondary activity next to a job in paid-employment). A large share of these new entrepreneurs only employ themselves. These self-employed without employees rapidly gain ground as in many advanced economies the number of solo self-employed as a share of total self-employed has already exceeded 50% or even 60%.[1]

[1] See the Self-employed LFS-series within the Employment and unemployment (LFS) statistics from the Eurostat database.

Figure 4 Development in the shares of nascent and young firm entrepreneurial activity in Total early-stage Entrepreneurial Activity (TEA), the Netherlands, 2001-2009, percentage of the adult population (18-64 years of age)

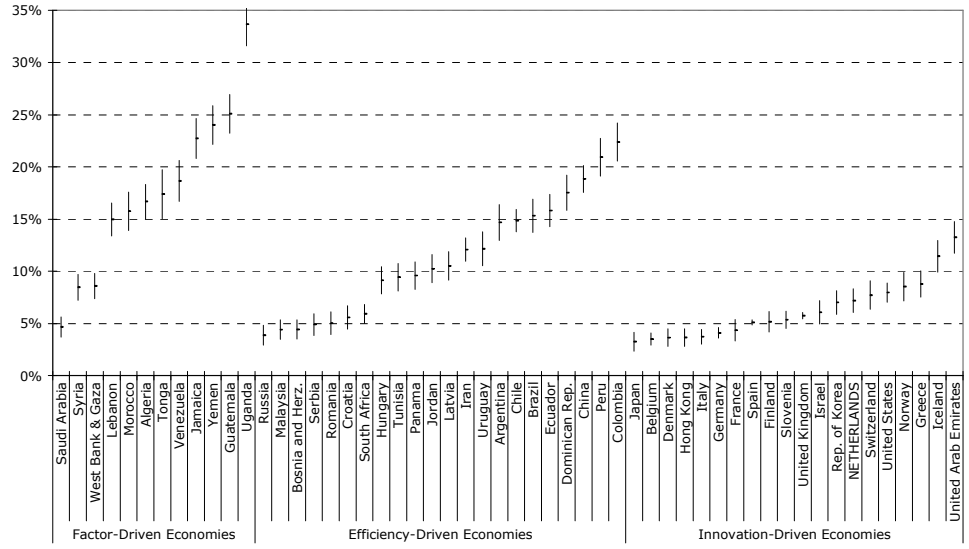


Source: EIM/GEM.

A global comparison

Total early-stage Entrepreneurial Activity (TEA) rates for all GEM 2009 countries are depicted in Figure 5. Besides the national rate of TEA, the figure also presents 95% confidence intervals. If the vertical bars on either side of the point estimates for TEA for any two countries do not overlap, this means that they have statistically different TEA rates. This figure serves as a benchmark for countries to see how they compare to other countries with similar stages of economic development. Note that it is certainly not the case that higher TEA rates are to be preferred for all countries. For countries with low levels of per capita income, a decrease in prevalence rates of early-stage entrepreneurial activity may even be a sign of advancing economic development. In countries with already relatively high levels of economic development, the role played by the entrepreneurial sector may, however, increase again because more individuals are able to access the resources necessary to start their own business in knowledge-intensive environments with abundant opportunities (Bosma and Levie, 2010). In addition, there is also more space in more highly developed countries for small scale sectors such as business services.

Figure 5 Total early-stage entrepreneurial activity (TEA) rates for all GEM countries, by stage of economic development, 2009, percentage of the adult population (18-64 years of age)



Source: EIM/GEM (Bosma and Levie, 2010).

Comparing Total early-stage Entrepreneurial Activity in 2009 by stage of economic development, reveals that the average pattern is a decline in overall levels of early-stage entrepreneurial activity with increasing economic development (Figure 5). With an (unweighted) average of 17.6%, the TEA rate in factor-driven economies is higher than the average in efficiency-driven economies (11.3%), which in turn is higher than the average TEA rate in innovation-driven economies (6.3%). There are, however, also large variations in entrepreneurial activity within groups of countries, since each country has a unique set of economic and social conditions which can affect entrepreneurial activity. Among innovation-driven economies, the United Arab Emirates and Iceland have the highest rates of TEA, with the United States only just making the top quartile, along with Greece and Norway.

Demographic structure of TEA

Table 9 demonstrates the Total early-stage Entrepreneurial Activity (TEA) rates, by gender, by age groups, by level of education and by household income for each stage of economic development. For TEA by gender, it follows that the ratio of female to male participation varies considerably in each stage, reflecting different culture and institutions regarding female participation in economic activity. In innovation-driven countries, the general rule of thumb is that men (8.2%) are twice as likely to be involved in early-stage entrepreneurial activity than women (4.1%). In the Netherlands, 8.5% of all males are involved in TEA as opposed to 5.9% of all females, a statistically significant difference in female and male participation.

Looking at the prevalence rates of early-stage entrepreneurial activity across age groups shows that the shapes of the age distribution are very similar across country groups. The 25-34 age category has the highest prevalence rate at every stage of economic development. Thereafter the prevalence rates decrease as age increases.

The degree of education of the population and their involvement in early-stage entrepreneurial activity is also presented in Table 9. In general, participation rates in early-stage entrepreneurial activity increase with the degree of education across all stages of economic development. In the Netherlands however, this pattern seems to deviate. The prevalence rate of early-stage entrepreneurial activity for individuals with secondary education in the Netherlands (8.8%) is higher than the average of innovation-driven economies (6.1%).

For individuals with a post-secondary education or graduate experience, the participation rate in the Netherlands (3.8%) is lower compared to other innovation-driven economies (9.1%). This finding indicates room for intensified entrepreneurship policy in higher education. However, the Education and Entrepreneurship Action Program introduced in the Netherlands in 2007 is already starting to bear fruit (Gibcus, Overweel, Tan and Winnubst, 2010). Entrepreneurship has become a more serious occupational choice among Dutch students with tertiary education. The current gap in the TEA rate between the Netherlands and innovation-driven countries may therefore become narrower in the near future.

Finally, Table 9 shows the likelihood of becoming involved in entrepreneurship for each income category. Whereas participation rates in early-stage entrepreneurial activity in factor-driven economies seem to be more or less independent of household income, the distribution becomes less uniform for countries at higher stages of economic development. In the Netherlands prevalence rates of early-stage entrepreneurial activity increase with household income. These findings might indicate capital constraints for starting and owning-managing a business in higher developed countries.

Table 9 Demographic structure of Total early-stage Entrepreneurial Activity (TEA), by stage of economic development (unweighted average), 2009, percentage of the adult population (18-64 years of age)

		Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Gender	Male	20.6	13.7	8.2	8.5
	Female	14.5	8.8	4.1	5.9
Age	18-24 years	15.9	9.7	4.1	3.7
	25-34 years	19.9	14.3	8.5	10.5
	35-44 years	18.7	12.4	7.5	10.3
	45-54 years	15.6	10.8	5.9	6.4
	55-64 years	14.2	6.5	3.7	3.5
Education	Some secondary degree	15.0	8.7	3.3	4.2
	Secondary degree	19.9	11.9	6.1	8.8
	Post-secondary degree and/or graduate experience	33.5	23.9	9.1	3.8
Income	Household income in lowest 33 percentile	9.6	5.4	2.4	2.3
	Household income in middle 33 percentile	10.4	7.4	3.3	4.5
	Household income in highest 33 percentile	11.0	10.6	5.2	7.0

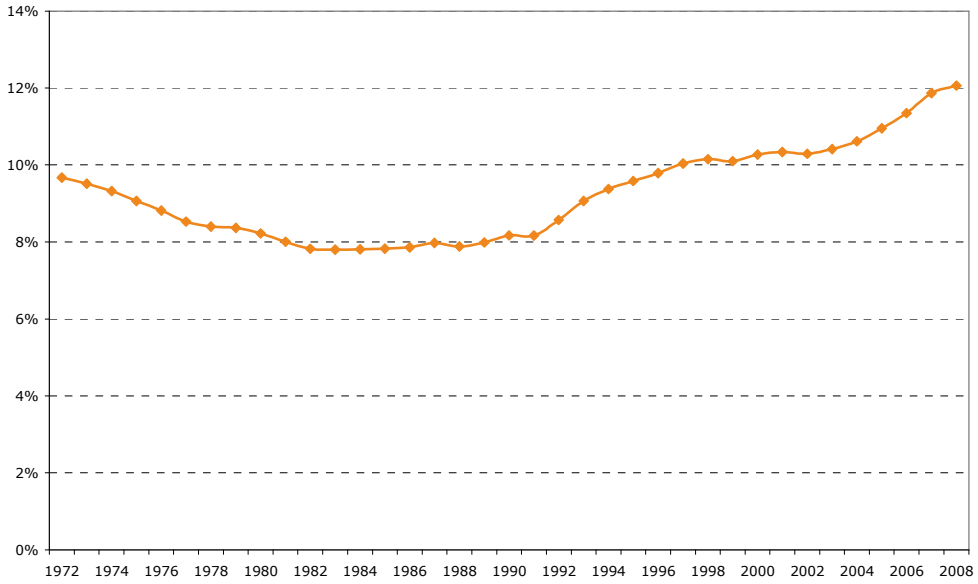
Source: EIM/GEM.

2.4 Incumbent entrepreneurship

Once the business of an owner-manager has been in existence for more than 3.5 years, the corresponding entrepreneur moves to the next phase of the entrepreneurial process and becomes the owner-manager of an established business. Instead of providing GEM-figures on owner-managers of established businesses, this section presents the development of the total business ownership rate, taken from national statistics provided in EIM's COMPENDIA data base[1]. The business ownership rate is defined as the total number of business owners as a percentage of the total labor force. In GEM terms, the business ownership rate includes owner-managers of both new/young and established businesses.

[1] The figures are taken from EIM's COMParative ENtrepreneurship Data for International Analysis (COMPENDIA) data base, version 2008.1. This dataset is available at www.entrepreneurship-sme.eu. Also see Van Stel (2005) and Van Stel, Cieslik and Hartog (2010).

Figure 6 Development in the business ownership rate (excl. agricultural sector), the Netherlands, 1972-2008, percentage of the total labor force



Source: EIM: COMPENDIA 2008.1.

The development of the business ownership rate in the private business sector excluding agriculture, hunting, forestry and fishing in the Netherlands over time (1972-2008) is presented in Figure 6. As is the case for many advanced economies - including the Netherlands - a decades-long decline in the business ownership rate converted into an increase in the rate of self-employment starting in the 1970s and/or 1980s (Hartog and Wennekers, 2009; Wennekers, Van Stel, Carree and Thurik, 2010). The revival of the self-employment rate in the Netherlands started around 1985. Since then, the business ownership rate excluding agriculture increased from 7.8% to 12.1% in 2008.

This business ownership rate equals the EU-15 average as well as the OECD-30 average. Although the business ownership rate in Mediterranean countries is higher, the Dutch rate of self-employment is above the business ownership rate of Scandinavian countries and above or comparable to the rate in Anglo-Saxon countries.

2.5 Entrepreneurial exits

Once an individual has become an owner-manager of a new business, sooner or later two different further steps in the entrepreneurial process can follow: survival and reassessment. The latter rung of the entrepreneurial engagement ladder (i.e. reassessment) may take place either before or after a new/young firm (< 3.5 years) has become an established business (3.5 years or older). After an indefinite period of time any owner-manager will exit his/her business.

Developments in the Netherlands over time

Business exits are identified in GEM from answers given by all respondents of the Adult Population Survey as to whether they had, in the past twelve months, sold, shut down, discontinued or quit a business they owned and managed. If so, a distinction can be made between business exits with business continuance (business transfer) and business exits without business continuance (business closure). For this purpose, GEM asked all respondents that mentioned having exited a business they owned and managed whether they (i) exited a business in the past 12 months where the business did not continue its business activities, or (ii) exited a business in the past 12 months where the business continued its activities.

Table 10 Entrepreneurial exits in the Netherlands, 2002-2009, percentage of the adult population (18-64 years of age)*

Item	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Exited a business in the past year, business did ***not continue***	1.7	1.6	1.2	1.5	0.8	0.5	1.0	1.8
Exited a business in the past year, business ***continued***	.	.	.	.	.	0.3	0.6	0.7

** Prior to 2007, no data were available concerning exiting entrepreneurs of businesses that continued their activities. In the GEM Adult Population Survey it was then only asked whether the respondent had, in the past twelve months, shut down, discontinued or quit a business they owned and managed; businesses that were sold were not included.*

Source: EIM/GEM.

The corresponding exit rates for the Netherlands in the period 2002-2009 are illustrated in Table 10. Relative to 2008, the number of business exits notably increased in 2009, in particular the number of business exits where the business did not continue. In 2009 1.8% of the Dutch respondents exited and discontinued a business (as opposed to 1.0% in 2008) and 0.7% exited while their business continued (as opposed to 0.6% in 2008). It can be derived from Table 10 that on average over 28% of the individuals who indicated in 2009 having recently exited a business in the Netherlands transferred their business, in such a way that it continued in another form or under different ownership. Most likely the increased share of the Dutch adult population that experienced a business exits in the past year is to some extent a consequence of the economic crisis. Bangma and Bruins (2010), who describe some characteristics of business closures in the small- and medium-sized enterprise sector, show that the number of business closures has increased during the course of years. A particularly strong rise (about one-fifth) is apparent from 2008 to 2009 which they ascribe to the increased number of business start-ups in the preceding years and to the economic crisis.

Exit reasons

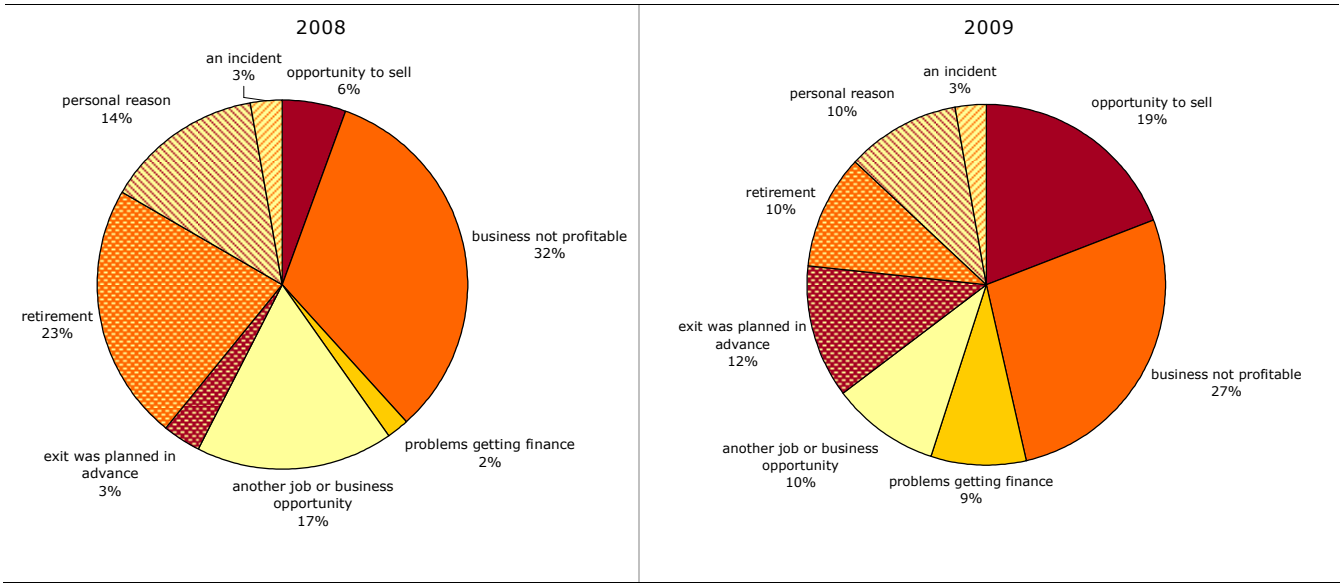
It is important to note that not all businesses that do not continue are failures. By and large, the proportion of bankruptcies, as a special category of business exits, is about 20% of total exits (European Commission, 2010). In general, the share of bankruptcies increases during economic downturns while it declines during economic upswings. Most business closures thus do not concern a bank-

ruptcy. Business closures also include healthy businesses that for instance need to close due to a lack of successors or opportunities to sell the business.

Respondents who exited a business in the past 12 months were also asked to state the most important reason for doing so. The different reasons to exit a business in the Netherlands are illustrated in Figure 7, both for 2008 and 2009. The most frequently mentioned reason for exiting a business was an unprofitable business (27%), a slightly lower percentage than in 2008. Almost one-fifth of the exiting entrepreneurs indicated that the main reason to exit was an opportunity to sell the business. About 12% exited a business because they planned this in advance. Other frequently mentioned (equally important) reasons for exiting a business were another job or business opportunity (10%), a personal reason (10%) or retirement (10%). It is not surprising that in times of economic crisis problems in obtaining finance were also relatively often mentioned as reason to exit a business. The least indicated reason for exiting was as a consequence of a single incident (3%).

Comparing the main reasons for exiting a business between 2008 and 2009 it follows that exit reasons such as an opportunity to sell the business, problems getting finance and exit being planned in advance, were mentioned relatively more often in 2009. At the same time, exit because of another job or business opportunity, retirement or a personal reason occurred less often in 2009.

Figure 7 Main reasons for exiting a business, the Netherlands, 2009, percentage of the adult population (18-64 years of age) that exited a business in the past year



Source: EIM/GEM.

Looking at the total exit rate by gender in the Netherlands in 2009, reveals that males (3.2%) significantly more often exit a business than females (1.8%), but this can be linked to the structurally larger involvement of males in entrepreneurial activity. As presented in Table 9, 8.5% of all males (n=1,077) is involved in TEA as opposed to 5.9% of all females (n=1,056). Looking at recent exit experience for males and females with and without involvement in entrepreneurial activity, it follows that 2.7% of the males are not actively involved in TEA and ex-

ited a business in the past year whereas 0.5% of the males are currently involved in TEA and exited a business in the past year. For females it follows that 1.4% is not involved in early-stage entrepreneurship but exited a business in the past year while 0.4% is currently involved in TEA and recently exited a business. Hence, exit rates for individuals within TEA are comparable for men (0.5%) and women (0.4%), but exit rates differ significantly between males (2.7%) and females (1.4%) not involved in early-stage entrepreneurship.

This raises the question whether female entrepreneurs have higher survival rates than male entrepreneurs. The literature does not have a clear-cut answer to this. Fairlie and Robb (2009) showed that female-owned businesses were less successful than male-owned businesses, in terms of lower survival rates, profits, employment and sales, due to lower amount of start-up capital, less business human capital acquired through prior work experience, and to a lesser extent, fewer working hours and different choices of business' goals. Boden and Nucci (2000) investigated the survival prospects of men's and women's new business ventures and found that female-owned new businesses are somewhat at a disadvantage compared to male-owned new businesses. This is related to women having fewer years of general working experience and less financial capital to start or acquire a business than men. In the study of Boden and Nucci (2000), prior managerial experience (i.e. women's lesser exposure to managerial positions) did not have an adverse effect on survival prospects of female-and male-owned new businesses. Carter, Williams and Reynolds (1997) explored the performance differentials (in terms of lower sales and income) between male- and female-owned new businesses in the retail industry (an industry in which women often choose to operate). Their results also pointed put a lower survival rate and fewer resources to start a business owned by females.

On the other hand Kalleberg and Leicht (1991), who examined a survival and success analysis across different industries, found that female-owned businesses are not more likely to go out of business, nor to be less successful than male-owned businesses. Cooper, Gimeno-Gascon and Woo (1994), who explained performance outcomes in terms of failure, marginal survival and high growth by indicators of initial human and financial capital, also found that female-owned businesses are equally likely to survive as are male-owned businesses.

A global comparison

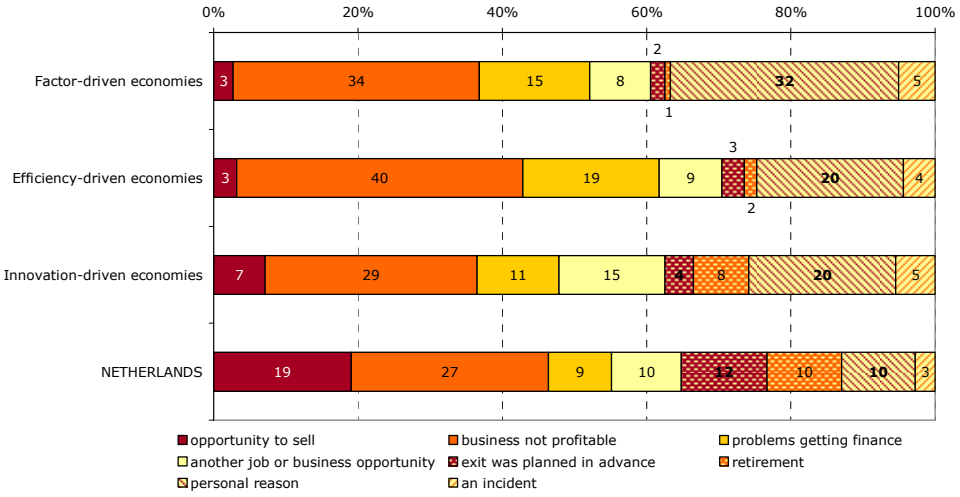
Table 11 displays prevalence rates for people who exited a business in the twelve months preceding the GEM survey for countries at different stages of economic development as well as for OECD and EU countries. It can be seen that business discontinuance rates are relatively high in factor-driven economies and relatively low in innovation-driven economies. Among highly-developed countries (OECD and/or EU Member States), Iceland (4%), Korea (3.9%), Norway (3.7%), Romania (3.6%) and United States (3.4%) have the highest rates of business discontinuation. This suggests that in some countries there is a rapid turnover of business experiments. In the Netherlands, the total exit rate equals 2.5% (1.8% business closure plus 0.7% business transfer).

Table 11 Entrepreneurial exits, 2009, by stage of economic development and in OECD and EU countries (unweighted average), percentage of the adult population (18-64 years of age)

	2008		*2009*	
	exit; business closure	exit; business transfer	exit; business closure	exit; business transfer
Factor-driven economies	6.2	2.9	5.2	1.8
Efficiency-driven economies	4.1	1.8	3.3	1.6
Innovation-driven economies	1.6	0.9	1.6	0.9
OECD	2.1	1.0	1.6	0.8
EU	1.3	0.6	1.5	0.7
NETHERLANDS	1.0	0.6	1.8	0.7

Source: EIM/GEM.

Figure 8 Main reasons for exiting a business, by stage of economic development (unweighted average), 2009, percentage of the adult population (18-64 years of age) that exited a business in the past year



Source: EIM/GEM.

The GEM 2009 results concerning the main reason for exiting a business in the past 12 months by country are summarized in Figure 8. Focusing on all GEM respondents, financial problems (including a business not being profitable and problems in obtaining finance) were cited as the main reason for exiting the business by about 50%. Financial problems were cited more often by respondents in factor- and efficiency-driven economies (49% and 59%, respectively) than innovation-driven countries (about 41%). That the business was not profitable was the most reported financial problem. An opportunity to sell the business and, in particular, retirement were mentioned more often in innovation-driven countries as the most important reason to exit the business. Personal reasons led to around 20% to 32% of all entrepreneurial exits. Interestingly, an opportu-

nity to sell the business is cited as the main reason for exiting a business by about 7% of the exiting entrepreneurs in innovation-driven countries, on average, whereas 19% of the exiting entrepreneurs in the Netherlands mentioned an opportunity to sell the business. Also the exit being planned in advance is more frequently the main reason for exiting a business in the Netherlands (12%) than in other innovation-driven countries (4%). A personal reason however, results in relatively more exits in innovation-driven economies on average (20%) than in the Netherlands (10%).

2.6 Entrepreneurial reengagement

Business discontinuation is an important feature of dynamic economies, and entries and exits of businesses are closely correlated (Robinson, O'Leary and Rincon, 2006). For many entrepreneurs who exit a business, it is not the end of their entrepreneurial career, but a new beginning. In fact, as pointed out by Hessels, Grilo, Thurik and Van der Zwan (2011) recent exit experience increases an individual's probability of undertaking a new entrepreneurial activity, in particular by increasing the probabilities of being a potential or prospective entrepreneur. This may be explained by human capital theory, suggesting that entrepreneurial exit is associated with accumulated entrepreneurial human capital - in terms of entrepreneurial skills, experience and ability - that may be of increased value when undertaking a new entrepreneurial activity (Hessels, Grilo, Thurik and Van der Zwan, 2011; see also Chapter 5). Furthermore, recent exit experience may increase the likelihood to reengage in a new entrepreneurial activity, since seeking a job in wage-employment that meets the specific needs of these entrepreneurial individuals, may have become more difficult.

'Entrepreneurial recycling' (Mason and Harrison, 2006) manifests itself in two main ways. First, exited entrepreneurs may start again. Looking at recent exit experience of potential, prospective, early-stage and established entrepreneurs in the Netherlands in 2009 (n=480), GEM data shows that 4.3% of them exited a business in the past year with business closure and 1.4% exited a business in the past year with business transfer. Second, exited entrepreneurs are more likely to invest in other people's businesses than entrepreneurs with no exit experience and the not entrepreneurially active population. In the Netherlands, the adult population that participated in GEM 2009 (n=2,133) can be divided into the adult population that is involved in (potential, prospective or actual) entrepreneurial activity[1] and has recent exit experience (n=28), the adult population that is involved in entrepreneurial activity but has no exit experience (n=453), and the adult population that is not involved in entrepreneurial activity (n=1,653).

Informal investment experience in each of these three groups reveals that 18% of the exited entrepreneurs is involved in informal investment activity, 5% of the entrepreneurs without exit experience invests informally and 1% of the individuals that are not entrepreneurially active has made an informal investment. Although the sample size of the adult population that is involved in entrepreneurial activity and has recent exit experience is relatively small, the results do suggest that exited entrepreneurs are more likely to be involved in informal investment

[1] Involvement in entrepreneurial activity refers to involvement in potential entrepreneurship, prospective entrepreneurship, early-stage or established entrepreneurship.

activity than entrepreneurs with no exit experience and individuals that are not entrepreneurially active at all.

2.7 Summary

In this chapter we discussed the development in each phase of the entrepreneurial life cycle in the Netherlands in the time period 2001-2009 and placed this in an international perspective. Various phases can be distinguished in the entrepreneurial process, starting from potential entrepreneur, prospective entrepreneur, nascent entrepreneur, new/young business owner, established business owner, to the final phase of exiting entrepreneur. Some entrepreneurs extend the entrepreneurial engagement ladder by becoming a re-engaging entrepreneur to start a new entrepreneurial adventure.

Starting with the first phase of the entrepreneurial life cycle, the phase of potential entrepreneurship, the Dutch adult population has relatively positive perceptions of entrepreneurship. Perhaps as a result of the economic crisis, in 2009 the share of the Dutch adult population having positive self-perceived capabilities or perceive entrepreneurial opportunities was comparable to or even higher than before the economic crisis (i.e. in 2008). At the same time, the share that indicated that fear of failure would prevent them from starting a business remained at the same level. Also from an international perspective, Dutch attitudes and perceptions toward entrepreneurship are quite good, particularly in a year of economic crisis.

If positive perceptions toward entrepreneurship are transformed into actual intentions to start a new business in the near future, the individuals concerned are labelled prospective entrepreneurs. The share of prospective entrepreneurs in the Netherlands displayed a notable rise from 2008 to 2009, perhaps driven by economic circumstances. Compared with all innovation-driven countries, however, start-up intentions in the Netherlands are relatively low, despite the favorable entrepreneurial climate.

As far as early-stage entrepreneurship is concerned, 7.2% of the adult population is involved in nascent and/or young business entrepreneurship in the Netherlands in 2009. The nascent rate in the Netherlands reached a level of 3.1% in 2009 and the young business ownership rate reached 4.1%. The Total early-stage Entrepreneurial Activity (TEA) significantly increased in 2009. It is likely that the global economic crisis forced many individuals that (threatened to) become unemployed to look for alternative employment opportunities, including self-employment. As a result of this strong rise in the TEA rate, the Netherlands conquered a place in the top-10 of all innovation-driven countries and even a place in the top-5 of the participating EU Member States. However, compared to the group of innovation-driven economies, participation in entrepreneurial activity among more highly educated individuals is seriously lagging behind in the Netherlands.

Focusing on the total business ownership rate, that is a country's total number of business owners as a percentage of the total labor force, the Netherlands achieved an average business ownership rate (excl. agriculture) when compared to all 30 OECD countries. As is the case for many advanced economies - including the Netherlands - a decades-long decline in the business ownership rate re-

versed into an increase in the rate of self-employment starting in the 1970s and 1980s.

After an indefinite period of time, any owner-manager will exit his/her business, either through a business closure or a business transfer. The number of business exits rose noticeably from 2008 to 2009. Perhaps the increased share of the Dutch adult population that experienced a business exit in the past year is a consequence of the economic crisis. Most cited reasons for exiting a business in this year of economic crisis were financial problems (including business not being profitable and problems obtaining finance) or an opportunity to sell the business. Other important reasons to exit a business were the exit being planned in advance, another job or business opportunity, a personal reason or retirement. The Dutch total exit rate is comparable to the rate in other higher developed countries.

3 Types of entrepreneurship

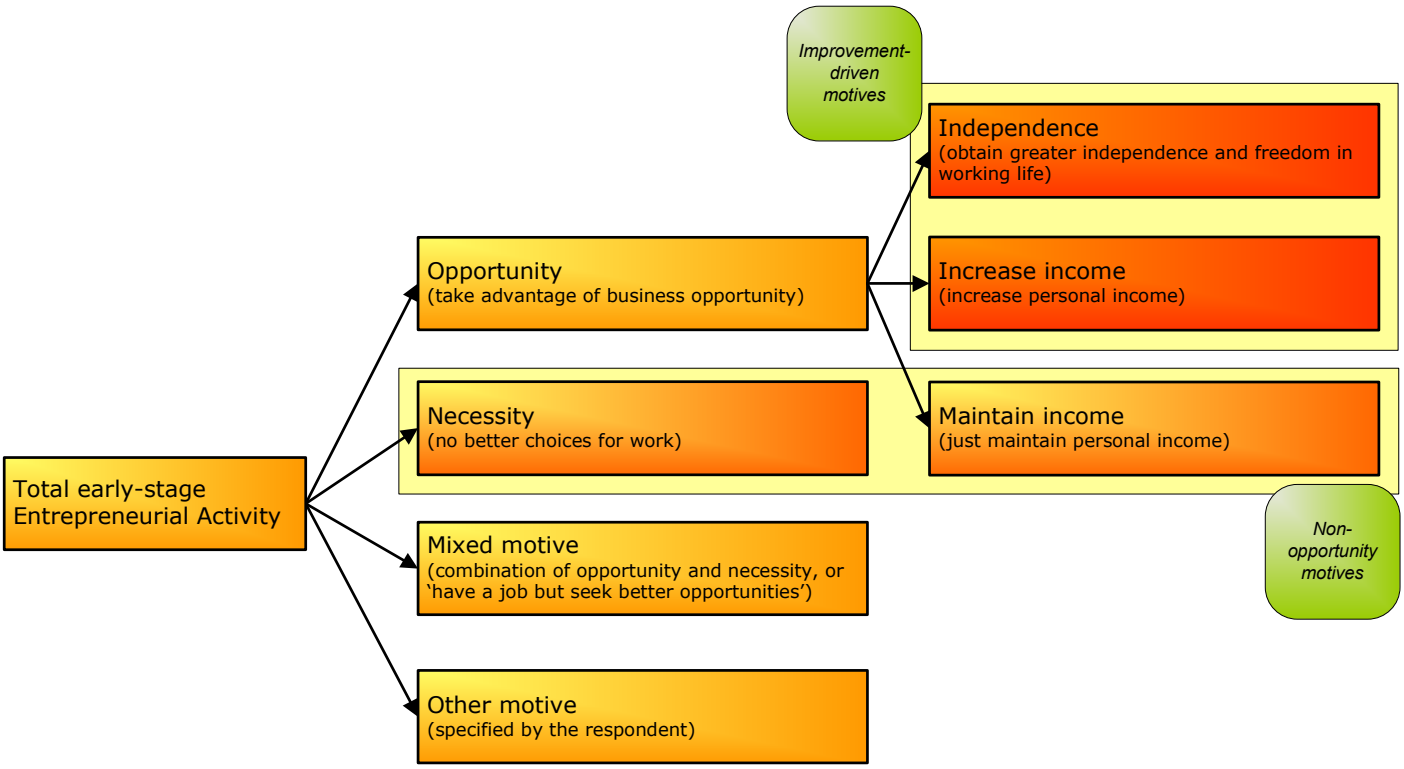
Entrepreneurs are not a homogeneous group. Various types of entrepreneurs can be distinguished during the whole entrepreneurial process. In this chapter, we discuss a number of different types of entrepreneurs. In particular, we focus on opportunity and necessity entrepreneurs, social and non-social entrepreneurs, and ambitious, innovative and international-oriented entrepreneurs.

3.1 Opportunity and necessity entrepreneurship

People can have various motives for becoming engaged in entrepreneurial activity. GEM identifies the different types of motivation in two steps. First, each respondent of the GEM Adult Population Survey that is involved in early-stage entrepreneurial activity is asked whether he/she is involved in this start-up or business to take advantage of a business opportunity (opportunity motive) or because he/she has no better choice of work (necessity motive). If neither of these motives are applicable, the respondent may also indicate here that he/she is involved in this start-up or business because of a mixed motive (i.e. a combination of both opportunity and necessity motives, or the motive of 'having a job but am seeking better opportunities'). If neither of the above motives apply, the respondent may specify another motive (e.g. running a business as a pleasant pursuit). This is graphically represented in Figure 9.

Many people start a new business because they identify with a business opportunity which makes it attractive to start their own business. Some are forced into entrepreneurship because they have no better alternatives for work, e.g. unemployed who cannot find a job in paid employment. Entrepreneurship is their last resort. Since people operating somewhere in between these extremes tend to indicate the opportunity motive, those who chose recognition of an opportunity are asked what is the most important motive for pursuing this business opportunity: to have greater independence and freedom in his/her working life, to increase his/her personal income or just to maintain his/her personal income. The latter category is not considered as a genuine opportunity. Together with the necessity motive this option is labelled as non-opportunity motive. The purely opportunity motives 'gaining independence' and 'increasing income' are labelled as improvement-driven motives.

Figure 9 Definitions of major motives for the decision to be entrepreneurially active (TEA), derived from the GEM Adult Population Survey (APS)



Source: EIM/GEM.

Developments in the Netherlands over time

The major motives for the decision to undertake an entrepreneurial activity in the Netherlands over time (2002-2009) are shown in Table 12. Total early-stage Entrepreneurial Activity is split in opportunity-driven early-stage entrepreneurs (including those who are driven by a mixed motive), necessity-driven early-stage entrepreneurs, and entrepreneurs driven by a motivation other than opportunity or necessity motives. It follows that the classification of TEA into opportunity and necessity early-stage entrepreneurship remains quite stable over time. In 2008 4.3% of the Dutch adult population (18-64 years of age) was driven by opportunity motives and 0.5% by necessity motives: in 2009 the opportunity driven cohort increased slightly to 5.0%, the necessity-driven rate increased relatively more to 0.7%. However, the share of the Dutch adult population (18-64 years of age) that is driven by another motivation significantly increased from 0.4% in 2008 to 1.4% in 2009. Hence, the increase in Dutch early-stage entrepreneurial activity (from 5.2% in 2008 to 7.2% in 2009) is mainly due to individuals who start a business driven by a motivation other than pure opportunity or necessity motives, perhaps the consequence of the bad economic perspectives. For instance, it is possible that (a perception of) decreased job security might have given some employees - who already expected to start a new business in the near future anyway - the incentive to start their own business now.

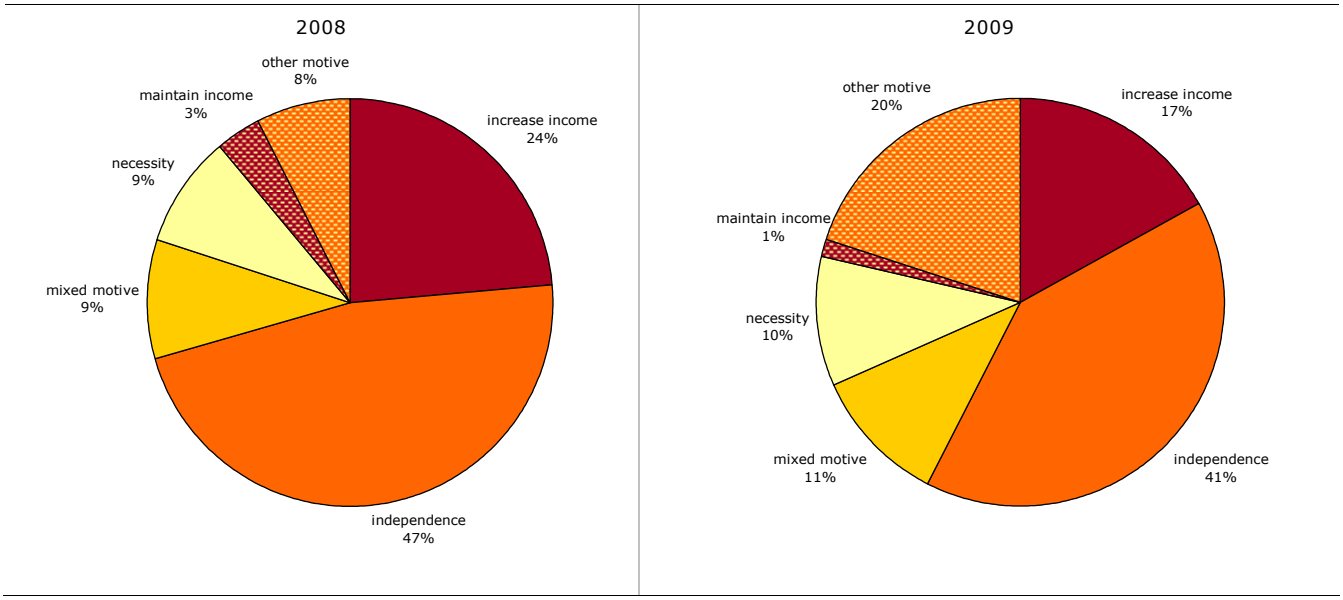
Table 12 Major motives for the decision to be entrepreneurially active (TEA), the Netherlands, 2002-2009, percentage of the adult population (18-64 years of age)

Item	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Opportunity-driven motivation*	4.0	3.0	4.3	3.9	4.9	3.9	4.3	5.0
Necessity-driven motivation	0.5	0.4	0.7	0.3	0.3	0.6	0.5	0.7
Other motivation	0.1	0.2	0.1	0.1	0.2	0.7	0.4	1.4
Total (TEA)	4.6	3.6	5.1	4.4	5.4	5.2	5.2	7.2

** In the GEM dataset referred to as opportunity motive, but technically including the mixed motive.*

Source: EIM/GEM.

Figure 10 Major motives for the decision to be entrepreneurially active, the Netherlands, 2008 and 2009, percentage of the adult population (18-64 years of age) involved in TEA



Source: EIM/GEM.

A closer look at the major motives for the decision to be entrepreneurially active within the adult population (18-64 years of age) that is involved in early-stage entrepreneurial activity is provided in Figure 10. All six motives as presented in Figure 9 are visualized in Figure 10 for the Netherlands for both 2008 and 2009. In 2009, about two-fifth of the Dutch early-stage entrepreneurs was primarily motivated by independence. In addition, 17% of the early-stage entrepreneurs started their own firm mainly in order to increase their personal income. Drivers such as maintaining income were the least mentioned reason for starting a new business (1%). Moreover, 10% of the adult population involved in TEA were pushed into self-employment because they had no other means of making a subsistence living. The share of entrepreneurs predominantly motivated by other motives increased strongly from 8% in 2008 to 20% in 2009. Finally, 11% was driven into self-employment through mixed motives or a combination of push and pull factors.

Table 13 Major motives for the decision to be entrepreneurially active (TEA), by stage of economic development (unweighted average), 2009, percentage of adult population (18-64 years of age)

	Item	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Motives	Opportunity-driven motivation*	11.5	7.2	4.8	5.0
	Necessity-driven motivation	5.4	3.7	1.1	0.7
	Other motivation	0.6	0.4	0.4	1.4
	Total (TEA)	17.6	11.3	6.3	7.2

** In the GEM dataset referred to as opportunity motive, but technically including the mixed motive.*

Source: EIM/GEM.

A global comparison

Focusing on the main reasons for starting a new business in all GEM 2009 countries revealed that about one third of the early-stage entrepreneurs in factor- and efficiency-driven economies were involved in necessity entrepreneurship. Opportunity-entrepreneurship is most popular in countries at all stages of economic development. In OECD countries, 4.7% (1.1%) of the adult population is involved in opportunity (necessity) entrepreneurship. These averages are 4.3% (1.2%) in EU Member States. The literature shows that entrepreneurs that are mainly driven by necessity are on average lower educated, run smaller firms and expected to have less growth ambitions than other entrepreneurs. The other side is, however, that necessity entrepreneurs are more likely to stay in the market (Poschke, 2010).

3.2 Social entrepreneurship

Each year GEM selects a specific topic to be included in the Adult Population Survey. In 2009, the aim was to examine the prevalence and nature of entrepreneurship with a social purpose. In total 49 nations collected data on the special section about social entrepreneurial activity[1]. This was therefore the first time that such an exercise had ever been attempted across so many countries.

[1] No data on social entrepreneurship was collected in Japan and Tunisia. Data from Denmark, Tonga and Yemen were collected but have not been included. Denmark collected the data using a different approach, making the results insufficiently comparable to other countries. Tonga and Yemen returned high nascent social entrepreneurial activity rates and were clear outliers, probably because of unique socio/political/cultural heritages. These countries were therefore not included in the analysis.

Although scholars and practitioners have proposed a variety of definitions for social entrepreneurship, no generally accepted definition exists in the research community (Brock, 2008; Short, Moss and Lumpkin, 2009). GEM therefore uses a broad definition of social entrepreneurship to identify individuals or organizations engaged in entrepreneurial activities with a social goal (Mair and Martí, 2006; Van de Ven, Sapienza and Villanueva, 2007; Zahra, Gedajlovic, Neubaum and Shulman, 2009). The precise definition reads as follows:

> *Social early-stage Entrepreneurial Activity (SEA) refers to the percentage of the adult population (18-64 years of age) that is currently trying to start or is owning-managing any kind of activity, organization or initiative that has a particularly social, environmental or community objective and that is less than 42 months old.*

This might include providing services or training for socially deprived or disabled persons, using profits for socially oriented purposes, organizing self-help groups for community action and so on. Hence, SEA covers any and all activity with a social purpose, including social or community work, for profit or non-profit, and incorporated or unincorporated.[1]

SEA in the Netherlands

Social entrepreneurship is not widely implemented in the Netherlands as only 0.9% of the Dutch adult population (18-64 years of age) was involved in Social early-stage Entrepreneurial Activity (SEA) in 2009. As is the case with TEA, social early-stage entrepreneurial activity - the social equivalent of TEA - is also an aggregate of nascent and young entrepreneurial activity. An individual is marked as a nascent social entrepreneur if he/she is currently engaged in setting up a new activity, organization or initiative with a social purpose. Once this social activity has been set up, the social entrepreneur becomes the owner-manager of a new/young activity. In 2009, 0.5% of the Dutch adult population (18-64 years of age) was engaged in nascent social entrepreneurial activity and 0.4% owned and managed a new/young social entrepreneurial activity.

A global comparison

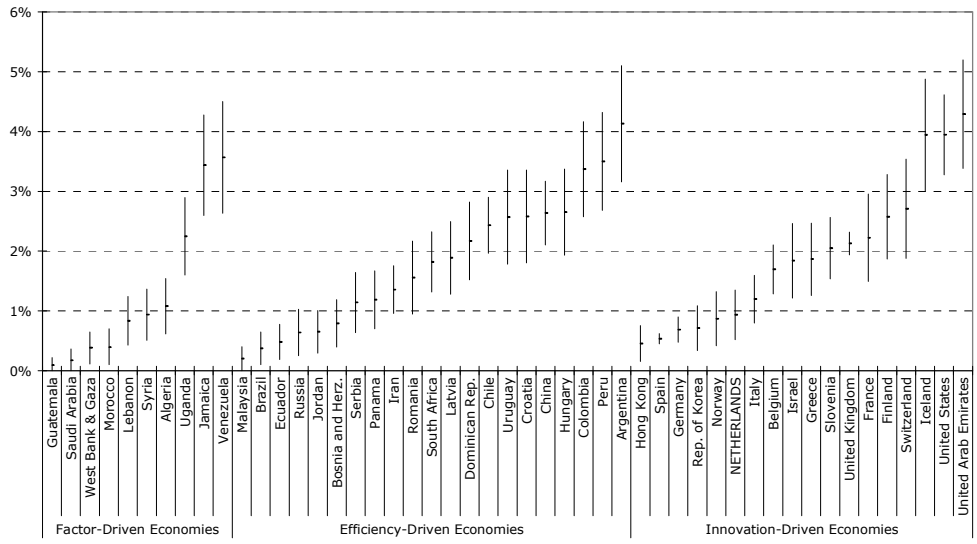
Social early-stage Entrepreneurial Activity (SEA) prevalence rates for all participating GEM 2009 countries are presented in Figure 11. Although the range of SEA was similar for all three stages of economic development, the average SEA rate seemed to increase slightly with national wealth. In factor-driven countries, the average SEA rate was 1.3%, while the average SEA in efficiency- and innovation-driven economies equals 1.8% and 1.9% respectively. The Dutch SEA prevalence rate was thus rather low in comparison to other innovation-driven economies.

Looking at social entrepreneurship by phase, it follows that social entrepreneurial activity in new/young organizations is more or less consistent across the three major stages of economic development: 0.6% in both factor- and efficiency-

[1] Social entrepreneurial activity does not necessarily have to be implemented in a firm; it can thus also be an organization, initiative or other kind of activity.

driven economies, and 0.7% in innovation-driven economies. The nascent social entrepreneurship rate, on the other hand, is similar in efficiency- and innovation-driven economies (1.2%), and slightly lower in factor-driven economies (0.8%).

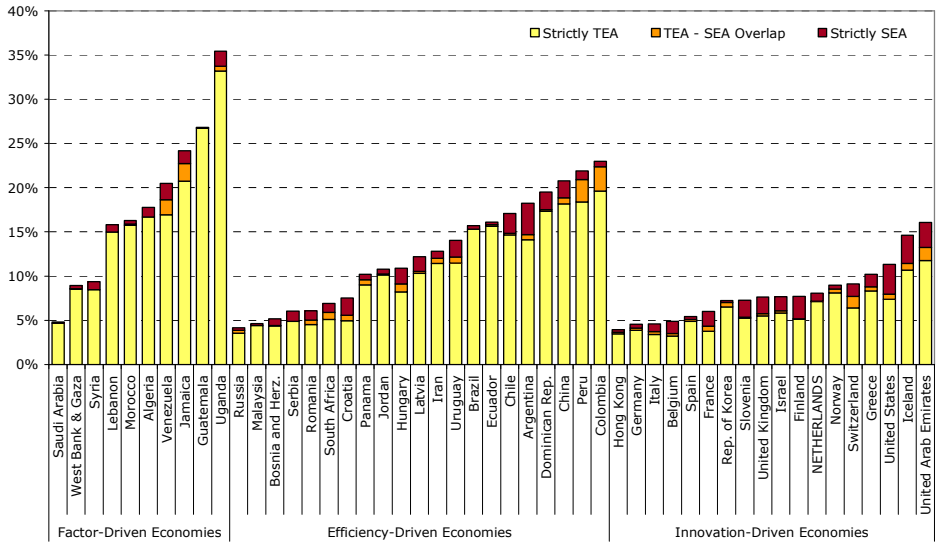
Figure 11 Social early-stage entrepreneurial activity (SEA) rates for all participating GEM countries, by stage of economic development, 2009, percentage of the adult population (18-64 years of age)



Source: EIM/GEM (Bosma and Levie, 2010).

To provide a better understanding of the prevalence rates of Social early-stage Entrepreneurial Activity (SEA), we compare the levels of SEA with Total early-stage Entrepreneurial Activity (TEA). In the GEM survey, each respondent that indicated being involved in social entrepreneurial activity is also asked whether this activity was the same as or different to the business activity he/she may have already mentioned in the survey. This allows us to identify the shares of pure TEA and SEA and to what extent these different types of entrepreneurial activity overlap. The results are depicted in Figure 12. This reveals that prevalence rates of social entrepreneurial activity are (much) lower than those of non-social entrepreneurial activity for all countries in the sample. Furthermore, the data suggests that, on average, SEA as a share of total social and non-social entrepreneurial activity (i.e. the aggregate of strictly TEA, strictly SEA and TEA-SEA overlap) tends to increase with economic development, see Table 14.

Figure 12 Prevalence rates of SEA and TEA for all participating GEM countries, by stage of economic development, 2009, percentage of the adult population (18-64 years of age)



Source: EIM/GEM (Bosma and Levie, 2010).

Table 14 Prevalence rates of SEA and TEA, by stage of economic development (unweighted average), 2009, percentage of adult population (18-64 years of age) involved in TEA

	Item	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Early-stage entrepreneurship	Strictly TEA	16.5	10.7	6.1	7.1
	TEA - SEA overlap	0.4	0.6	0.4	0.1
	Strictly SEA	0.9	1.2	1.5	0.9
	Total	17.8	12.6	8.1	8.1
	TEA - SEA overlap as a share of Total (%)	2.5	4.8	5.5	0.7
	SEA as a share of Total (%)	7.4	14.4	23.8	11.5

Source: EIM/GEM.

Individuals in more highly developed countries, having satisfied their own basic needs, may be more likely to turn to the needs of others. In other words, the opportunity cost of social entrepreneurship may be higher in developing countries. On the other hand, social and environmental problems are often more

prevalent in developing countries. Another possible reason for the finding that social entrepreneurship increases slightly with wealth is that the definitions of a traditional enterprise and a social enterprise may overlap in developing countries, whereas they may be more distinct in developed countries. The data, however, does not support this explanation. As follows from Table 14, the overlap of TEA and SEA as a percentage of total social and non-social early-stage entrepreneurial activity increases by stage of economic development, implying that the definitions of a traditional enterprise and a social enterprise are not more distinct in developed countries.

Demographic structure of SEA

Looking at the demographic structure of social entrepreneurship across the three major stages of economic development teaches us that social businesses are more likely to be launched by males than by females, although the gender gap is not as large as in TEA. Female SEA prevalence rates are almost constant across factor-, efficiency- and innovation-driven economies, whereas male participation rates increase with national wealth.

As far as the age structure is concerned, individuals in the youngest age category (18-24 years) - except for factor-driven economies - are on average more likely to be involved in social early-stage entrepreneurial activity as compared to TEA. So, in more developed countries social entrepreneurship peaks at a lower age than non-social entrepreneurship.

3.3 Entrepreneurial aspirations

Entrepreneurial aspirations refer to growth ambitions, ambitions to innovate, and ambitions to internationalize. GEM data collected in a six-year period (2004-2009) are combined to take a closer look at entrepreneurial aspirations of early-stage entrepreneurs. The indicators for job-expectation, innovation, and internationalization are presented only for those GEM countries for which a sufficient sample size was available[1].

3.3.1 Ambitious (high-growth) entrepreneurship

In order to track ambitious entrepreneurship in terms of rapid (expected) employment growth, each respondent involved in early-stage entrepreneurial activity is asked how many employees (other than the owner(s)) he/she expects to have within five years' time. GEM's measure High-growth expectation early-stage Entrepreneurial Activity (HEA) refers to the percentage of the adult population (18-64 years of age) that is involved in Total early-stage Entrepreneurial Activity and expects their business to grow with at least 20 people in five years' time.

Developments in the Netherlands over time

Table 15 demonstrates the anatomy of high-growth expectation entrepreneurship in the Netherlands over time (2002-2009). This shows that the development of early-stage entrepreneurs aspiring for rapid growth oscillates over time. The

[1] A first requirement was a minimum sample of 5,000 adults between 18-64 years per country over the combined set of 2003-2009 data. An additional requirement was that at least 100 early-stage entrepreneurs were identified in the same period.

number of high-growth entrepreneurs as a portion of the adult population (between 18-64 years of age) reveals a more stable pattern, ranging from 0.2% to 0.6%. However, due to fluctuations in the total early-stage entrepreneurial activity rate, the share of high-growth entrepreneurs *within* TEA is volatile. In the most recent year observed, 8.2% of the nascent and young business entrepreneurs expected their business to grow by at least 20 people in five years time, which is significantly higher than 2008. Furthermore, the share of high-growth oriented entrepreneurs within TEA in the Netherlands is in line with the EU-average (8.0%) and the average of OECD Member States (9.0%).

Table 15 Anatomy of High-growth expectation early-stage Entrepreneurial Activity (HEA) in the Netherlands, 2002-2009, percentage of the adult population (18-64 years of age) involved in TEA

	Item	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
HEA	You are actively involved in nascent and/or young business entrepreneurship and you will grow with at least 20 people in five years' time	13.9	12.3	12.0	5.8	11.0	8.1	4.1	8.2

Source: EIM/GEM.

Focusing on high-growth expectations of nascent and new/young business entrepreneurs separately, averaged over all GEM countries participating in the period 2002-2008[1], it follows that 10.2% of all nascent entrepreneurs and 10.1% of all new/young business entrepreneurs expect to grow with at least 20 people in five years' time. One should note that there is, however, support in literature for overconfidence among nascent entrepreneurs (Koellinger, Minniti and Schade, 2007).

A global comparison

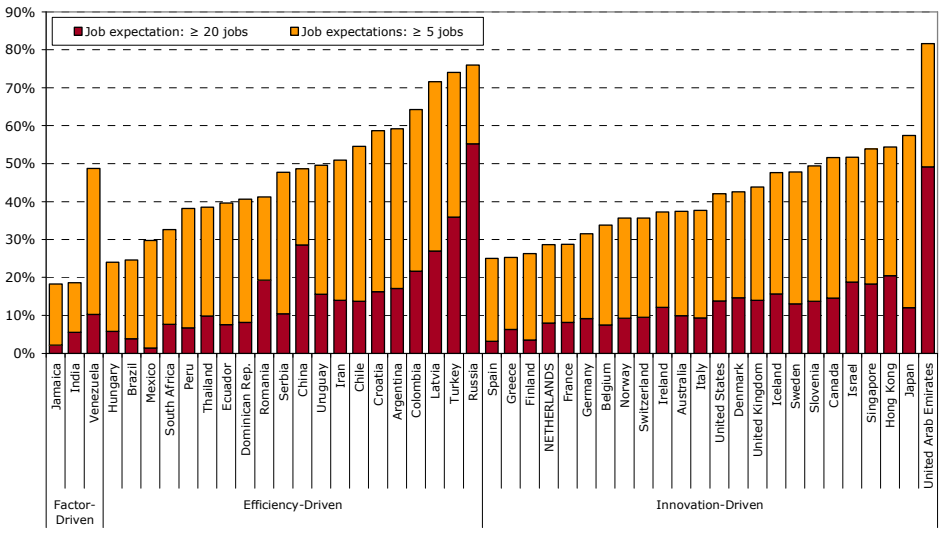
By asking all identified early-stage entrepreneurs how many employees they expect to have within five years' time, it was found that out of every ten early-stage entrepreneurs seven expect some job creation. Expectations of high-growth are rare however. Only 14% of all start-up attempts worldwide expect to create at least 20 jobs, while 44% expect to create five or more jobs. Figure 13 illustrates the distribution of high (20 or more jobs) and moderate (five or more jobs) growth expectation with the population of nascent and new entrepreneurs.

It follows that the share of early-stage entrepreneurs aspiring for moderate job growth is larger than the share of high-growth expectation early-stage entrepreneurs in the majority of countries during the period 2004-2009. Exceptions are Russia, China, and the United Arab Emirates. In the Netherlands, just over 8% of the early-stage entrepreneurs expect to grow with at least 20 people in five years' time, whereas almost 21% expects to create five or more jobs. Compared

[1] 2009 is not included in this range as individual level data for all countries was not available yet to all GEM teams.

to other innovation-driven economies, these job expectations are rather low. This might be related to the relatively strict employment protection legislation in the Netherlands. High employment protection could be perceived as a barrier for entrepreneurs with (high) growth expectations.

Figure 13 Prevalence of High- and Moderate-growth expectation early-stage Entrepreneurial Activity (HEA and MEA), by stage of economic development, average 2004-2009, percentage of the adult population (18-64 years of age) involved in TEA



Source: EIM/GEM (Bosma and Levie, 2010).

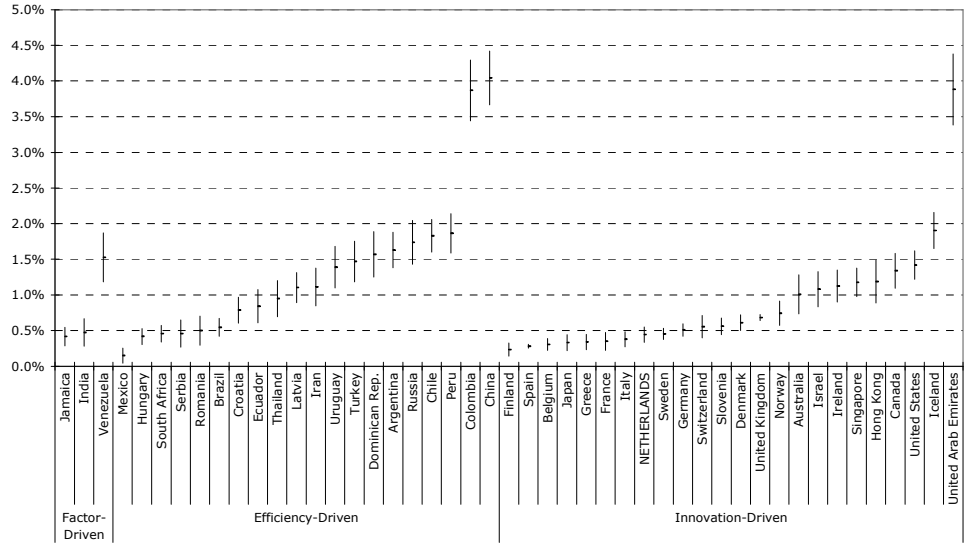
Looking at the prevalence of High-growth expectation early-stage Entrepreneurial Activity (HEA) by stage of economic development (Figure 14[1]) it is evident that growth ambitions can differ strongly across countries. For factor-driven economies, Venezuela (1.5%) has a much higher share of early-stage entrepreneurs with high-growth expectations. This also applies for Colombia (3.9%) and China (4.0%) compared to other efficiency-driven economies. Focusing on innovation-driven economies, the United Arab Emirates (3.9%), followed by Iceland (1.9%) have the highest levels of HEA. The United States (1.4%), Canada (1.3%), Hong Kong and Singapore (1.2%), Ireland and Israel (1.1%), and Australia (1.0%) also show an above average level of high-growth expectation early-stage entrepreneurial activity. The lowest prevalence rates of HEA are found in Finland (0.2%), Spain, Belgium, Japan, Greece and France (0.3%). The share of high-growth expectation entrepreneurs in the Netherlands (0.4%) is also relatively low.

If high-growth ambitions are translated into realized growth, the corresponding enterprises are expected to have a notable impact on employment creation. In fact, high-growth enterprises are likely to contribute a disproportionate share of

[1] In this figure, six years of GEM data (2004-2009) are combined to make a more accurate assessment of differences in growth ambitions among early-stage entrepreneurs.

all new jobs created by new firms (Bosma and Levie, 2010). It may therefore be important to stimulate entrepreneurial ambitions for business growth, particularly in the Netherlands where entrepreneurial growth ambitions are modest.

Figure 14 Prevalence of High-growth expectation early-stage Entrepreneurial Activity (HEA), by stage of economic development, average 2004-2009, percentage of the adult population (18-64 years of age)



Source: EIM/GEM (Bosma and Levie, 2010).

3.3.2 Innovative entrepreneurship

Innovation and entrepreneurship are closely related. Schumpeter (1934) argued that entrepreneurs distort the market equilibrium by introducing new product-market combinations or innovations which drive less productive firms out of the market and advance the production frontier. Whether entrepreneurs succeed in this way, or whether their innovations are copied by incumbents, the effect is the same, and that is higher productivity and economic growth.

In order to identify innovative entrepreneurs, GEM asked all early-stage entrepreneurs to rate the novelty (or unfamiliarity) of their products/services relative to customers' current experience (product innovation), as well as the degree of competition in the market that is faced by the business (business innovation). Finally, early-stage entrepreneurs were asked to indicate the newness of the technology used in the business (technology innovation).

Developments in the Netherlands over time

In 2009, 31% of the Dutch adult population involved in early-stage entrepreneurial activity reported (some) new product/market combination (versus just over 20% in 2008). A new product/market combination means that the product is new to all/most of the customers *and* that there are no/few competitors. More detailed figures concerning innovativeness of nascent and new entrepreneurs in the Netherlands over time (2002-2009) are reported inTable 16. Here innovativeness is expressed in terms of product innovation (newness of the product), business

innovation (degree of competition), and technology innovation (newness of technology)[1]. Product and business innovation reveal a relatively stable pattern over time (2002-2009). In 2009, two-fifths of the products/services offered by early-stage entrepreneurs were new to all customers and over two-fifths new to some customers. About 59% of the products/services of early-stage entrepreneurs were not new to any customer.

Concerning business innovation, 16% of the early-stage entrepreneurs did not experience competition in 2009. The large majority of nascent and new/young entrepreneurs, however, experienced competition since few (38%) or many (46%) businesses offer the same product.

Finally,Table 16 demonstrates that 6% of the Dutch early-stage entrepreneurs made use of the very latest technology (available only since the previous year), while 10% made use of new technology (available in the last 1-5 years). However, most nascent of new/young entrepreneurs (84%) did not use new technologies at all. Overall, the level of innovativeness in the Netherlands in 2009 was above the 2002-2009 average.

Table 16 Innovativeness of Total early-stage Entrepreneurial Activity (TEA) in the Netherlands, 2002-2009, percentage of the adult population (18-64 years of age) involved in TEA*

			2002	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Innovation	Product innovation (newness of product)	new to **all** customers	21	10	18	18	12	18	21	20
		new to **some** customers	10	15	16	12	29	21	20	21
		new to **none** of the customers	69	75	66	70	59	60	59	59
	Business innovation (degree of competition)	**no** businesses offer the same product	14	15	12	12	11	8	10	16
		few businesses offer the same product	39	43	43	36	42	39	41	38
		many businesses offer the same product	47	42	45	52	47	53	49	46
	Technology innovation (newness of technology)	the **very latest** technology is used	2	3	3	11	4	7	2	6
		new technology is used	9	9	10	10	13	13	15	10
		no new technology is used	89	88	88	79	83	80	83	84

** One of the answers a respondent of the GEM APS might have given concerning product innovation was 'new to some customers'. One of the answers that might be given concerning business innovation was 'few businesses offered the same product'. How many 'some customers' or a 'few businesses' are is not precise, this is implicitly judged by the respondent only.*

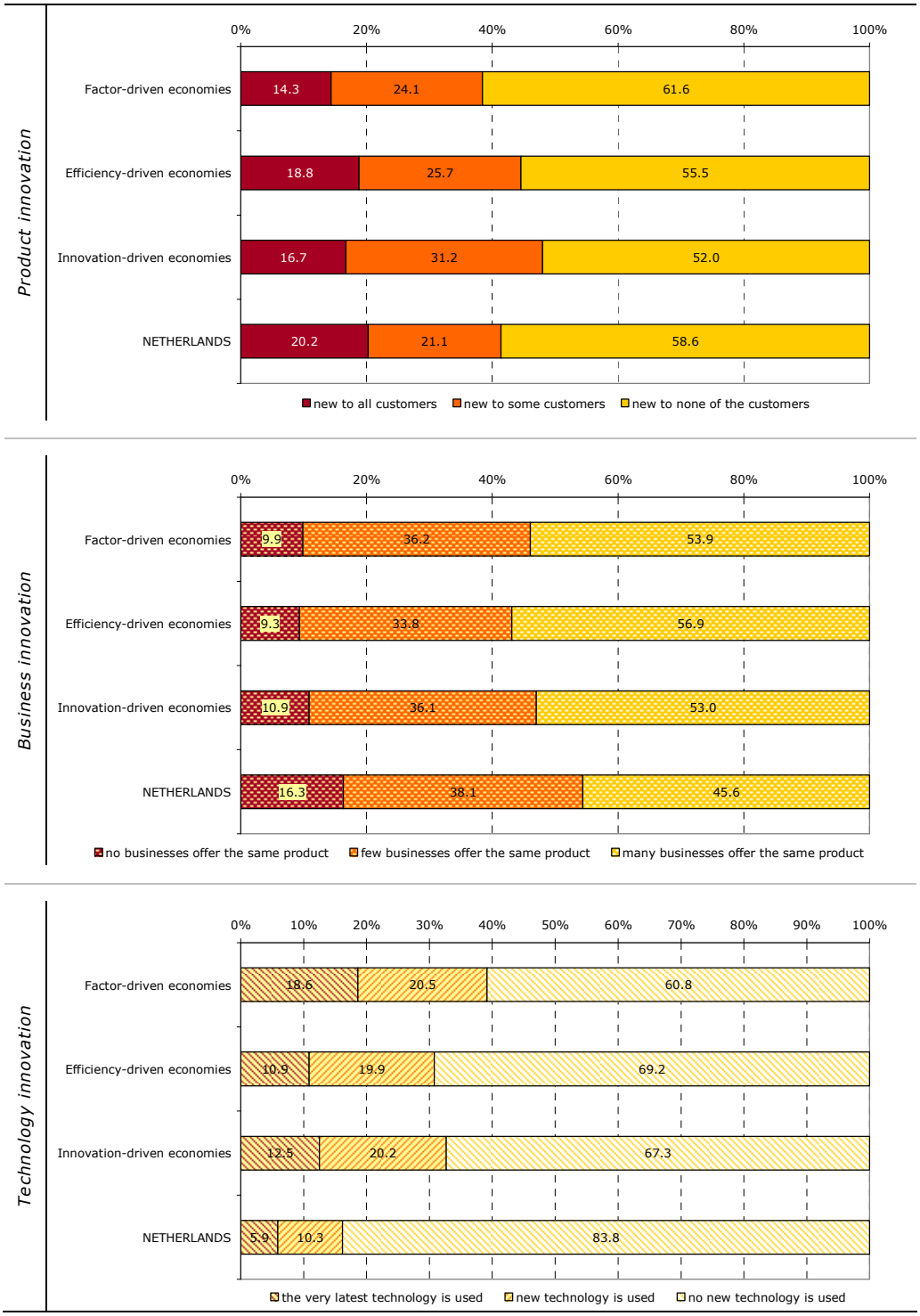
Source: EIM/GEM.

[1] Concerning technology innovation, entrepreneurs can use the very latest technology (available only since last year), new technology (available only in the last 1-5 years), or no new technology (available for more than 5 years).

A global comparison

Figure 15 displays the level of innovativeness of Total early-stage Entrepreneurial Activity by stage of economic development, suggesting that, on average, product, business and technology innovation do not vary much across countries with different levels of national wealth.

Figure 15 Innovativeness of Total early-stage Entrepreneurial Activity (TEA), by stage of economic development (unweighted average), 2009, percentage of the adult population (18-64 years of age) involved in TEA



Source: EIM/GEM.

Comparing the level of innovativeness in the Netherlands with factor-driven, efficiency-driven and innovation-driven economies reveals some clear similarities and dissimilarities. When the newness of the product/service is involved, Dutch early-stage entrepreneurs more frequently offer new products/services to all customers (20%) compared to other innovation-driven economies (17%), but less often to some customers (21%) compared to other innovation-driven economies (31%).

In terms of business innovation, early-stage entrepreneurs in the Netherlands seem to be slightly more innovative relative to all innovation-driven countries. Although early-stage entrepreneurs to a large extent experienced a level of competition similar to other innovation-driven economies, the share of early-stage entrepreneurs that did not face competition at all is clearly higher in the Netherlands (16%) than in other innovation-driven economies (11%), at least in 2009. This could be linked to the increased number of business exits as a result of the economic crisis.

Concerning the newness of technology, Dutch nascent and new/young entrepreneurs are much less innovative than might be expected from their stage of economic development. To illustrate, while 84% of early-stage entrepreneurs in the Netherlands do not make use of new technology, this holds for only 67% in other innovation-driven economies. Furthermore, the very latest technology is used twice as often in other innovation-driven economies (13%) than in the Netherlands (6%). This implies noticeable room for improvement. In order to improve the innovativeness in the Netherlands, the use and implementation of the very latest or new technology could be stimulated.

3.3.3 International-oriented entrepreneurship

The final measure of entrepreneurial aspirations describes the international orientation of early-stage entrepreneurs. This measure is based on the extent to which customers are from other countries. It refers to exports as well as to international customers who buy products online, or visit the country as tourists or for work purposes.

Developments in the Netherlands over time

The Dutch ambitions to internationalize are reported in Table 17 for the period 2002-2009. In the time period considered, it appears that more or less half of the entrepreneurially active population is not international-oriented at all as they have no customers outside the country. In 2009, two-fifth served 1-25% of their customers outside the Netherlands, while the remaining 15% was substantially international-oriented in the sense that they had more than a quarter of the customers abroad.

Relative to 2008, the Dutch export orientation increased. The portion of early-stage entrepreneurs serving no customers outside the Netherlands decreased, while the share of the entrepreneurially active population with 26-100% of their customers abroad remained equal in 2009. The fraction of entrepreneurs serving up to a quarter of their customers abroad increased, back to the level of 2003, see Table 17. A possible explanation for this rise in the share of export-oriented entrepreneurs may be that the economic crisis pushed early-stage entrepreneurs to look for a broader area of distribution. In a time of economic downturn the circumstances for starting/owning-managing a business are detrimental - a low

demand for goods and services - pushing entrepreneurs to serve customers outside the Netherlands as well. In 2003, Dutch early-stage entrepreneurs were also relatively more export-oriented, probably linked to the recession following the collapse of the Dot-com bubble. Perhaps economic crises decrease room for domestic entrepreneurship and forces entrepreneurs to shift their focus abroad; international entrepreneurship is less dependent on the cycle.

Table 17 Internationalization of Total early-stage Entrepreneurial Activity (TEA) in the Netherlands, 2002-2009, percentage of the adult population (18-64 years of age) involved in TEA

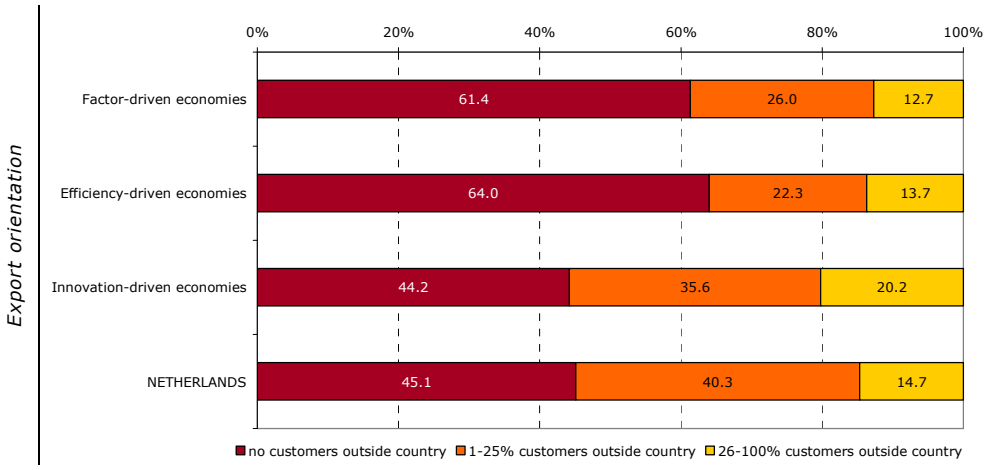
		2002	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Export Orientation	No customers outside country	52	43	53	51	63	47	52	45
	1-25% of customers outside country	31	40	26	28	24	34	34	40
	26-100% of customers outside country	16	17	21	20	13	19	15	15

Source: EIM/GEM.

A global comparison

A global comparison of the level of international-oriented early-stage entrepreneurs (Figure 16) indicates that entrepreneurs in the factor- and efficiency-driven economies are quite similar, whereas entrepreneurs in innovation-driven economies have a significantly larger share of their customers outside the country. Export orientation of Dutch early-stage entrepreneurs is comparable to all innovation-driven economies.

Figure 16 Internationalization, by stage of economic development (unweighted average), 2009, percentage of the adult population (18-64 years of age) involved in TEA



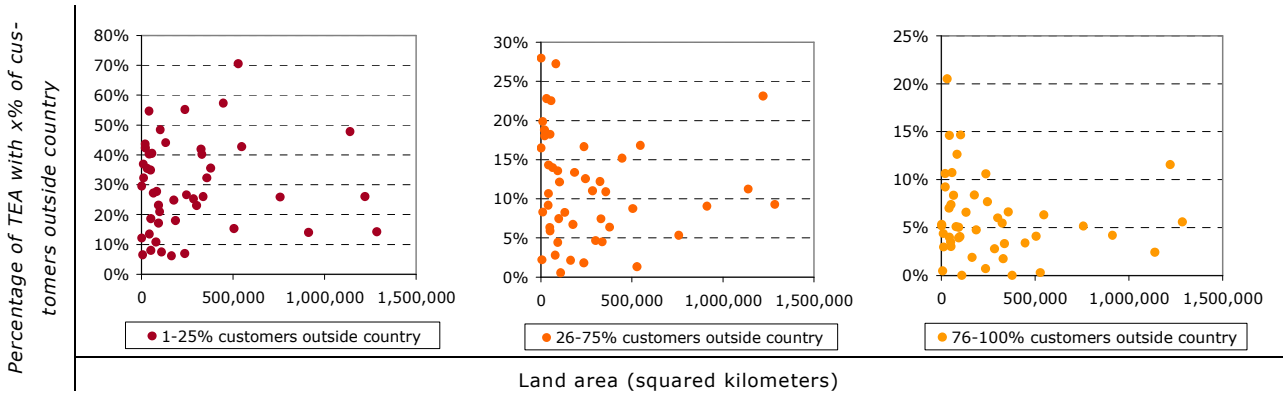
Source: EIM/GEM.

Looking at the degree of export orientation by a country's land area, Figure 17 illustrates that the percentage of the adult population (18-64 years of age) involved in early-stage entrepreneurial activity and being export-oriented is particularly related to a country's land area when the share of customers abroad becomes larger. In other words, smaller countries are more likely to have a larger

percentage of TEA with 76-100% of their customers outside the country than larger countries (graph on the right). This pattern is less strong for TEA with 26-75% of their customers outside the country (middle graph).

A country's size does not seem to be related to TEA with 1-25% of their customers abroad. Hence, countries with greater land area are likely to have lower international orientation than countries with smaller land area. Given the small size of the Netherlands, the export orientation provided in Figure 16 is therefore surprisingly low.

Figure 17 Percentage of the adult population (18-64 years of age) involved in TEA with 1-25%, 26-75% and 76-100% of their customers outside the country, by country's land area (in km^2)



Source: EIM/GEM and The CIA World Factbook (Feb. 2006)[1].

3.4 Summary

This chapter first distinguished different types of entrepreneurs. First, the chapter focuses on entrepreneurial motivation. People can have different motives for becoming engaged in entrepreneurial activity. Generally speaking, a distinction can be made between entrepreneurs who are primarily driven by opportunity-based motivations (i.e. opportunity TEA) and those who are pushed into entrepreneurship because they have no better options to earn a living (i.e. necessity TEA). In the Netherlands, the classification of TEA into opportunity and necessity early-stage entrepreneurship remained quite stable over time (2002-2009). The increase in Dutch early-stage entrepreneurial activity (from 5.2% in 2008 to 7.2% in 2009) was mainly due to individuals who started a business driven by a motivation other than pure opportunity or necessity motives, perhaps caused by the bad economic perspectives.

Second, this chapter pays attention to social entrepreneurship. Participation in social entrepreneurship was not very pronounced in the Netherlands in the sense that only 0.9% of the Dutch adult population (18-64 years of age) was involved in Social early-stage Entrepreneurial Activity (SEA) in 2009.

[1] http://www.worldatlas.com/aatlas/populations/ctyareal.htm

Third, the chapter looks at entrepreneurial aspirations, in terms of job growth orientation. In 2009 8.2% of the nascent and young business entrepreneurs expected their business to grow with at least 20 people in five years time, which was significantly higher than 2008. The share of high-growth oriented entrepreneurs within TEA in the Netherlands was in line with the EU-average (8.0%) and the average of OECD Member States (9.0%).

Fourth, aspirations in terms of innovation are also examined. Innovativeness may be expressed in terms of product innovation (newness of the product), business innovation (degree of competition), and technology innovation (newness of technology). Product and business innovation revealed a relatively stable pattern over time (2002-2009). In 2009, two-fifth of the products/services offered by early-stage entrepreneurs was new to all customers and over two-fifth new to some customers. Furthermore, more than half of the early-stage entrepreneurs face a few or even no competitors. The use of latest or new technology is rather low among Dutch early-stage entrepreneurs as 84% makes no use of any new technology. Overall, it appears that in 2009, 31% of the Dutch adult population involved in early-stage entrepreneurial activity reported (some) new product/market combination (versus just over 20% in 2008). A new product/market combination means that the product is new to all/most of the customers *and* that there are no/few competitors.

Finally, this chapter assessed the extent of international-oriented entrepreneurship. In 2009, two-fifth served 1-25% of their customers outside the Netherlands, while 15% is substantially international-oriented in the sense that they had more than a quarter of the customers abroad. Relative to 2008, the international orientation of Dutch early-stage entrepreneurs increased.

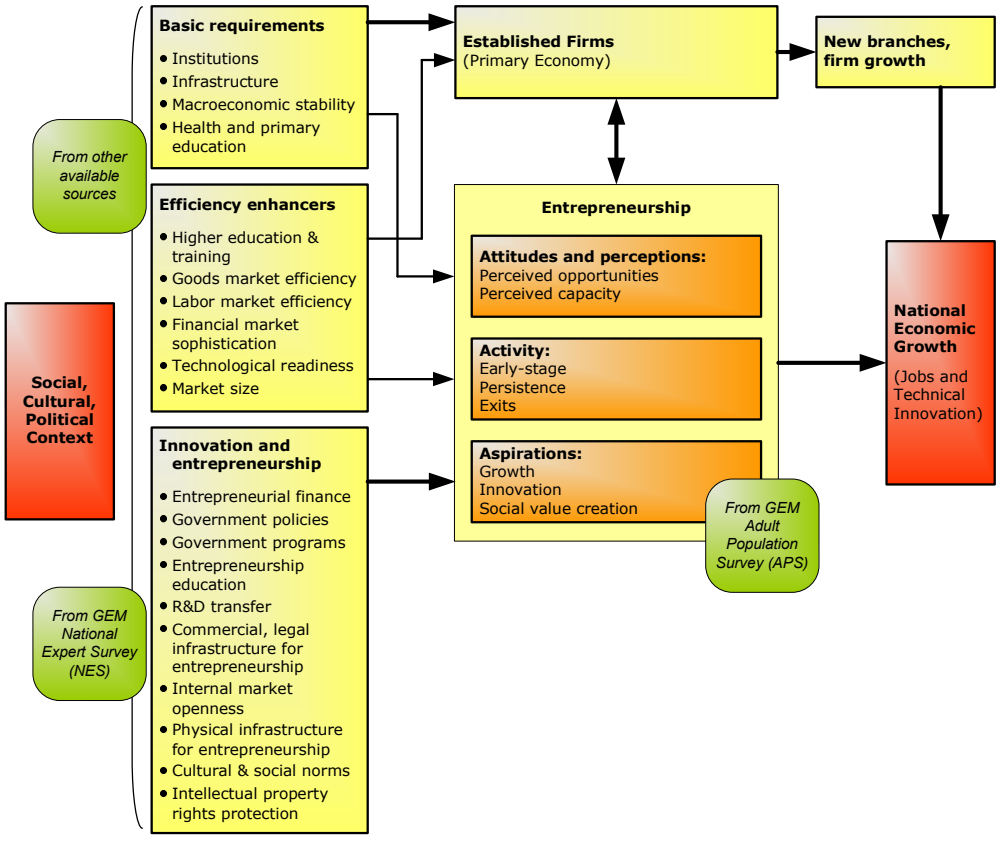
4 Social, cultural and political context

The main elements of entrepreneurship have already been discussed in chapter 2 (the entrepreneurial process) and chapter 3 (types of entrepreneurship). The entrepreneurial sector is shaped by a country's social, cultural and political context. Major features of a country's socio-economic milieu that are expected to have a significant impact on the entrepreneurial sector are discussed in this chapter. To achieve this purpose, we make use of the GEM model (see Section 4.1) and present the results of the GEM National Expert Survey (NES), in which experts were asked to evaluate their country's social, cultural and political context in relation to entrepreneurship.

4.1 The GEM model

In order to capture the links between a country's social, cultural and political context and the entrepreneurial sector GEM developed a comprehensive model. This model also incorporates the extent to which different features of a country's social, cultural and political context - with the potential to foster entrepreneurship - apply to different stages of economic development. The GEM model is graphically presented in Figure 18.

Figure 18 The GEM model



Source: EIM/GEM (Bosma and Levie, 2010).

The major indicators of a country's potential to foster entrepreneurship are captured by three types of conditions: *basic requirements*, *efficiency enhancers*, and *innovation and entrepreneurship enhancers*. Since entrepreneurial activities vary with economic development, national policy makers need to tailor their socio-economic programs to the development context of their country.

In factor-driven economies, emphasis is on *basic requirements*: development of institutions, infrastructure, macroeconomic stability, and health and primary education. As economies progress and scale economies become more and more relevant other conditions, that are called *efficiency enhancers* and ensure a proper functioning of the market, become important. Even though these conditions are not directly related to entrepreneurship in the Schumpeterian sense[1], they are indirectly related since the development of markets will also attract more entrepreneurship. For countries whose economic development is primarily innovation-driven, *innovation and entrepreneurship enhancers* become important.

So whereas enabling entrepreneurship in factor-driven economies may be desirable, more basic requirements such as primary education are necessary and should have priority, as entrepreneurship is unlikely to contribute substantial improvements in wealth creation if basic requirements are not achieved. Entrepreneurs with high aspirations fare better in countries with a stable economic and political climate and well-developed institutions (in fact they may migrate to other countries with more favorable political and economic conditions and better developed institutions to pursue their ambitions). In other words, entrepreneurship should certainly not be discouraged, but enhancing innovation and entrepreneurship should perhaps not attract too many financial resources in this stage of economic development if it is at the expense of basic requirements. At the other end of the spectrum, policy makers in innovation-driven economies would do well to enhance innovation and entrepreneurship, as this should make their economies more dynamic and innovation-oriented. This assumes, however, that they have high quality basic requirements and efficiency enhancing conditions in place. Table 18 summarizes the different foci of countries at different development levels.

Table 18 Importance of different types of national conditions for economic development

	Basic requirements	*Efficiency enhancers*	*Innovation and entrepreneurship enhancers*
Factor-driven economies	key focus	develop	start enabling
Efficiency-driven economies	maintain	key focus	develop
Innovation-driven economies	maintain	maintain	key focus

Source: EIM/GEM (Bosma and Levie, 2010).

[1] Entrepreneurship in the Schumpeterian sense relates to the so-called regime of creative destruction in which new entrepreneurs dominate innovation instead of large and established businesses, as is the case in the regime of creative accumulation.

The three types of conditions (i.e. basic requirements, efficiency enhancers, innovation and entrepreneurship enhancers) may impact different aspects of entrepreneurship such as attitudes and perceptions towards entrepreneurship, actual involvement in entrepreneurship and the aspirations or ambitions of existing entrepreneurs.

4.2 Innovation and entrepreneurship enhancers

Ten components

When studying the impact of a country's socio-economic milieu on entrepreneurial activity, we specifically focus on innovation and entrepreneurship enhancers as these components are most relevant for an innovation-driven country such as the Netherlands. As can be seen from Figure 18, GEM distinguishes ten different innovation and entrepreneurship enhancers. These are listed below.

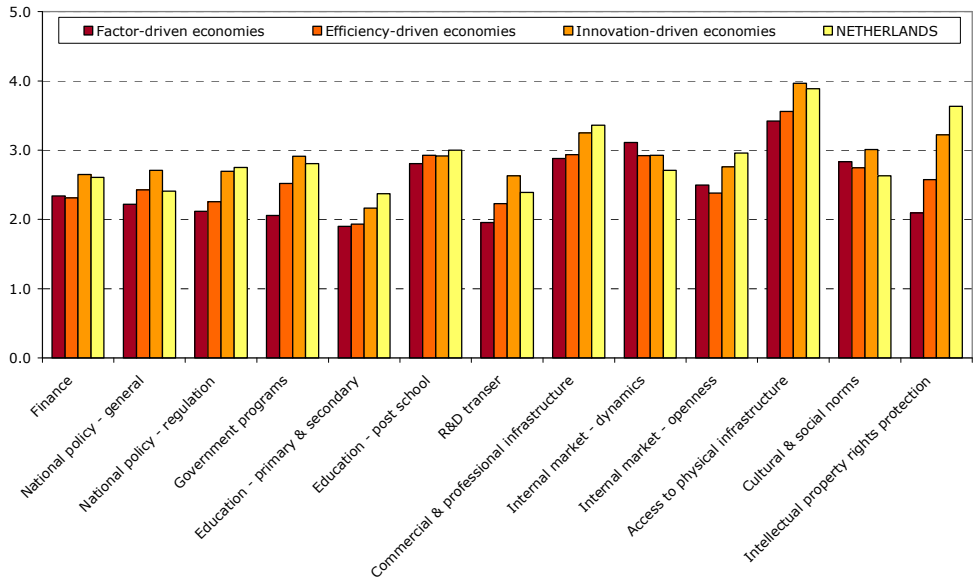
- *Financial support*: The availability of financial resources, equity, and debt (including grants and subsidies) for new and growing firms.
- *Government policies*: The extent to which government policies are size-neutral or encourage new and growing firms. Subsequent empirical studies have shown that this component has two distinct sub-dimensions: (i) the extent to which new and growing firms are prioritized in government policy in general, and (ii) regulation of new and growing firms.
- *Government programs*: The presence and quality of direct programs to assist new and growing firms at all levels of government (national, regional, municipal).
- *Education & training*: The extent to which training in creating or managing small, new, or growing firms is incorporated within the educational and training system at all levels. Subsequent empirical studies have shown that this component has two distinct sub-dimensions: (i) primary and secondary school level entrepreneurship education and (ii) post-school entrepreneurship education and training.
- *Research & Development transfer*: The extent to which national R&D will lead to new commercial opportunities and whether or not these are available for new, small and growing firms.
- *Commercial & professional infrastructure*: The presence of commercial, accounting, and other legal services and institutions that allow or promote the emergence of new, small, or growing firms.
- *Internal market openness*: The extent to which commercial arrangements undergo constant change and redeployment as new and growing firms compete and replace existing suppliers, subcontractors and consultants. Subsequent empirical studies have shown that there are two distinct sub-dimensions to this component: (i) the extent to which markets change dramatically from year to year, and (ii) the extent to which new firms are free to enter existing markets.
- *Access to physical infrastructure*: Ease of access to available physical resources (e.g. communication, utilities, transportation, land or space) at a price that does not discriminate against new, small or growing firms.
- *Cultural & social norms*: The extent to which existing social and cultural norms encourage, or do not discourage, individual actions that may lead to new ways of conducting business or economic activities and may, in turn, lead to greater dispersion of personal wealth and income.

– *Intellectual property rights protection*: The extent to which the intellectual property of new and growing firms is protected and enforced under law.

Expert scores

A survey was completed by national experts in a large number of GEM-countries in order to gain insight into the extent to which the abovementioned components of innovation and entrepreneurship enhancers are developed in the Netherlands as well as in other countries. In this National Expert Survey (NES) experts rated a small number of statements within each component on a 5-point likert-scale (1=completely false, 5=completely true). In the Netherlands, 21 experts participated in the NES. About half of these experts indicated they were either an educator, teacher or researcher on entrepreneurship (11), three experts indicated being a business and support service provider, another three experts indicated being an entrepreneur and two experts indicated being a policy maker. Moreover, one expert indicated being a policy-maker and a business and support service provider, and another expert indicated being an entrepreneur and a business and support service provider.

Figure 19 Scores for *Innovation and entrepreneurship enhancers* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true



Source: EIM/GEM.

A general overview of the outcomes of the National Expert Survey (NES) of each component by stage of economic development and particularly in the Netherlands is illustrated in Figure 19. In general, expert ratings awarded to innovation and entrepreneurship enhancers increase by stage of economic development. This is consistent with the notion that innovation and entrepreneurship enhancers have higher priorities among more highly developed countries, see Table 18. Of course experts in factor-driven economies may have different points of reference in comparison with experts in innovation-driven economies. Nevertheless,

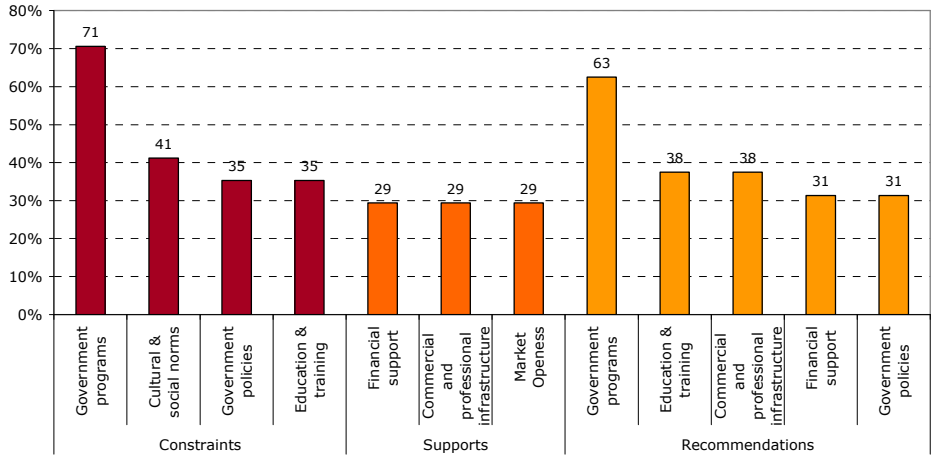
the components *national policies*, *government programs*, *R&D transfer*, *access to physical infrastructure* and *intellectual property rights protection* show the strongest variation across countries at different stages of economic development.

The Netherlands peaks when it comes to *access to physical infrastructure* (3.9), *intellectual property rights protection* (3.6), *commercial and professional infrastructure* (3.4), *post-school education* (3.0), and *internal market openness* (3.0). Low scores are to be found in the areas *general national policy*, *primary and secondary education* and *R&D transfer* (all valued at 2.4). Irrespective of the relatively low rating for *primary and secondary education* by Dutch experts, the Netherlands still scores higher compared to other innovation-driven economies.

Constraints, supports and recommendations according to experts

GEM National Expert Survey respondents were also asked to state which innovation and entrepreneurship enhancers they perceive to be constraining entrepreneurial activity in their country (constraints), to foster it (supports)[1], and which innovation and entrepreneurship enhancers could be improved (recommendations).

Figure 20 Main *Innovation and entrepreneurship enhancers* that are constraining, fostering or recommended for improving entrepreneurial activity according to national experts (n=21), the Netherlands, 2009, percentage of Dutch experts that mentioned the Innovation and Entrepreneurship Enhancer



Source: EIM/GEM.

Innovation and entrepreneurship enhancers that are constraining, fostering or recommended for improving entrepreneurial activity in the Netherlands according to national experts are presented in Figure 20. The most constraining area according to Dutch experts is *government programs* (71%), followed by *cultural and social norms* (41%), *government policies* (35%), and *education & training*

[1] In principle supports should reflect subjects that are already going well (i.e. subjects that are currently fostering entrepreneurship) but experts have also reported subjects that could foster entrepreneurship although this is not yet the case (i.e. things that should be done).

(35%). There is also a wide variation of topics/areas that foster entrepreneurial activity according to Dutch experts. As can be seen, *financial support*, *commercial and professional infrastructure* and *market openness* are quite often mentioned as components that foster entrepreneurship (29%). When the Dutch experts were asked for potential improvements in entrepreneurial activity, *government programs* were considered as most important area for improvements (63%), followed by *education & training*, and *commercial and professional infrastructure* (38%), and *financial support*, and *government policies* (31%).

Expert scores on each of the innovation and entrepreneurship enhancers as well as potential constraints, supports or recommendations are discussed below.

4.2.1 Financial support

Expert scores (n=21)

On average, perceptions of Dutch experts concerning *financial support* are valued with a 2.8. More or less all statements in this area rated a score of around this average, see Table 19. However, the Dutch experts were more positive when it came to the availability of government subsidies for new and growing firms, and less positive concerning the availability of funding through initial public offerings (IPOs). In comparison to other innovation-driven economies, the Netherlands scored particularly higher on the availability of government subsidies for new and growing firms.

Table 19 Scores for *Financial support* rated by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Financial support	There is sufficient equity funding available for new and growing firms	2.5	2.5	2.7	2.8
	There is sufficient debt funding available for new and growing firms	2.7	2.6	2.6	2.7
	There are sufficient government subsidies available for new and growing firms	2.1	2.5	3.0	3.7
	There is sufficient funding available from private individuals (other than founders) for new and growing firms	2.4	2.3	2.6	2.8
	There is sufficient venture capitalist funding available for new and growing firms)	2.0	2.2	2.7	2.6
	There is sufficient funding available through initial public offerings (IPOs) for new and growing firms	2.1	1.9	2.5	2.3

Source: EIM/GEM.

Informal investment activity

Whereas the National Expert Survey measures perceptions of Dutch experts regarding the extent to which sufficient funding from private individuals (other than founders) is available for new and growing firms (see Table 19), the Adult Population Survey measures the actual extent of informal investment activity.

Based on GEM's APS, Table 20 illustrates the trend in the prevalence rates of informal investors in the Netherlands over time (2001-2009), revealing a relatively stable pattern.

Table 20 Informal investment activity in the Netherlands, 2001-2009, percentage of the adult population (18-64 years of age)

	Item	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
Informal investment	You have, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds*	1.3	1.8	1.3	1.3	2.0	1.1	2.3	1.7	1.8

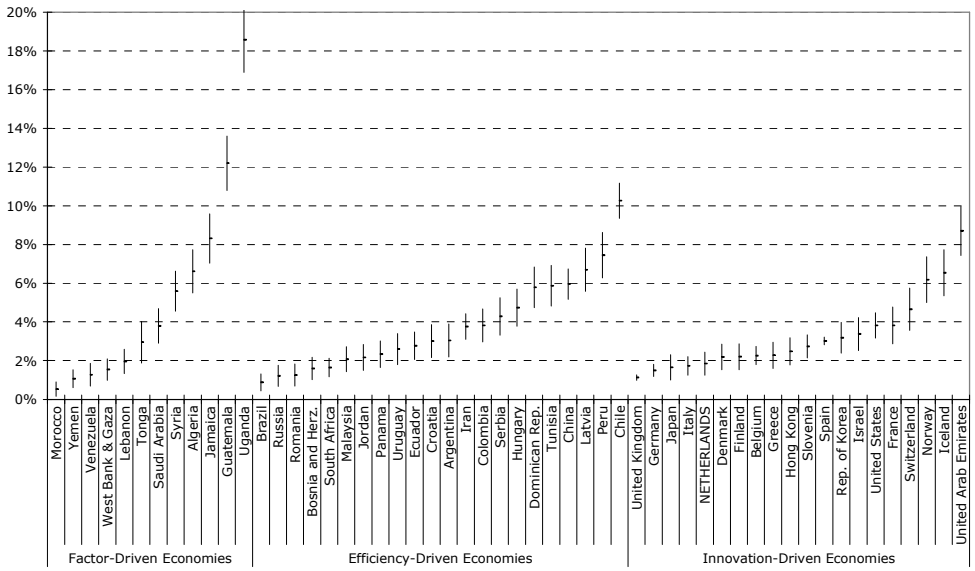
** Because informal investment activity is relatively rare in most countries, the GEM measure of informal investment asked respondents if they had invested in someone else's new business in the past* three *years. It is therefore a smoothed measure; it is not a measure of activity in just one year.*

Source: EIM/GEM.

In 2009, 1.8% of the Dutch adult population (18-64 years of age) had, in the three years preceding the GEM survey, personally provided funds for a new business started by someone else. Herewith, the Dutch informal investment market for new start-ups is relatively underdeveloped. The Dutch prevalence rate of informal investment activity was significantly below both the average of all OECD countries (3.1%) and the average of all EU Member States (2.7%).

Informal investor prevalence rates for all countries that participated in GEM's APS in 2009 are presented in Figure 21. The differences between countries in different stages of economic development are quite large. The general pattern is that informal investor prevalence rates decrease with national wealth. In factor-driven economies, the (unweighted) average prevalence rate equals 5.1% which is higher than the (unweighted) average informal investor prevalence rate in efficiency-driven countries (4.0%). With an (unweigted) average of 3.3%, the adult population (18-64 years of age) in innovation-driven economies invests least frequently in businesses started by someone else. Within the group of innovation-driven economies, the Netherlands persistently remains at the bottom of the distribution.

Figure 21 Informal investor prevalence rates for all GEM countries, by stage of economic development, 2009, percentage of the adult population (18-64 years of age)



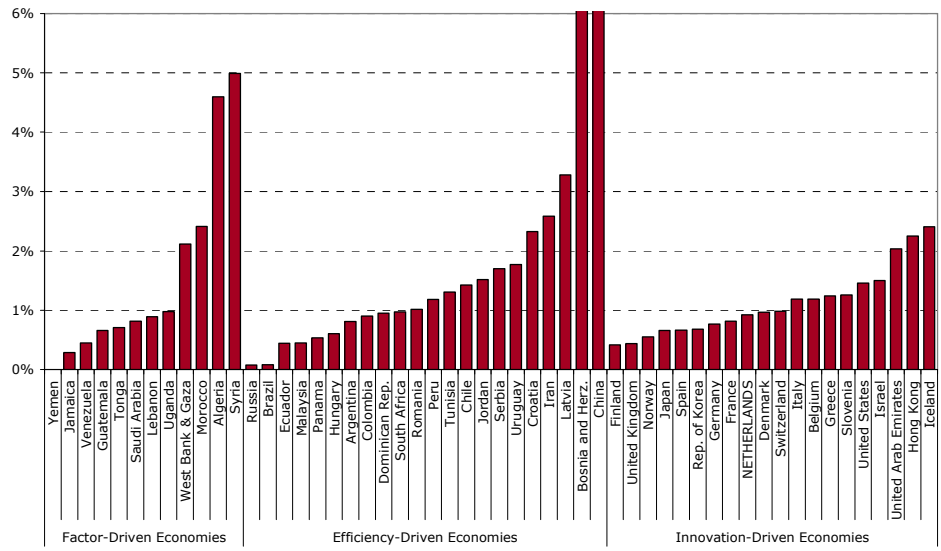
Source: EIM/GEM (Bosma and Levie, 2010).

It is remarkable that the international position of the Netherlands concerning informal investments did not improve due to the significant rise in its TEA rate (Table 8), but neither did it simultaneously deteriorate in the aftermath of the international banking industry meltdown in September-October 2008. Compared to the 2008 prevalence rates of informal investors, there was some evidence of a reduction in informal investment activity in some countries in the results from the 2009 survey. Reported informal investment activity was, in particular, lower in countries at the center of the meltdown, including the United States and the United Kingdom. Overall, there was a significant decline in the average informal investor prevalence rate of G7 nations in 2009 (Bosma and Levie, 2010).

In order to compare the potential impact of informal investment activity on a nation's economy, the total amount of informal investment by country as percentage of its GDP (2008 values) is depicted in Figure 22[1]. Interestingly, both Scandinavia and some Eastern European countries are among those with the highest and the lowest amounts of informal investment in relation to national wealth. With a percentage of 0.9%, the Netherlands has a relatively low rate compared to other innovation-driven countries. Hence, informal investment activity in the Netherlands may be marked as low.

[1] The total amount of informal investment in a country is estimated using the average amount invested, the prevalence rate and the population, correcting for the three year investment span.

Figure 22 Amount of informal capital for all GEM countries, 2009, percentage of GDP per capita (2008 values)*



** The amount of informal capital as percentage of GDP in Bosnia and Herzegovina and China is 10.3% resp. 11.3% (not visible in this figure).*

Source: EIM/GEM (Bosma and Levie, 2010).

Constraints, supports and recommendations according to experts

In the area of *financial support*, Dutch experts put forward some specific factors that they considered to be constraining and supporting with respect to financial support. They also put forward some recommendations for improvements to financial support. Dutch experts perceived finance as constraining in the sense that entrepreneurs regularly face difficulties with the acquisition of finance. A disadvantage mentioned by national experts in the Netherlands is that the risk-averse attitude of Dutch society may make banks more reticent towards financing a business. It is feared that this conservative attitude may also lead to a lack of second chances for entrepreneurs who experienced a bankruptcy exit.

As far as finance as support for entrepreneurship is concerned one suggestion made by Dutch experts was that the provision of venture capital should be guaranteed. The background to this suggestion is that in a society in which great value is attached to security, a guarantee for venture capital would help foster entrepreneurial activity. It is also suggested that entrepreneurship could be supported by the introduction of more micro financing possibilities for small businesses.

In addition some other specific recommendations for improvement were made by Dutch experts such as customization of subsidies and support for innovative firms and the introduction of a wage tax dispensation for firms that hire their first employees. Besides, Dutch experts believe that launching an innovation/investment fund for SMEs could encourage involvement in self-employment. In order to give failed entrepreneurs a second chance, national experts in the Netherlands suggest governments should provide guarantees for those banks

that invest in new businesses of entrepreneurs that had experienced a bankruptcy exit in the past.

4.2.2 Government policies and programs

Expert scores (n=21)

On average, the Dutch perceptions of *government policies* are valued with a 2.6. The scores on most of the statements are close to this average (see Table 21), for example regarding the experts opinion about the extent to which they think that new firms are able to get most of the required permits and licenses in about one week (score 2.4); the extent to which they think that support for new and growing firms has a high priority at the local government level (score 2.7); and the extent to which they think that it is not very difficult for new and growing firm to cope with government bureaucracy, regulations and licensing requirements (score 2.7). Similar values are given by experts in other innovation-driven economies, expect for the item 'government policies consistently favor new firms', which is valued with a 2.3 by experts in other innovation-driven economies. Dutch experts are even more negative when it comes to whether they think that government policies favor new firms (score 1.5).

Table 21 Scores on *Government policies* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Government policies	Government policies (e.g. public procurement) consistently favour new firms	2.0	2.2	2.3	1.5
	The support for new and growing firms is a high priority for policy at national government level	2.3	2.7	2.9	3.2
	The support for new and growing firms is a high priority for policy at local government level	2.2	2.5	3.0	2.7
	New firms can obtain most of the required permits and licenses in about a week	1.6	2.0	2.4	2.4
	The amount of taxes is NOT a burden for new and growing firms	2.3	2.3	2.8	2.8
	Taxes and other government regulations are applied to new and growing firms in a predictable and consistent way	2.4	2.6	3.0	3.1
	Coping with government bureaucracy, regulations and licensing requirements it is not unduly difficult for new and growing firms	1.9	2.3	2.6	2.7

Source: EIM/GEM.

On average, the Dutch perceptions of *government programs* are given a rating of a 2.8 and there is little variation in the scores when looking at the individual statements. The statements include issues such as whether there is sufficient support for new and small firms, whether government officials are competent in

supporting small and new firms and whether it is easy for new and growing firms to find the support they need (see Table 22).

Table 22 Scores on *Government programs* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Government programs	A wide range of government assistance for new and growing firms can be obtained through contact with a single agency	1.8	2.3	2.7	2.5
	Science parks and business incubators provide effective support for new and growing firms	2.2	2.9	3.4	3.1
	There are an adequate number of government programs for new and growing businesses	2.2	2.7	3.1	3.4
	The people working for government agencies are competent and effective in supporting new and growing firms	2.1	2.5	2.8	2.4
	Almost anyone who needs help from a government program for a new or growing business can find what they need	1.9	2.3	2.7	2.8
	Government programs aimed at supporting new and growing firms are effective	2.1	2.5	2.8	2.9

Source: EIM/GEM.

Constraints, supports and recommendations according to experts

Concerning *government policies* and *government programs* Dutch experts frequently mentioned areas that constrain entrepreneurial activity or that could improve it. As follows from Figure 20, *government programs* are by far experienced as the most constraining area for entrepreneurship. Regarding recommendations for programs and policies Dutch experts distinguish two main constraints or concerns. First, they highlight the complexity of policies and regulations. Experts seem to be of the opinion that government regulations are usually perceived by new and growing firms as bureaucratic, partly redundant, unnecessarily complicated, excessive and sometimes even counterproductive. They feel that these complex regulations are in turn associated with a relatively high administrative burden and this - in the view of the Dutch experts - is time consuming and does not always outweigh the benefits. Furthermore, the experts seem to agree that, usually, contact runs through too many agencies and the procedures could be more efficient. A specific constraint recognized for entrepreneurs wishing to grow is the rigidity of labor market regulation which makes it more difficult to hire employees and, as a result may hinder the growth of new or young businesses.

Dutch experts also highlight the barriers associated with (becoming involved in) self-employment. In the view of these Dutch experts, the support required for becoming self-employed is difficult to find and, particularly for female entrepreneurs, child care facilities are expensive and inflexible. It is also mentioned that taking the step from unemployment to self-employment is difficult. Given the

'security versus risk-taking' attitude of Dutch society Dutch experts argue that it may be an advantage if entrepreneurs could set up a new business while still retaining social security benefits, no strings attached. This might decrease an individual's fear of failure, decrease the opportunity cost of entrepreneurship and thus increase the likelihood of becoming engaged in entrepreneurial activity.

The Dutch experts evaluate some elements of *government policies* and *government programs* positively. The support domestic entrepreneurs may obtain on their road towards becoming an export-oriented business, for example, is highly appreciated as is the existence of local agencies for entrepreneurship. Dutch experts also highlight the positive attitude of the Dutch government towards entrepreneurship.

In order to further improve the effectiveness and efficiency of regulations, Dutch experts suggest reducing the administrative burden associated with regulations by (further) digitalizing the government at the national, regional and municipal level. Furthermore, in the interest of promoting entrepreneurship Dutch experts recommend that there should be sufficient, less expensive and more flexible child care facilities.

4.2.3 Education & training

Expert scores (n=21)

On average, the perceptions of Dutch experts concerning *education & training* are valued with a 2.7. The higher the level of education, the more Dutch experts agree that it provides good and adequate preparation for starting up and growing new firms. For details on scores for all statements on *education & training*, see Table 23.

Table 23 Scores for *Education and training* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Education & training	Teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative	2.1	2.0	2.3	2.4
	Teaching in primary and secondary education provides adequate instruction in market economic principles	1.9	2.0	2.2	2.6
	Teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation	1.8	1.8	2.0	2.2
	Colleges and universities provide good and adequate preparation for starting up and growing new firms	2.5	2.7	2.7	2.7
	The level of business and management education provides good and adequate preparation for starting up and growing new firms	2.9	3.2	3.1	3.0
	The vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms	2.8	3.0	3.0	3.2

Source: EIM/GEM.

Constraints, supports and recommendations according to experts

When *education & training* is perceived as an activity that constrains, Dutch experts stress the functioning of the educational system and would prefer a closer link between education and entrepreneurship. In their view, the functioning of the educational system could be improved by better connections linking education to the business world. In particular, Dutch experts indicate that more attention could be paid to entrepreneurship in primary education. And also they are of the opinion that encouragement of self-employment as an occupational choice could be more common in education. Thanks to the Education and Entrepreneurship Action Program, which was started to encourage the link between education and entrepreneurship, this link has already become closer and an increasing number of students in secondary and tertiary education (consider) start(ing) their own business (Gibcus, Overweel, Tan and Winnubst, 2010).

Dutch experts differentiate between general recommendations for entrepreneurial improvement in education and recommendations specifically related to the link between education and entrepreneurship. General improvements include the stimulation of internships for students in (growing) businesses, and higher investments in education given the importance of a sustainable highly educated population. When investing (more) in education, increased attention could be paid to entrepreneurship and entrepreneurial skills, even as early as primary education. National experts in the Netherlands emphasized the importance of incorporating entrepreneurship courses in all levels of education (primary, secondary, tertiary) and in all studies with the aim so stimulate self-employment as a natural, instead of a 'special' occupational choice. In particular, experts agree

that entrepreneurship education in primary and secondary education needs to be extended and improved.

4.2.4 R&D transfer & Intellectual property rights protection

On average, the Dutch perceptions of *R&D transfer* - see Table 24 - are valued with a 2.4. With an average score of 2.9, the statement 'the science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area' receives the highest score in this block, followed by the statement that there are adequate government subsidies for new and growing firms to acquire new technology (score 2.8), and that there is sufficient support for engineers and scientists to have their ideas commercialized through new and growing firms (score 2.8). Dutch experts are rather negative when it comes to transferring technology, science and other knowledge efficiently from universities and public research centers to new and growing firms (score 1.8), and rating the extent of access to new research and technology by new and growing firms compared to large, established firms (score 1.8). On average, experts in other innovation-driven economies are somewhat more positive than Dutch experts about R&D transfer.

Table 24 Scores on *R&D transfer* valued by national experts (n=21), by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
R&D transfer	New technology, science, and other types of knowledge are efficiently transferred from universities and public research centers to new and growing firms	2.0	2.2	2.5	1.8
	New and growing firms have just as much access to new research and technology as large, established firms	2.1	2.2	2.4	1.8
	New and growing firms can afford the latest technology	1.9	1.9	2.3	2.3
	There are adequate government subsidies for new and growing firms to acquire new technology	1.7	2.1	2.5	2.8
	The science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area	2.1	2.7	3.2	2.9
	There is good support available for engineers and scientists to have their ideas commercialized through new and growing firms	1.8	2.2	2.9	2.8

Source: EIM/GEM.

On average, the Dutch perceptions towards *intellectual property rights protection* are valued with a 3.5. In the Netherlands, experts seem to be positive about the extent to which Intellectual Property Rights legislation is comprehensive (score 4.0), and efficiently enforced (score 3.8). Furthermore, they are positive about the extent to which inventors' rights for their inventions are respected (score 3.9), as is the case for patents, copyrights and trademarks of new and growing firms (score 3.7). With these ratings Dutch experts are, on average, far more positive than experts in factor-, efficiency- and innovation-driven economies (see Table 25).

Table 25 Scores on *Intellectual property rights protection* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Intellectual property rights protection	The Intellectual Property Rights (IPR) legislation is comprehensive	2.6	3.1	3.6	4.0
	The Intellectual Property Rights (IPR) legislation is efficiently enforced	1.8	2.4	3.2	3.8
	The illegal sales of 'pirated' software, videos, CDs, and other copyrighted or trademarked products is not extensive	1.7	1.8	2.6	2.3
	New and growing firms can trust that their patents, copyrights, and trademarks will be respected	1.9	2.5	3.1	3.7
	It is widely recognized that inventors' rights for their inventions should be respected	2.3	3.1	3.6	3.9

Source: EIM/GEM.

4.2.5 Commercial, professional and physical infrastructure

Expert scores (n=21)

On average, the Dutch perceptions of *commercial and professional infrastructure* score 3.3. See Table 26 for scores on all the statements for this item. Dutch experts are very positive when it comes to the extent to which there are enough subcontractors, suppliers and consultants in the Netherlands to support new and growing firms (score 4.3), however they are not so positive about the extent to which new and growing firms can afford the cost of using these subcontractors, suppliers and consultants (score 2.6).

Table 26 Scores on *Commercial and professional infrastructure* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Commercial and professional infrastructure	There are enough subcontractors, suppliers, and consultants to support new and growing firms	3.1	3.2	3.6	4.3
	New and growing firms can afford the cost of using subcontractors, suppliers, and consultants	2.3	2.3	2.6	2.6
	It is easy for new and growing firms to get good subcontractors, suppliers, and consultants	2.6	2.7	3.1	3.2
	It is easy for new and growing firms to get good, professional legal and accounting services	3.0	3.2	3.6	3.5
	It is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit, and the like)	3.3	3.2	3.2	3.1

Source: EIM/GEM.

On average, the Dutch perceptions of *physical infrastructure* are valued with a score 3.9. Dutch experts are somewhat less positive when it comes to the possibilities for new and growing firms to acquire adequate access to communications (e.g. telephone, internet) within about a week (score 3.5). Concerning the extent to which new and growing firms can afford the cost of basic utilities, the Dutch experts are most positive (score 4.3). In general, it seems that physical infrastructure is well organized in the Netherlands. In fact, in countries at all stages of economic development, national experts are, on average, quite positive about the physical infrastructure (See Table 27).

Table 27 Scores on *Access to physical infrastructure* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Access to physical infrastructure	The physical infrastructure (roads, utilities, communications, waste disposal) provides good support for new and growing firms	2.7	3.2	3.8	3.8
	It is not too expensive for a new or growing firm to get good access to communications (phone, Internet, etc.)	3.5	3.7	4.0	4.1
	A new or growing firm can get good access to communications (telephone, internet, etc.) in about a week	3.6	3.7	3.9	3.5
	New and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer)	3.5	3.6	4.0	4.3
	New or growing firms can get good access to utilities (gas, water, electricity, sewer) in about a month	3.5	3.7	4.1	3.9

Source: EIM/GEM.

Constraints, supports and recommendations according to experts

The *commercial and professional infrastructure* is perceived by Dutch experts as an important area to foster entrepreneurial activity. Dutch experts identify a general way to foster entrepreneurship and a way specifically focused on the environment for business start-ups. The general way to foster entrepreneurship within the area of commercial and professional infrastructure is by providing a high-quality infrastructure, digitalizing the government, and reducing the cost of supporting advisors/services. In other words, there seems to be consensus among Dutch experts that the commercial and professional infrastructure could be more effectively and efficiently enforced. The environment for business start-ups, as a specific component of the commercial and professional infrastructure might be improved by creating more science parks and business incubators. In addition, Dutch experts suggest that more attention should be paid to involving former entrepreneurs or informal investors in new and growing firms as they have knowledge, skills and experience that may be of significant value for these businesses. This may, for instance, decrease the risk associated with a new business start-up. Furthermore, it is also suggested that it may be relevant to create knowledge networks between entrepreneurs and to set up databanks of knowledge and skills relevant for starting and owning-managing a business. Also involving more SMEs in public procurement with respect to innovation and stimulating cooperation between businesses are proposed as potential topics for improving entrepreneurial activity.

4.2.6 Internal market openness

Expert scores (n=21)

On average, the Dutch perceptions of *internal market openness* are valued with a 3.0. Almost all the statements receive a score near the average value (see Table

28). The opinion deviates somewhat more from average only for anti-trust legislation. With a score of 3.6 Dutch experts seem to believe it is rather effective and well enforced. Experts in other innovation-driven economies are somewhat less positive in this respect.

Table 28 Scores on *Internal market openness* valued by national experts, by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Internal market openness	The markets for consumer goods and services change dramatically from year to year	3.2	2.9	3.0	2.7
	The markets for business-to-business goods and services change dramatically from year to year	3.1	2.9	2.9	2.7
	New and growing firms can easily enter new markets	2.6	2.5	2.8	3.2
	New and growing firms can afford the cost of market entry	2.4	2.4	2.6	2.9
	New and growing firms can enter markets without being unfairly blocked by established firms	2.6	2.5	2.8	2.7
	The anti-trust legislation is effective and well enforced	2.0	2.4	2.9	3.6

Source: EIM/GEM.

Constraints, supports and recommendations according to experts

Market openness is also tabled as one of the most important areas that may foster entrepreneurial activity (Figure 20). In this context, Dutch experts state that the location of the Netherlands within Europe, as well as the advantageous access the Netherlands has to the European market, should be optimally utilized. Furthermore, a transparent, open and export-oriented Dutch economy is considered to be beneficial for entrepreneurial activity in the Netherlands.

4.2.7 Cultural & social norms

Expert scores (n=21)

On average, the Dutch perceptions of *cultural & social norms* - see Table 29 - are assessed with a 2.6. In particular experts are not so positive about the extent to which the national culture (sufficiently) encourages entrepreneurial risk-taking (score 2.1). In this block, the Netherlands performs worse than other innovation-driven economies for all but one item. Also with respect to factor- and efficiency-driven economies, the Netherlands is relatively more negative concerning the cultural and social norms towards entrepreneurship.

Table 29 Scores on *Cultural & social norms* valued by national experts (n=21), by stage of economic development (unweighted average), 2009, 1=completely false 5=completely true

	In your country…	Factor-driven economies	Efficiency-driven economies	Innovation-driven economies	NETHERLANDS
Cultural & social norms	The national culture is highly supportive of individual success achieved through own personal efforts	3.1	2.9	3.2	2.5
	The national culture emphasizes self-sufficiency, autonomy, and personal initiative	2.8	2.8	3.1	2.7
	The national culture encourages entrepreneurial risk-taking	2.7	2.5	2.7	2.1
	The national culture encourages creativity and innovativeness	2.7	2.7	3.1	2.9
	The national culture emphasizes the responsibility that the individual (rather than the collective) takes in managing his or her own life	2.8	2.8	3.1	3.1

Source: EIM/GEM.

Constraints, supports and recommendations according to experts

It follows from Figure 20 that the second most important area that is constraining entrepreneurial activity, according to Dutch experts, is cultural and social norms. Two main constraints are identified within this area, namely attitudes towards security versus risk-taking, and entrepreneurial ambition. Starting with the former, Dutch experts particularly note the risk-averse attitudes of Dutch society in the sense that security is often preferred over risk-taking, making wage employment the preferred occupational choice and self-employment a 'special' occupational choice. The risk-averse attitude of Dutch society also finds its expression in the negative image of failure. According to the experts failure is usually punished (e.g. few second chances for bankrupt entrepreneurs). Decreasing the opportunity costs of being self-employed could stimulate entrepreneurial risk-taking. One specific suggestion made is that the social security system could be adjusted in the sense that taking the risk to becoming engaged in entrepreneurial activity is encouraged. Thus, reforming the social security system could contribute in making self-employment a more attractive option relative to wage employment.

Second, concerning entrepreneurial ambition, Dutch experts are of opinion that ambitions and aspirations of Dutch entrepreneurs are modest. This is believed to be attributable at least to some extent to culture (the Dutch culture is not focused on ambition).

4.3 Summary

This chapter focused on so-called 'innovation and entrepreneurship enhancers' in the Netherlands. The innovation and entrepreneurship enhancers - as identified in the GEM model - include financial support, government policies and programs, education & training, R&D transfer, intellectual property rights protection, infrastructure (commercial, professional and physical), internal market openness and

cultural & social norms. In GEM's National Expert Survey (NES) experts rate a number of statements in relation to each of these innovation and entrepreneurship enhancers. Furthermore, the experts are also asked to provide indications on the extent to which the innovation and entrepreneurship enhancers constrain and support entrepreneurship as well as to provide specific recommendations for improvements. This chapter discussed the results of the NES taking the perspective of the Netherlands.

One of the main results was that Dutch experts seem to be most positive about the commercial, professional and physical infrastructure for new and growing firms in the Netherlands. They are especially positive about the extent to which new and growing firms can afford the cost of basic utilities such as gas, water and electricity as well as of access to communications such as telephone and Internet. Dutch experts are also rather positive about the extent to which there are enough subcontractors, suppliers and consultants to support new and growing firms. Furthermore, they are fairly positive about *intellectual property rights protection* for new and growing firms in the Netherlands i.e. the extent to which the intellectual property of new and growing firms is protected and enforced under law.

The results of the NES, however, also showed that Dutch experts are least positive about *primary and secondary school level entrepreneurship education*, *general policy*, and *R&D transfer*. R&D transfer refers to the extent to which R&D in the Netherlands leads to new commercial opportunities and whether or not these are available for new, small, or growing firms. Dutch experts are especially pessimistic about the extent to which new technology, science, and other types of knowledge are efficiently transferred from universities and public research centers to new and growing firms. In addition they are also rather negative about new and growing firm's access to new research and technology (in comparison to large, established firms).

5 Human capital and entrepreneurship

This chapter focuses on the relationship between human capital and entry into entrepreneurship. The information presented is based on two research projects using GEM-based data, carried out as part of EIM's research program on SMEs and entrepreneurship. First, a summary is given of results that were obtained from a study into the relationship between human capital characteristics and start-up success of nascent entrepreneurs. This research project was undertaken together with the German GEM team. As part of this project follow up interviews were held in 2007 and 2008 with individuals that were identified as nascent entrepreneurs in the Adult Population Survey (APS) in 2006 and 2007 respectively. The follow up interviews focused on human capital characteristics of nascent entrepreneurs and the data were used for an econometric study explaining start-up success (Brixy and Hessels, 2010). It is argued in the study that various kinds of human capital (specific, general and broadness) are likely to contribute to start-up success. The analysis compared those who succeeded in starting a business (which is defined as start-up success) with those who abandoned the start-up effort and also with those who postponed or were still in the process of setting up a firm.

Second, results of a project are presented that focused on the relationship between a recent exit experience and (new) involvement in entrepreneurship (Hessels, Grilo, Thurik and Van der Zwan, 2011). This project used individual-level data for 24 countries that participated in GEM in 2004, 2005 and 2006. Inspired by human capital theory (Becker, 1964) it is argued that an entrepreneurial exit can be seen as an indicator of accumulated entrepreneurial human capital since it captures knowledge, skills and experience. Based on this interpretation it is expected that when an individual has experienced a recent entrepreneurial exit this has a positive effect on subsequent (re-)engagement in the entrepreneurial process.

5.1 Human capital and start-up success

This section is based on Brixy and Hessels (2010). It describes how this study has linked human capital to start-up success. Furthermore, it indicates the data and methods that were used in this study and what the main findings were.

5.1.1 Human capital

Human capital relates to the intrinsic qualities of individuals and to their investment in skills and knowledge (Becker, 1964). In their study, Brixy and Hessels (2010) argue that human capital has a positive influence on the success of starting a business. Human capital includes knowledge, education, skills and experience (Deakins and Whittam, 2000) and these aspects can be expected to influence the development of a business idea and the organization of resources. While prior studies have found little evidence that human capital relates to entry into entrepreneurship Brixy and Hessels (2010) conclude that such studies usually take into account a limited amount of human capital indicators only. Therefore, the GEM team of the Netherlands, together with the GEM team of Germany, organized a follow up survey among nascent entrepreneurs identified in GEM 2006 and 2007. In this survey a large number of questions were asked to pro-

vide detailed insight into the human capital levels of the entrepreneurs. Three groups of human capital were identified based on literature survey: general human capital, specific human capital and broadness of human capital. In the empirical analysis start-up success was related to these three groups of human capital. Below it is explained what these three groups of human capital refer to and how they were organized and measured in Brixy and Hessels (2010).

General human capital

The first group, *general* human capital, relates to knowledge, skills and experience that individuals have acquired during their life, for example through education or work experience. It was measured by level of education, number of years of general work experience and whether someone had been working (either in paid employment or self-employment) before starting the firm or not. See also Table 30.

Specific human capital

The second group, *specific* human capital, refers to human capital directly relevant for the business that is being set up. It was measured as to whether someone has same industry experience (number of years of work experience in the industry of the planned business), whether someone has entrepreneurship-specific knowledge or skills ('I have the knowledge, skill and experience required to start a new business'), whether someone personally knows an entrepreneur ('I know someone personally who started a business in the past 2 years'), whether someone uses/used resources of a former employer for setting up the firm, whether someone uses/used external advice for setting up the business (number of sources of external advice), whether someone has prior start-up experience and whether someone has self-employed parents.

Broadness of human capital

Finally, the third group of human capital is *broadness* of human capital. It is based on Lazear (2004) who argues that entrepreneurs are generalists given the variety of skills that may be useful for setting up a firm. The idea is that entrepreneurs need to perform a variety of tasks, such as obtaining finance, finding customers and choosing a location. Specific indicators for broadness of human capital used were whether someone is a generalist or a specialist, the number of fields (e.g. R&D, marketing, finance) in which the nascent entrepreneur has experience and whether the firm is/was set-up with partners or alone.

The next table summarizes the specific indicators that were used in the econometric analysis for the three groups of human capital.

Table 30 Human capital variables included in Brixy and Hessels (2010)

General human capital
Level of education
Number of years of general work experience
Recent work experience (yes/no)
Specific human capital
Number of years of same industry experience
Has knowledge, skills, experience required to set up a business (yes/no)
Knows someone who started an own business in the past 2 years (yes/no)
Makes use of resources of a former employer (yes/no)
Number of sources of advice
Prior start-up experience (yes/no)
At least one parents self-employed (yes/no)
Broadness of human capital
Number of fields of expertise
All rounder versus generalist
Partner (yes/no)

Source: EIM, Follow up surveys held in 2007 and 2008 among individuals identified as nascent entrepreneurs in GEM 2006 and 2007.

5.1.2 Method and data

Multinomial probit estimations were used, taking into account several control variables, to test whether these human capital aspects affect start-up success. Marginal effects were calculated for the probability of succeeding in setting up the firm, for the probability of still being in the process of setting up a firm and for the probability of abandoning the start-up attempt. The analysis was based on data collected as part of a survey among nascent entrepreneurs in Germany and the Netherlands. The nascents were identified from the adult population survey of the Global Entrepreneurship Monitor (GEM) in 2006 and 2007 (Germany and the Netherlands). A follow up survey was held among these nascents approximately one year after the Adult Population Survey. The final sample used in the analysis consisted of 189 nascent entrepreneurs.

5.1.3 Main findings

Results for general human capital

Although most previous studies have found that more general forms of human capital do not influence the outcome of business start up attempts (Davidsson and Gordon, 2009) the results of the study by Brixy and Hessels (2010) underline the importance of *general* human capital for start-up success in various respects. First, it was found that education relates to start-up success. However, this was contrary to previous expectations since it was found that nascent entrepreneurs with a medium level of education were more likely to succeed in setting up the firm and less likely to postpone setting up the firm than nascent entrepreneurs with university education or higher. This finding possibly reflects that

more highly educated people have more alternative employment options and therefore they face higher opportunity costs for setting up a firm. Second, it was found that when someone had been working in paid employment or self-employment just before or during the process of starting the firm this increases start-up success and decreases the likelihood of still being in the process.

Results for specific human capital

Regarding *specific* human capital the results revealed that most of the indicators used are not significantly related to start-up success. However, one finding that stands out from the results is that individuals making use of a higher number of sources of advice are less likely to succeed and more likely to postpone the start-up attempt. Furthermore, using resources from a former employer was found to decrease start-up success. One possible explanation for these findings may be that the use of resources and advice from others requires extensive co-ordination with external partners which may subsequently hinder the start-up process. It may also be the case that more complex or difficult start-up attempts in particular need resources and advice from others. With respect to specific human capital some support was found for the role model effect in the sense that when the prospective starter knows someone who recently started a firm this increases start-up success and decreases the likelihood that someone is still in the process of setting up a firm. However, in line with previous results for Sweden (Davidsson and Honig, 2003) and the US (Parker and Belghitar, 2006) no indications were found that having self-employed parents affects start-up success.

Results for broadness of human capital

With respect to the *broadness* of human capital the results are contrary to what was expected in advance. For example it was found that when nascent entrepreneurs see themselves as generalists (as opposed to specialists) they are less likely to succeed in starting the firm and more likely to still be in the process of setting up a firm. Furthermore, the results also give some support that having at least one partner negatively relates to start-up success. Previous studies did not find any consistent effect for being a team versus a solo start up (Davidsson and Gordon, 2009).

Other results

The study by Brixy and Hessels (2010) also paid attention to start up motivations. In addition to using the commonly used distinction between pull and push motivation, the study also included mixed motivation. Mixed motivation refers to individuals who attempt to start a firm out of a combination of pull and push motivations. The results emphasize the importance of mixed motivation for increasing start up success.

As in previous studies it was consistently found that gender and overall work experience are not relevant for explaining start-up success (Davidsson and Gordon, 2009; Van Gelderen, Thurik and Bosma, 2005). In particular the lack of an effect of gender was broadly confirmed in previous studies also for other countries. Thus, whereas women are less likely to become entrepreneurs, once in the startup process they are as likely as men to succeed in setting up their firm.

Finally, the study found no indication that start-up capital affects start up success while a previous study for the Netherlands found that startup capital decreased start up success (Van Gelderen, Thurik and Bosma, 2005). The role of financial resources in explaining start up outcomes has not yet received much attention in previous studies and so far only a few studies report any effect for such indicators (Davidsson and Gordon, 2009).

5.2 Human capital and entry into entrepreneurship after exit

This section is based on a study by Hessels, Grilo, Thurik and Van der Zwan (2011). It describes how this study links human capital to entry into entrepreneurship shortly after an individual has shut down, discontinued or quit a business that he/she owned-managed. It also explains what data and methods were used in this study and gives the most important results.

5.2.1 Entrepreneurial exit as an indicator of human capital

The study by Hessels, Grilo, Thurik and Van der Zwan (2011) builds on the idea that entrepreneurial exit can be seen as an indicator of entrepreneurial learning. Entrepreneurial exit is defined in this study as shutting down, discontinuing or quitting a business; but does not include businesses that are sold.

The study builds on human capital theory (Becker, 1964) as a possible explanation for the relationship between (personal) entrepreneurial exit and subsequent entrepreneurial engagement. According to this theory human capital, which relates to the intrinsic qualities of individuals, including knowledge, education, skills and experience (Deakins and Whittam, 2000) enhances cognitive abilities and subsequently also results in more productive or efficient behavior.

One specific form of human capital on which the study by Hessels, Grilo, Thurik and Van der Zwan (2011) focuses is entrepreneurial human capital. Entrepreneurial human capital refers to an individual's knowledge, skills and experience related to entrepreneurial activity. Individuals typically develop such entrepreneurial human capital through setting up and owning-managing a firm or through working in an entrepreneurial firm (Iyigun and Owen, 1998). The logic for linking prior entrepreneurial experience with new venture creation activity is that prior experience of owning and managing a business may provide basic business skills and confidence that can help to compensate for the liabilities of newness, and may therefore facilitate new market entry (Shrader, Oviatt and McDougall, 2000). Based on this logic it can be argued that recently exited entrepreneurs may be particularly capable of detecting and realizing new business opportunities.

Prior studies have demonstrated that the same individuals exit and enter the start-up process repeatedly throughout their entrepreneurial career. In so doing, they learn about their endowment of entrepreneurial skills and may improve them. These 'serial entrepreneurs' run a substantial share of new and established businesses (Westhead, Ucbasaran, Wright and Binks 2005). The above arguments leads the authors to conjecture that experience with an entrepreneurial exit may provide individuals with important human capital resources that drive (new) entrepreneurial engagement. This would suggest that a recent entrepreneurial exit positively influences the likelihood of an individual re-engaging in the entrepreneurial process. The authors also acknowledge, however, that the path

dependency implicit in a positive relationship between exit and reengagement can also be the result of marginalization, whereby the formerly self-employed persons face greater difficulties in entering the job market than other workers.

5.2.2 Method and data

The study by Hessels, Grilo, Thurik and Van der Zwan (2011) uses individual-level data for 24 countries that participated in the adult population survey that was carried out as part of GEM in the years 2004, 2005 and 2006. The sample includes respondents from 24 countries. These countries are Argentina, Australia, Belgium, Brazil, Canada, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, the Netherlands, Norway, Singapore, Slovenia, South Africa, Spain, Sweden, the United Kingdom and the United States of America. The total number of observations in the sample is 348,567.

Entrepreneurial exit was measured as a dummy variable equaling one in the case that a respondent indicates having shut down, discontinued or quit a business he/she owned and managed in the past 12 months, and zero otherwise.

Entrepreneurial engagement was measured as a categorical variable reflecting the following categories for entrepreneurial engagement:

0. no entrepreneurial engagement;
1. potential entrepreneur (an individual believes he/she has the knowledge, skill and experience required to start a business and/or thinks there will be good opportunities for starting a business in the area in which he/she lives in the next six months);
2. intentional entrepreneur (expects to start a new firm within the next three years);
3. nascent entrepreneur (actively involved in setting up an own business);
4. young business owner (owner and manager of a business that has existed for 42 months or less);
5. established business owner (owner and manager of a business that has existed for more than 42 months).

Various individual characteristics were taken as control variables (gender, age, education). Furthermore, dummy variables were used for the 24 countries included in the sample as control for country-specific influences. Also, since the data cover the years 2004-2006, year dummy variables were included as control for temporal differences.

The analysis consisted of two main exercises. First, a multinomial logit model was estimated that relates entrepreneurial exit and the other explanatory variables to the various stages of the entrepreneurial process (no entrepreneurial engagement, potential, intentional, nascent, young and established entrepreneurship).

As a second exercise the factors determining (re)engagement in the entrepreneurial process were estimated by again estimating a multinomial logit model, but only for those individuals with a recent entrepreneurial exit experience. The main findings of these two exercises are described in the next section.

5.2.3 Main findings

The relationship between exit and the entrepreneurial process

It was indeed found that a recent exit experience decreases the probability of undertaking no entrepreneurial activity, whereas it substantially increases the probabilities of being involved in all other engagement levels. In particular it was found that a recent exit experience mainly increases the probabilities of being a potential or intentional entrepreneur. In this sense the study contributes to earlier findings by suggesting that an exit experience may not only stimulate new entrepreneurial entry, but may also positively affect entrepreneurial potential and intentions. Thus, those individuals who recently exited may present an important source of entrepreneurial energy within societies.

The positive relationship with potential entrepreneurship demonstrates that people who recently experienced an entrepreneurial exit more often indicate having relevant entrepreneurial skills and more often perceive good entrepreneurial opportunities than those who did not experience an exit. The authors interpret this as support for the prediction that an exit experience increases entrepreneurial ability, thus supporting the human capital argument. They state that it is relevant for researchers to include potential and intentional entrepreneurship, since entrepreneurial ability and intentions are important predictors of actual start-up behavior (Davidsson 2006; Krueger, Reilly and Carsrud, 2000).

Factors determining re-engagement in the entrepreneurial process

Investigating the conditions under which an exit increases engagement in entrepreneurial activities, the study found that the probability of entrepreneurial engagement after exit is higher for males, for persons who know an entrepreneur and for persons with a low fear of failure. These are variables that also influence entrepreneurial engagement in general. Educational attainment was not found to be a determining factor for re-engagement after exit.

Finally, the study revealed many cross-country variations in the probability of entrepreneurial engagement after exit. Compared to individuals in the United Kingdom, for example, inhabitants of Argentina, Brazil, Croatia and South Africa were found to have a high likelihood of displaying entrepreneurial activity after exit, whereas the reverse was true for business owners in France, Italy, Japan and Singapore.

5.3 Summary

This chapter discussed results from two econometric studies assessing the role of human capital aspects for entrepreneurship. Human capital can be important for entrepreneurship since relevant knowledge, skills and experience may make it easier to succeed in setting up a firm.

First, the results provide insight into how several aspects of human capital are related to the start up success of nascent entrepreneurs. Human capital aspects that were found to relate positively to start-up success are having a medium level of education, having been employed just before or during the process of starting the firm and knowing someone who recently started a firm. However, contrary to initial expectations some human capital aspects were also found to relate negatively to success in setting up a firm. These are: making use of a

higher number of sources of advice; using resources from a former employer; being a generalist and having at least one partner.

Second, the results indicate that a recent (individual) entrepreneurial exit experience, which can be viewed as an indicator of entrepreneurial human capital, positively relates to engagement in the entrepreneurial process. Individuals who recently exited a firm they personally owned-managed are in particular likely to evaluate their entrepreneurial ability positively and to have intentions to set up a new firm in the near future. Furthermore, it was found that in particular males, persons who know an entrepreneur and persons with a low fear of failure are likely to (re-)engage in the entrepreneurial process after an exit experience.

6 User innovation as a source of entrepreneurial activity

This chapter was written by Jeroen de Jong, EIM Business and Policy Research in Zoetermeer, the Netherlands.

Most scientists, researchers and policy makers would not associate innovation with individual citizens. The incumbent view of how innovations come to life is based on a producer-centered model. It is assumed that economically important innovations are developed by commercial enterprises aiming for a profit or some other economic advantage (Arrow, 1962). Recently however, evidence has been rapidly growing that users, rather than producers, frequently create and modify products to serve their own needs. Users can be either firms or individual end consumers that expect to benefit from *using* an innovative product. In contrast, producers expect to benefit from *selling* an innovative product (Von Hippel, 2005).

In this chapter, we focus specifically on user innovation by individual end consumers. In the 2009 GEM Adult Population Survey (APS), questions were added to document whether respondents can be regarded as user innovators. This research is almost unique, as it is only the second empirical attempt to measure user innovation by individual citizens. Thus, we measure to what extent Dutch citizens engage in user innovation i.e. developing innovations for their own specific use. Next, we explore how user innovation relates to the entrepreneurial attitudes, perceptions, intentions, behaviors and aspirations of Dutch citizens. We find that a substantial number of Dutch citizens i.e. 6.1% are in fact user innovators. We also find that user innovators are more likely to engage in entrepreneurial activity, including entrepreneurial intentions, and nascent and early-stage entrepreneurship. Finally, we find that ventures started by user innovators are more likely to offer new to the market products and to face less competition.

This chapter is organized as follows. First, we discuss what user innovation is about and how it differs from 'regular', producer-oriented innovation. Second, we reveal how user innovation was measured. Third, we present empirical evidence on the incidence of user innovation by Dutch citizens. Fourth, we analyze how user innovation is empirically related with the usual GEM indicators, including entrepreneurial attitudes, perceptions, intentions, behaviors and aspirations. Finally, we conclude and discuss implications for research and policy making.

6.1 User Innovation

A firm or an individual can have different relationships with different innovations. Boeing, for example, is a producer of airplanes, but it is also a user of machine tools. If one were to examine innovations developed by Boeing for the airplanes it sells, Boeing would be a producer-innovator in such cases. But if one were to consider innovations in metal-forming machinery developed by Boeing for in-house use in building airplanes, those would be categorized as user innovations and Boeing would be a user-innovator in such cases. The distinction between

producer- and user innovators is summarized in Table 31 (derived from Von Hippel, 2005).

Table 31 Features of producer- and user innovators

	Producer innovator	*User innovator*
Benefit from innovation	Sales	Use
Motives	Opportunity	Necessity
Type of actors	Mainly organizations (enterprises, PROs, self-employed)	Many individuals, also including end consumers
Type of knowledge	Solution information	Need information
Type of innovation	Improving quality, reliability, design	Bringing functional novelty
Industry life cycle	Incumbent/mature phases	Nascent and emerging phases
Diffusion	Sales, licensing, involuntary spillovers	Voluntary spillovers

Benefit from innovation

As we already mentioned, user innovators can be either firms or individual consumers that expect to benefit from using an innovative product. In contrast, producer innovators expect to benefit from selling an innovative product. Both types represent the two general 'functional' relationships between innovator and innovation. Users are unique in that they alone benefit directly from innovations. All others (here indicated under the term 'producers') must sell innovation-related products to users, indirectly or directly, in order to benefit from innovations. Thus, in order to profit, producer inventors must sell or license knowledge related to innovations and producer manufacturers must sell products or services incorporating innovations.

Motives

User-innovators are triggered by other motives than are producers. They tend to innovate to obtain something that is not available on the market, and when they are able and willing to invest in its development - necessity is what drives them. In practice, many users do not find precisely what they need on incumbent markets. Meta-analyses of market-segmentation studies suggest that user needs for products are highly heterogeneous in many fields (Franke and Reisinger, 2003). Producers tend to follow product development strategies to meet the needs of homogenous market segments. They are motivated by perceived opportunities to serve sufficiently large numbers of customers (users) to justify their innovation investments. This strategy of 'few sizes fit all' however leaves many users dissatisfied with the commercial products on offer. As a consequence, some of them will modify their products or are willing to spend substantial time and money to develop a 'home built' version of a product that exactly satisfies their needs (Von Hippel, 2005).

Type of actors

Producers and users tend to be different types of actors. Producers are typically organizations, including commercial enterprises, knowledge institutes such as universities and public research organizations or self-employed inventors aiming

to make money from their ideas. On the other hand, a user innovator may be any person facing a specific need that cannot be met by incumbent market offerings. User innovation theory dominantly recognizes individuals as potential innovators. They may very well be commercial firms developing equipment or processes for in house use, but also hobbyists such as contributors to open-source projects or end consumers in sports communities (Von Hippel, 2005).

Type of knowledge

Users and producers tend to know different things and accordingly employ different knowledge in the innovation process. Users have the advantage of knowing precisely what they want i.e. they possess superior need information. Producers need to rely on market research to get a glimpse of unsatisfied user needs, but in practice, this is difficult. Estimates of failed product innovations range from 75 to 90 percent of all new product introductions (Cooper, 2003). User innovators possess 'sticky information' about their needs - information that is costly to transfer from one individual to another because of differences in background knowledge, experience, and context of use information (Von Hippel, 1994). Transferring this information to producers is expensive and tends to make user innovation more efficient than attempting to instruct producers as to user needs. A study of innovations in mountain biking equipment, for example, found that user innovations often depended on information that the inventors had obtained through their own cycling experience, reflecting their own unique circumstances and interests, such as a desire to bike in extreme weather conditions or to perform acrobatic stunts (Von Hippel, 2005). Producers, on the other hand, possess better capabilities to design and market innovations i.e. they employ specialized engineers, have professional software and machines and the infrastructure to develop and market innovations for larger numbers of users. In sum, producers are advanced in terms of solution information, while users are advanced in terms of needs information.

Type of innovation

This distinct knowledge has direct implications for the types of innovations that producers and users develop. Due to information stickiness, innovators tend to rely on information they already have in stock (Von Hippel, 1994). Users are more likely to come up with functionally novel innovations, requiring a great deal of user-need information and use-context information for their development. In contrast, producers tend to produce incremental innovations that are improvements on well-known needs and that require a rich understanding of solution information for their development, including design, reliability and technical quality. Their innovations tend to look more 'professional' and 'sustainable', while user innovations on average seem more like amateur work but with superior new functions. In this context, Riggs and Von Hippel (1994) studied the types of innovations made by users and producers that improved the functioning of two major types of scientific instruments. They found that users are significantly more likely than producers to develop innovations that enabled the instruments to do qualitatively new things for the first time. In contrast, producers developed innovations that enabled users to continue do the same things they had been doing, but to do them more conveniently or reliably.

Industry life cycle

Another distinction is that user innovators are most significant in the early stages of industry emergence, while producers tend to enter only later when sufficient numbers of users can be identified with homogenous needs. User innovators tend to be active in the nascent and emerging phases of the industrial life cycle. Studies of innovating users (both individuals and firms) show them to have the characteristics of 'lead users'. That is, they are ahead of the majority of users in their populations with respect to an important market trend and they expect to gain relatively high benefits from a solution of the needs they have encountered there. It has been demonstrated that many of the novel products developed by users for their own use appeal to other users and some of these provide the basis for products that commercial producers commercialize (Lilien, Morrison, Searls, Sonnack and Von Hippel, 2002). A typical pattern is that users initially innovate only for themselves - they may do this solo or in collaboration with other users (e.g. open-source projects). Next, user innovators may face requests from other users willing to adopt their products. They sometimes decide to start their own business to commercialize their innovations and, on second thought, become producers (Shah and Tripsas, 2007). At this stage policy makers may recognize that a new industry has emerged and may start to appear in official statistics. Incumbent producers typically enter at this stage. They may feel attracted by the opportunity of serving larger numbers of users with improved versions of user innovations.

Diffusion

A final, important distinction is that producer and user innovators differ in how they see their innovations diffuse to other economic actors. As indicated, producers expect to benefit from their innovations by selling them to users or, alternatively, by selling or licensing their innovative knowledge to other producers undertaking commercialization. Other actors may also benefit from producer innovations via spillovers, but producers consider these undesirable and at the expense of their hard work - so governments introduced intellectual property rights in order not to deprive producers of innovation engagement. In contradiction, users often achieve widespread diffusion by merely revealing what they have developed (Harhoff, Henkel and Von Hippel, 2003). This may seem strange, but it is often the best or the only practical option available to them, as hiding innovations with trade secrets is unlikely to be effective for long and user innovators do not care too much about direct economic benefits anyway.

6.2 Measurement

Many of those who hear about user innovation for the first time regard it as a rare and insignificant phenomenon. In the past decade however, empirical evidence has shown that user innovation is widespread and growing in importance.

Case study evidence

Early empirical user innovation studies were concerned with specific product types. Von Hippel (1976) identified a high ratio of user-to-producer innovation in a sample of the most important innovations in scientific instruments in the past 20-30 years. Other examples include medical equipment (Von Hippel and Finkelstein, 1979) and sports equipment (Shah, 2000). Alternatively, researchers have identified the proportion of user populations engaging in innovation affecting

specific product categories. Such types of studies begin by identifying a population of users that are interested in a specific type of product, then each firm or individual in the sample is asked whether it has developed an innovation in the field at issue in order to use it. These studies generally find that 10 to 40 percent of user populations are innovators (Von Hippel, 2005). The phenomenon has been identified as substantial in printed circuit CAD software (Urban and Von Hippel, 1988), pipe hanger hardware (Herstatt and Von Hippel, 1992), library information systems (Morrison, Roberts and Von Hippel, 2000), surgical equipment (Lüthje, 2003), Apache OS server software security features (Franke and Von Hippel, 2003), outdoor consumer products (Lüthje, 2004), extreme sporting equipment (Franke and Shah, 2003), mountain biking equipment (Lüthje, Herstatt and Von Hippel, 2002) and banking services (Oliveira and Von Hippel, 2009).

Surveys of commercial enterprises

More recently, empirical evidence shows that user innovation is very common in broad, representative samples of commercial enterprises. See Table 32.

Table 32 Frequency of user innovators in broad samples of enterprises

Source	*Country*	*Year*	*Sample*	*Frequency*
Arundel & Sonntag (1999)	Canada	1998	4200 manufacturing plants with > 20 employees and $ 250K revenues	48%
Schaan & Uhrbach (2009)	Canada	2007	6478 manufacturing plants with > 20 employees and $ 250K revenues	43%
De Jong & Von Hippel (2009)	Netherlands	2007	498 high-tech small firms (1-100 employees)	54%
De Jong & Von Hippel (2008)	Netherlands	2008	2416 small firms (1-100 employees)	21%
Flowers, De Jong, Sinozic & Von Hippel (2010)	United Kingdom	2009	1004 small- and medium-sized firms (10-250 employees)	15%

So far, three countries have been at the leading edge of surveying user innovation. An early study identifying user innovation in a broad sample was documented by Arundel and Sonntag (1999). As part of their survey of Advanced Manufacturing Technologies, Statistics Canada sampled thousands of Canadian manufacturing plants with at least 20 employees and $ 250,000 revenues. Amongst other subjects data were collected on the adoption, modification and development of specific technologies. A key finding was that 48% of the surveyed plants either modified existing technologies or developed their own technologies to apply in their operations. More recently, this survey was updated by Schaan and Uhrbach (2009). They found that 43% of the surveyed manufacturing plants were user innovators.

In the Netherlands, researchers have examined user innovation in small firms, i.e. with 1 to 100 employees. These studies sampled individual small business owners to ask whether they had developed innovations for internal use. In a sample of 498 high-tech firms, De Jong and Von Hippel (2009) found that 54% had somehow engaged in user innovation in the past three years. Another sam-

ple focused on small firms in all (profit) industries, and found that 21% of the small firm population is a user innovator (De Jong and Von Hippel, 2008). In the United Kingdom, this finding has recently been reproduced for a sample of firms with 10 to 250 employees from all industries. Here, it was estimated that 15% of the UK business population is a user innovator (Flowers, De Jong, Sinozic and Von Hippel, 2010).

In all, survey evidence has so far revealed that the incidence of user innovation is substantial. The percentages in Table 32 represent ten thousands of Canadian, Dutch and UK enterprises. One common finding is that user innovation is contingent on size (larger organizations are more likely to engage in user innovation as they are more process-intensive) and technical capability (manufacturers and high-tech enterprises more likely to be user innovators than services providers, as they are better capable of innovating by themselves) (Flowers, De Jong, Sinozic and Von Hippel, 2010).

Surveys of individual end consumers

As far as we can ascertain, there has been only one attempt to map user innovation by individual end consumers. In a study by Flowers and colleagues (2010), drawing on findings from an omnibus survey of 2,109 individuals, the share of user innovators was conservatively estimated. Their study revealed that in the past three years 8% of the UK consumers (older than 15 years) created or modified one or more of the consumer products they used in order to make them better suited to their needs, rather than products available on the market.

In the 2009 GEM APS survey, we added questions to reproduce the UK consumer survey done by Flowers, De Jong, Sinozic and Von Hippel (2010) and, in addition, to empirically explore if and how user innovation is related to the entrepreneurial engagement ladder. More specifically, we asked a number of dichotomous questions (Table 33).

Table 33 Indicators to measure the incidence of user innovation

Indicator	*Question: During the past three years, did you…*
software modification	…change any computer software programs you use by changing the computer code?
software creation	…create any computer software *from scratch* to use yourself?
hardware modification	…modify ANY products you use in your daily life, such as tools, toys, sporting equipment, cars, household equipment, or any other things, to make them work better for you?
hardware creation	…create any products *from scratch* to use yourself, such as tools, toys, sporting equipment, cars, household equipment, or any other things?

Users may innovate by modifying existing software or hardware or they may create innovations from scratch by developing their own software or hardware (cf. De Jong and Von Hippel, 2008). Thus, we asked respondents if they had modified software, created new software from scratch, made any modifications to hardware (i.e. tools, toys, sporting equipment, cars, household equipment or any other things) and if they had created hardware from scratch during the past

three years. These questions were identical to those of Flowers, De Jong, Sinozic and Von Hippel (2010). From the data we constructed three dichotomous indicators: user modification (combining software and hardware modifications), user creation (combining software and hardware creations) and user innovation (combining user modifications and user creations). Next, we conservatively adjusted our estimates by applying correction factors, which were adopted from Flowers, De Jong, Sinozic and Von Hippel (2010). In this UK study, detailed survey evidence showed that our indicators also capture 'false positives' which are not user innovations. Responding citizens may report innovations implemented at work (assumed to be already captured by firm-level innovation surveys) or home-built versions of products that they could have bought on the market (not innovative).

6.3 Incidence of user innovation by Dutch citizens

User innovation, modification and creation

We found that 6.1% of Dutch citizens (aged 18-65) can be regarded as a user innovator (Table 34). They reported having modified existing software or some other product used in their daily lives or having created such a product from scratch in the past three years. This may include new or improved household equipment, tools, machines, cars, sports equipment, music instruments, and more. All these citizens were innovating in their leisure time, rather than as part of their jobs or formal work roles. In addition we excluded innovations that were mere copies of incumbent products that consumers could have bought on the market if they had wanted to. Thus, when consumers developed homebuilt versions of existing products for economic reasons, this was not considered to be user innovation. As the current population of citizens aged 18 to 65 years in the Netherlands is 10.3 million, this suggests that over 600,000 individuals in the country were engaged in some form of user innovation in the past three years.

Table 34 Incidence of user innovation by Dutch citizens, the Netherlands, 2009, percentage of the adult population (18-64 years of age), n=2,133

Indicator	*Description: In the past three years, respondent…*	*% of Dutch citizens*
User creator	…created from scratch at least one piece of software or any other product used in daily life*	2.2
User modifier	…modified at least one piece of software or any other product used in daily life*	4.5
User innovator	…reported at least one modification or creation*	6.1

** For his/her own use, not as part of their job, and no commercial product with the same function was available.*

Source: EIM/GEM.

Table 34 also shows that 4.5% of the population is engaged in user modification, while 2.2% can be regarded as a creator of original work. These percentages are slightly lower than those reported by Flowers, De Jong, Sinozic and Von Hippel (2010) in the United Kingdom. Here the share of user innovators was estimated to be 8.0%, of which 5.9% were modifiers and 4.4% creators.

We stress that although substantial, not every user innovator can be anticipated to develop 'the next big thing'. It is much more common that consumers will develop applications to satisfy their own specific needs. Examples of reported innovations included 'a device for cutting the top of the trees, it's a fishing rod with a large metal hook at the end. This enables me to reach the top of the trees, pull them down and cut them' and 'an easel, as I am undertaking an art course and my tutor needed a bigger easel than those available on the market'. Some user innovations are however very meaningful for others, as we will discuss in the next sections.

Demographic differences

We extensively analyzed significant differences between groups of citizens. It was found that the share of user innovators differed by gender, age, education, employment status and household income (Table 35).

Table 35 Incidence of user innovation by demographic variables, the Netherlands, 2009, percentage of the adult population (18-64 years of age)

	% of Dutch citizens
All Dutch citizens aged 18-64 (n=2,109)	6.1
Gender	
Male (n=1,077)	9.2
Female (n=1,056)	2.8
Age	
18-24 years (n=287)	8.4
25-34 years (n=407)	6.1
35-44 years (n=514)	6.4
45-54 years (n=496)	5.8
55-64 years (n=429)	4.3
Education	
university (n=200)	6.8
advanced professional (n=492)	5.8
higher secondary (n=213)	7.3
basic professional (n=729)	6.6
low secondary (n=359)	5.1
primary/none (n=101)	4.0
Employment	
Fulltime employed (n=840)	7.5
Part-time employed (n=483)	3.7
Self-employed (n=260)	8.3
Unemployed (n=50)	4.7
Retired, disabled (n=152)	4.2
Student (n=139)	7.2
Housekeeping (n=119)	2.4
Other (n=83)	5.4
Income	
Below modal (n=302)	4.7
Modal (n=531)	5.2
Once to twice modal (n=613)	7.1
Twice modal (n=225)	8.0
More than twice modal (n=158)	8.2

Source: EIM/GEM.

Males are much more likely to be user innovators than females. We find that their frequency of user innovation is more than three times as high. Obviously, gender is not a causal mechanism that can be regarded as disqualifying women as potential user innovators. It is most likely that gender is a proxy for other variables that matter for citizens' ability to develop user innovations - for example, technical skills.

We also found that the younger people are more likely to be user innovators. Older people (aged 55 and over) are less likely to develop or modify software or any products for their own specific use. We assume that younger people have better odds of being user innovators for a number of reasons. First, in comparison with senior people they tend to be less prosperous but more energetic. This implies that when facing problems, they would be more attracted to developing their own solutions, rather than recruiting someone else to solve them for them or simply ignore the problem. Second, younger people tend to be better educated and accordingly better skilled - which is another aspect associated with user innovation activity (see hereafter).

Education is another variable that clearly increases the odds of user innovation. Citizens with better qualifications (i.e. university, advanced professional or higher secondary education) report modifications or creations of new software or hardware more often than those with modest educational attainment. Again, education is probably a proxy for people's general skills and motivation to innovate.

Those who anticipate that people without jobs have better opportunities to work on user innovations because they have much more spare time, find themselves deceived. In Table 35 it is shown that working people (either fulltime employed or self-employed) are most likely to develop user innovations. Students are also quite often user innovators. The percentages are much lower for unemployed and part time workers. A number of remarks can be made here, including that those in part-time or without jobs are more often females, while retired people are definitely older ones. We anticipate that working fulltime indicates (technical) skills to develop innovations, ability to mobilize networks for assistance and general motivation to act.

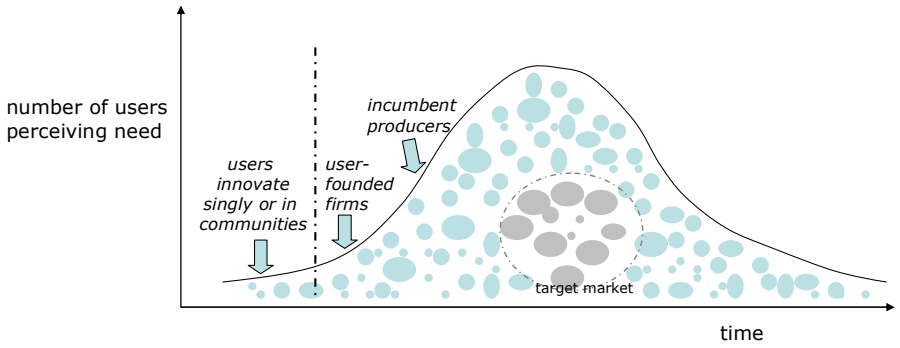
Finally, we find that household income is a relevant predictor of user innovation status. The more people earn, the more likely they are to create new software or other products for personal use or to modify existing products for this purpose.

6.4 Relationship with entrepreneurial activity

6.4.1 User entrepreneurship

Past work has shown that users innovate at the leading edge of emerging needs for new products and services, where markets are, by definition, both small and uncertain (Von Hippel, 2005). We repeat that many of the novel products developed by users appeal to other users and some of these provide the basis for new business development (Shah and Tripsas, 2007). This is visualized in Figure 23.

Figure 23 User entrepreneurship at the early stages of the industry life cycle



User innovation begins when one or more users of some good recognize a new set of needs and/or design possibilities and begin to design and build and use innovations intended to better serve their own needs. If the innovation is of interest to additional users, one or more communities of user-innovators soon coalesce and begin to exchange information about their various designs, their experiences with them and promising avenues for improvement.

Next, some time after user innovation begins, the first user-purchasers appear - these are users who want to buy the goods that embody the lead user innovations rather than to build these themselves. Some of the user innovators may decide to start their own businesses to satisfy other users' similar needs. The first producers to enter the market are likely to be user-founded firms, i.e. user-innovators who are first to recognize the opportunity to make money from the innovations that they originally created for themselves. This phenomenon is known as user entrepreneurship (Shah and Tripsas, 2007).

As information about product designs becomes codified and as market volumes grow, incumbent producers - both existing user-founded firms, established producers from other fields and start-up producers who have identified the opportunity - can justify investing in higher-volume production processes involving higher capital investments. So, traditional producers (developing producer innovations) enter somewhat later. User innovators will be present throughout the emerging industry's life cycle, because (established) producers will serve only homogenous target markets, so that at least some users will not receive precisely what they want. Throughout the life cycle however, the role of producers versus users as a source of innovation will change slightly - user innovators and user entrepreneurs are most likely to dominate the nascent and early stages of industry emergence.

6.4.2 Entrepreneurial attitudes, perceptions and intentions

The model presented in Figure 23 suggests that, in our sample of innovating Dutch citizens, a significant and positive relationship with entrepreneurial engagement indicators can be anticipated. Indeed, this is what we found. In terms of entrepreneurial perceptions, user innovators are more positive than non-innovating citizens (Table 36). They are significantly more likely to think they possess the knowledge and skills to start a business and also to see opportunities for new venture creation in the next six months. Interestingly, when asked

about fear of failure, user innovators were slightly more fearful (29.7% versus 25.7%), yet this difference was not significant.

Another finding is that user innovators are much more inclined to actually start a business. The percentage of citizens expecting to start in the next three years is 16.3% and three times higher as for other, non-innovative citizens.

Table 36 Attitudes, perceptions and intentions to entrepreneurship by user innovation status, the Netherlands, 2009, percentage of the adult population (18-64 years of age)

	No user innovator (n=2,003)	*User innovator (n=130)*
Attitude		
In the Netherlands, most people consider starting a new business a desirable career choice	82.9	86.7
In the Netherlands, persons building a successful new business have a high status level	67.4	66.5
In the Netherlands, there is a great deal of media coverage for new businesses	63.7	63.4
Perception		
Fear of failure would prevent him/her from starting a new business	25.7	29.7
Has the required knowledge, skills, and experience to start a new business	43.4	62.6
Sees good opportunities for starting a business in the next 6 months	32.6	48.1
Intention		
Expects to start-up in the next 3 years	5.1	16.3

Source: EIM/GEM.

As for citizens' attitudes towards entrepreneurship however, there are no significant differences (Table 36). Dutch citizens who reported to be user innovators were slightly more positive about whether entrepreneurship is considered to be a good career choice in the Netherlands. No differences at all were found for perceived status of new business creation and perceived media coverage. In all, user innovators are more confident of their entrepreneurial abilities and more likely to actually start a new venture. This seems due to some intrinsic capabilities rather than a more positive attitude towards entrepreneurship.

6.4.3 Entrepreneurial behavior

As we reported earlier in this report, the Total early-stage Entrepreneurial Activity (TEA) includes the prevalence of nascent entrepreneurs and that of owner-managers of young or new businesses. The group of nascent entrepreneurs refers to individuals within the adult population (18-64 years of age) who are actively involved in their own new firm start-up, as full or part owner and for whom no salaries or wages have yet been paid for over three months. The group of young business owners refers to individuals who are, as owner and manager, ac-

tively involved in operating a business that is less than 42 months old and which has paid salaries or wages for between 3 and 42 months.

User innovators are about twice as likely to engage in early-stage entrepreneurship (Table 37). This distinction is also found when nascent and young business entrepreneurship are measured separately. In addition, user innovators are more often established business owners (11.2% versus 7.2%). All these differences were strongly significant.

Table 37 Entrepreneurial behaviors by user innovation status, the Netherlands, 2009, percentage of the adult population (18-64 years of age)

	No user innovator (n=2,003)	*User innovator (n=130)*
Total early-stage Entrepreneurial Activity (TEA)	6.1	11.2
Nascent entrepreneurship (start-up effort, owner, no wages yet)	2.7	4.6
Young business entrepreneurship (manages and owns a business < 42 months old)	3.3	6.6
Established business entrepreneurship (manages and owns a business of 42 months or older)	7.2	11.2

Source: EIM/GEM.

6.4.4 Entrepreneurial aspirations

In the first section of this chapter we explained that user innovators are more likely to provide functionally novel innovations. If they decide to start a business, we can expect them to report more often that (potential) customers consider their products as new or unfamiliar. One should also anticipate that such ventures will face fewer competitors, i.e. other businesses offering the same products.

Table 38 Entrepreneurial aspirations by user innovation status and entrepreneurial behavior, the Netherlands, 2009, percentage of the adult population (18-64 years of age)

	Involved in TEA		*Established entrepreneurs*	
	No user innovator	*User innovator*	*No user innovator*	*User innovator*
Expects more than 19 jobs in 5 years	5.8	13.7	13.3	7.8
Indicates that … (potential) customers consider their product new or unfamiliar				
…none…	62.1	52.0	84.2	88.2
…some…	22.3	18.0	9.2	9.8
…all…	15.5	30.0	6.7	2.0
Indicates that … other business offer the same products				
…many…	54.9	26.0	60.3	51.0
…few…	32.4	50.0	29.8	45.1
…none…	12.7	24.0	9.9	3.9

Source: EIM/GEM.

Again, these suppositions are supported by our survey data (Table 38). Among those respondents involved in early-stage entrepreneurial activities, user innovators report much more often that their (potential) customers find their products new or unfamiliar. A similar result is found for the item on other businesses offering similar products. Interestingly, for established entrepreneurs the distinction between both groups (user innovators versus other citizens) largely disappears. In terms of the life cycle model visualized in Figure 23, early-stage user entrepreneurship is marked by a lack of competitors and high perceived newness of product offerings. Established user entrepreneurs are also more likely to be active in a later phase of the industry life cycle, after traditional producers have entered the market and me-too products are launched.

In Table 38 we also report the percentage of respondents expecting their business to grow substantially i.e. those anticipating offering more than 19 (extra) jobs in five years. Of those involved in early-stage entrepreneurship, user innovators are again much more positive. This is consistent with Lilien, Morrison, Searls, Sonnack and Von Hippel's (2002) earlier finding that users' innovations have great commercial value. Interestingly, the share of respondents with high-growth expectations is lower for established entrepreneurs (but not significantly different from other citizens).

6.5 Summary and implications

Case study and survey evidence has shown that user innovation is found everywhere i.e. in specific product groups and broad samples of firms and individual end consumers. This chapter established that a substantial percentage of Dutch citizens engaged in user innovation in the past three years. The share of innovating Dutch citizens is estimated to be 6.1%. This is slightly lower than in the

United Kingdom where an estimate of 8.0% was found (Flowers, De Jong, Sinozic and Von Hippel, 2010). Nevertheless, user innovation activity by Dutch citizens still represents a considerable number innovating individuals (over 600,000) that are completely unrecorded in official statistics.

More importantly, our empirical findings are supportive of suppositions based on the work of Von Hippel (2005) and Shah and Tripsas (2007) that user innovators are much more likely to be at the edge of new business development and industry emergence. We found that innovating citizens are about twice as likely to engage in early-stage entrepreneurial activity. Their (potential) customers are much more often reported to perceive their products as new or fundamentally different, and user entrepreneurs also claim to face less competition. Moreover, early-stage user entrepreneurs have better expectations of their business growing substantially.

Our findings have some important implications for policy makers. First, we stress that incumbent policy thinking is still dominated by a producer-oriented view of how innovation 'works'. This is partly because user innovation is not part of current official statistics (such as the Community Innovation Survey) - accordingly the phenomenon is below the policy radar. One implication is that official surveys should be reconsidered so that they also capture user innovation activity. Moreover, our findings suggest that the alternative, user-oriented view may be an important determinant of new venture creation. Policy makers may start to think of its implications for entrepreneurship policies. It appears that it may be worthwhile for it to be pro-actively traced and stimulated to start a business.

We would like to comment that it is likely that user innovation will become more dominant in the near future - a process that has already been emerging in the past ten years. This shift is being driven by new technologies, specifically the transition to increasingly digitized and modularized design and production practices, coupled with the availability of very low-cost, Web-based communication (Baldwin and Von Hippel, 2009). These largely exogenous developments steadily increase the scope and richness of innovations that individual user innovators can design and develop, either on their own or in communities. Unfortunately, incumbent policymaking is still governed by a dominant logic of producer innovation, and policy makers have not even begun to start thinking of the implications of user innovation.

Our results have implications for future research as well. More empirical work on the relationship between user innovation and entrepreneurship is certainly called for. We admit that our work presented here contains some flaws, including the fact that our indicators for measuring user innovation need to be further developed. We need a next generation of indicators to obtain better estimates of the incidence of user innovation. Moreover, we need to find out if reported user innovations are actually applied as a basis for new venture creation. In the current chapter, we showed only that user innovation and entrepreneurship are correlated. We stress that with a more direct link between user innovation and reported entrepreneurial engagement, the correlations between both topics will probably prove to be even stronger.

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