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Global Entrepreneurship Monitor 2012 Singapore report

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1.0 Executive Summary

Independent of the stage of economic development, entrepreneurship plays a significant role for the expansion, job creation and overall economic health within a country. As a leading international indicator of entrepreneurial activity around the world, the Global Entrepreneurship Monitor (GEM) provides valuable insight into the state of entrepreneurship within and across developed and developing economies. Knowing the entrepreneurial aspirations of country's residents is particularly relevant to Singapore's innovation-driven economy given that the country's prosperity depends largely on the economic activities of its citizens.

In this executive summary, we describe the key definitions and terms used in the GEM as well as the stages of entrepreneurship in Singapore. We then summarize the key findings of the GEM Singapore 2012 and draw comparisons with other developed countries as well as those located near Singapore.

1.1 Key Definitions

The definitions for what exactly constitutes entrepreneurship are myriad; the GEM defines entrepreneurship as *any attempt at new business or new venture creation*. This can include but is not limited to self-employment, the creation of a new business entity or the expansion of an existing business. Undoubtedly, this definition encompasses a broad scope of entrepreneurial behaviours. As such, the GEM breaks down the entrepreneurial business cycle into several main stages. For this report we focus on three stages which are of particular relevance to Singapore.

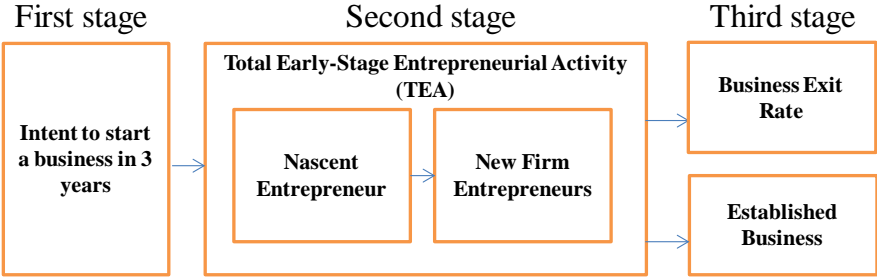
The first stage of entrepreneurship involves the respondents' readiness to begin an entrepreneurial venture or their *intent to start a business within the next 3 years (Entrepreneurial Intention)*. The second stage, which usually receives the most attention in

publications utilizing GEM findings, is the *Total Early-Stage Entrepreneur Activity (TEA)* rate: The TEA is an indication of how many individuals in an economy are currently participating in burgeoning entrepreneurial activities. This stage of entrepreneurship is further broken down into two categories, *Nascent Entrepreneurs* and *New Firm Entrepreneurs*. In the third stage, early stage entrepreneurial activity eventually progresses either towards becoming an established business or towards discontinuation (business exit). See Table 1.0.1 for full description of the definitions as well as figure 1.0.1 for an illustration of the entrepreneurial stages. Note that figure 1.0.1 will be used as a graphical outline throughout the full report as a guide as to which stage of entrepreneurship is being examined.

Table 1.0.1 Entrepreneurial stage definitions

Entrepreneurial Stages and Categories	Definition
Intent to start a business in 3 years (Entrepreneurial Intention)	Individuals not currently involved in an entrepreneurial venture, but intend to do so in the next 3 years.
Total Early-Stage Entrepreneurial Activity (TEA)	TEA is derived from a combination of the number of nascent entrepreneurs and new firm entrepreneurs. Those that qualify for both definitions are only counted once.
Nascent Entrepreneurs	Individuals actively involved in a start-up who expect to own all or part of the new firm, no wages have been paid for more than three months
New Firm Entrepreneurs	Individuals involved as an owner or manager in new firms, wages have been paid for between three to forty-two months.
Established Businesses	Owner or manager of an established firm, wages have been paid for more than forty-two months.
Business Exit	Individuals that have left a business that they previously managed or owned in the last year.

Figure 1.0.1 Entrepreneurial stages



1.2 GEM Singapore Research Methodology

The GEM examines these various stages of entrepreneurship via a two-pronged methodology; an Adult Population Survey (APS) and a National Expert Survey (NES). The APS utilizes phone landlines to interview a representative sample of at least 2,000 or more adults in each country. These respondents are randomly selected citizens or permanent residents of the country aged between 18 and 64 years. The APS data are used to estimate the entrepreneurial participation in the country. The APS also collects other information about the population such as their attitudes towards entrepreneurship and other related activities.

While the adult population survey captures the general attitude of the population, the NES captures a different but nevertheless vital insight into the dynamics of entrepreneurship from experts deeply involved in the entrepreneurial landscape. In each country, a minimum of 36 experts, selected for their expertise in areas relevant to entrepreneurship such as finance or government policy, are interviewed via phone, email or in-person on the state of entrepreneurship. The 2012 NES consists of both a structured questionnaire (standardized across participating countries) as well as open-ended discussions. Readers interested in detailed descriptions of APS and NES instruments may refer to Appendix B.

In total, 69 countries participated in 2012 GEM with 67 providing data for the adult population survey and 69 providing results for the national expert survey. For the APS results, we compared Singapore's results with 24 other economies (for a total of 25 economies altogether). These countries were selected specifically due to their innovation-driven economies, or in some cases, their geographic and cultural similarities with the Singapore economy. Innovation-driven countries in this instance are those defined by the World Economic Forum's Global Competitiveness Report.

[World Economic Forum. (2012). The global competitiveness Report. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf].

1.3 Key Findings

1.3.1 Rate of Entrepreneurship in Singapore

The 2012 total early-stage entrepreneurship (TEA) rate for Singapore was 11.6 %. This was higher than past reported TEA rates of 6.6% in 2011 and 4.9 % in 2006, placing Singapore in 2nd position behind the United States amongst 25 comparable economies. A possible reason for the increase in TEA rate could be the continuation of strong economic growth since the 2009 recession. This may have further instilled confidence in the Singapore economy among aspiring entrepreneurs, thus resulting in a higher level of entrepreneurship. Among the different age groups, people between 35 and 44 years are the most actively involved in entrepreneurship, with 15.4% of respondents reporting to be in early-stage businesses.

1.3.2 Intent to Start a Business and Attitudes towards Entrepreneurship

More than one-fifth of respondents (21.4%) reported to have intentions to start a business within the next 3 years. This also represents an increase from the figures in 2011 (15.3%) and 2006 (11.8%). Compared to the other 24 selected economies, Singapore ranked 2nd behind Taiwan. The reason behind the increase could also due to favourable macroeconomic conditions as mentioned above. However, only 26.6% of respondents perceived they have sufficient entrepreneurial skills and 22.5% felt that there are good entrepreneurial opportunities in the next six months. More efforts could be spent on education and training to bring about a more entrepreneurial Singapore.

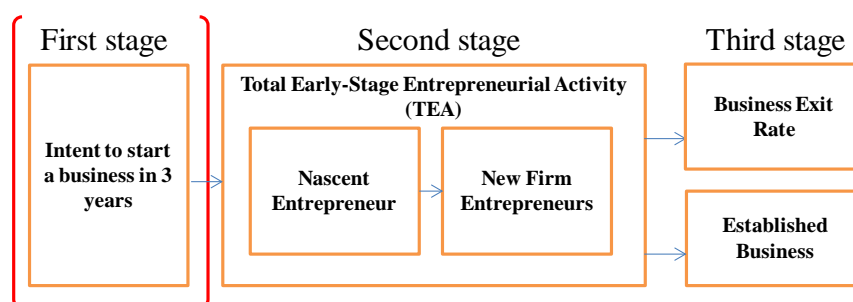
1.3.3 Nature of Start-ups

Singapore's early-stage businesses are among those with the most internationalised client base and are most likely to utilise latest technologies and collaborate with external business partners. 43.1% of Singapore's early-stage businesses have more than one quarter of their customers based overseas, which is a higher percentage than those observed in other 24 comparison countries. Singapore also ranked first in the category of having the highest percentage of early-stage businesses that sought external business collaborations in selling their products (74.9%), and ranked second in the category of using the latest or recent technologies to operate their businesses (43.9%). On the other hand, the level of innovation among start-ups can be further increased. Only 37.9% (rank 21st) of early-stage businesses in Singapore felt that their products or services are different from most or all other businesses.

1.4 The Report

In the remainder of this report, we present in greater detail some of the more salient APS results across key stages of entrepreneurship, and analyse them in comparison to past years' figures. We will then discuss the results of the NES. Lastly, we will summarize and highlight the significant implications of the key findings of this report.

2.0 Intent to Start a Business



As described in the stages of entrepreneurship (see section 1.1) measured by the Global Entrepreneurship Monitor (GEM), the first step towards entrepreneurship is the readiness to venture into business creation. The GEM captures this as the percentage of the survey respondents reporting they intended to start a business within the next three years. Table 2.0.1 presents 2012 results for the 25 economies; a higher rate indicates a greater percentage of respondents that intend to start a business within the next 3 years. Overall, Entrepreneurial Intention rates ranged between 26.9% (Taiwan) to 5.4% (Japan) with the average for the 25 counties being 12.8 %. Singapore was ranked 2nd overall this year with the rate of 21.4%, an increase from last year's rate of 15.3% (rank 5th).

Table 2.0.1 Intent to start a business in the next 3 years

Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	Taiwan	26.9	14	Austria	11.6
2	Singapore	21.4	15	United Kingdom	11.5
3	France	18.9	16	Belgium	10.7
4	United States	16.5	17	Greece	10.5
5	Portugal	16.2	18	Netherlands	10.1
6	Malaysia	15.7	19	Finland	9.4
7	Slovakia	15.6	20	Germany	8.9
8	Slovenia	14.7	21	Denmark	8.4
9	Korea	14.6	22	Switzerland	8.3
10	Israel	14.5	23	Ireland	8.0
11	Spain	12.1	24	Norway	6.7
12	Italy	11.8	25	Japan	5.4
12	Sweden	11.7			
	Average	12.8			

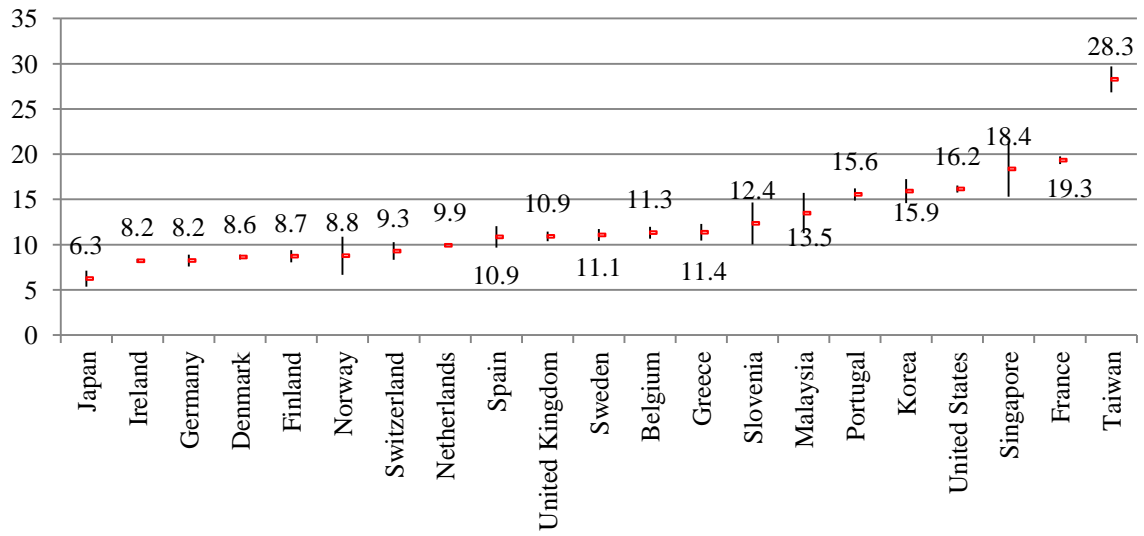
2.1 Comparisons with past year studies and other countries

Compared to 2011, the level of entrepreneurship in Singapore seems to be higher in 2012. The Entrepreneurial Intention rate of 21.4% in 2012 represents an increase from GEM 2011's figure of 15.3%. It is also helpful to examine how the entrepreneurship landscape in Singapore has progressed over the years by comparing the GEM findings over two different but comparable timeframes; 2004-2006 and 2011-2012. We found that there were more people who wanted to start business in 2011-2012 (an average rate of 18.4%) as compared to the period from 2004-2006 (14.1%).

We also analysed how Singapore fared against other innovation-driven economies in entrepreneurship. The data of 21 innovation-driven economies which participated in both GEM 2011 and 2012 were used for comparison. In Figure 2.1.1, we highlight the average rates (as shown by the red dots and their corresponding values), the higher rates (tips of the sticks), and the lower rates (tails of the sticks) of both years of Entrepreneurial Intention rates in each country. Singapore ranked fairly high among the developed countries, having the 3rd highest percentage of people intending to start a business, just below Taiwan and France.

Figure 2.1.1

Rates of Entrepreneurial Intention (%) across 21 economies in 2011-12



2.2 Factors Influencing Intention to Start a Business

The GEM APS measures several attitudinal factors that may affect respondents' intention to start a business. These include perceptions of fear of failure, status of entrepreneurs in society, having skills to start a new business, and seeing opportunities for new enterprises. Understanding these perceptions may provide deeper insights on the entrepreneurial aspirations of Singaporeans.

First, contrary to the popular belief that Singaporeans are more risk averse than those from other countries, the 2012 GEM respondents scored relatively moderate in the fear of failure question (see Figure 2.2.1), where higher scores on this question indicate a higher percentage of respondents agreeing that the fear of failure would prevent them from starting a business. Only 43.2% of Singaporean respondents indicated that a fear of failure would prevent them from starting a business. This figure was lower than 10 other countries (ranked 15th of 25 comparison countries) in GEM 2012 and slightly lower than the average rate of 44.3%.

Figure 2.2.1 Fear of Failure

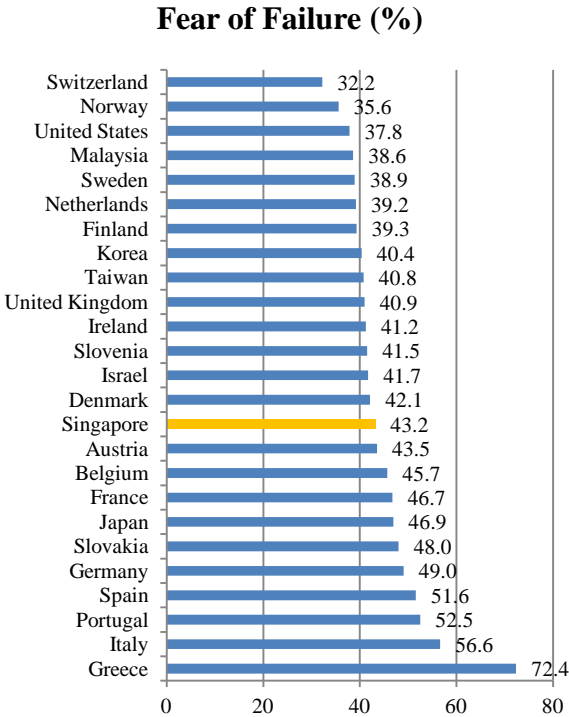
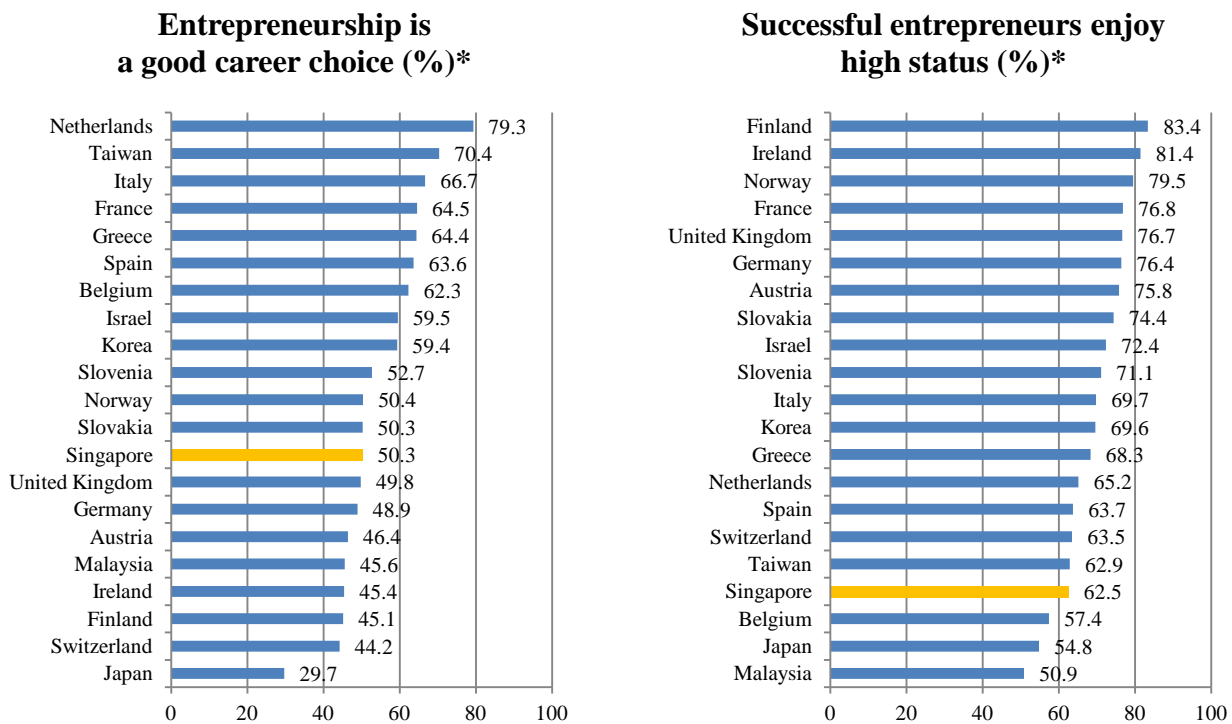


Figure 2.2.2 Perceptions of entrepreneurship in society



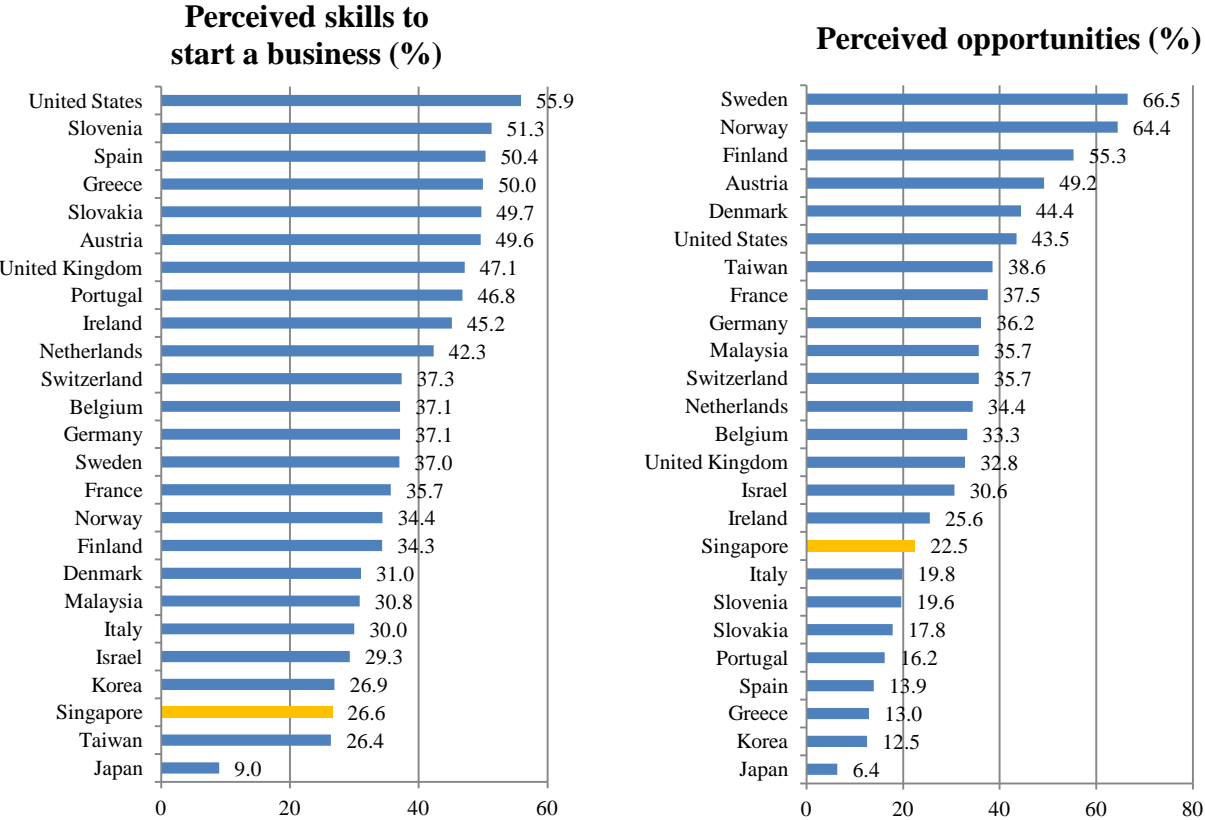
*Note: data from some of the selected countries were unavailable for comparison

Perceptions on entrepreneurs’ societal status and career prospects were also surveyed. About half of respondents in Singapore (50.3 %) indicated that entrepreneurship is a good career choice. While 62.5 % agreed that successful entrepreneurs enjoyed a good status in the country, Singapore appeared to be lagging behind other economies in this aspect, ranking 22nd out of 25 comparison countries. (see Figure 2.2.2)

Another factor where Singapore did not rank well against other countries was related to entrepreneurship education. Singapore ranked 23rd out of 25 countries in terms of perceived skills to start a business (see Figure 2.2.3). Only 26.6% of respondents felt they had *the knowledge, skill and experience to start a business*, which was considerably lower than the average of 38.0%. Four out of the five countries with the least percentage of respondents with perceived skills were East Asian economies.

Less than a quarter of Singapore respondents (22.5%) reported that there would be good opportunities to start a business within the next six months; Singapore ranked 17th out of the 24 selected economies. Most of the countries ranked below Singapore in perceived opportunities were either those that are severely affected by the European debt crisis (Greece, Italy, Spain and Portugal) or those having relatively lower rates of knowledge, skill and experience to start a business (Korea and Japan). Singapore clearly belongs to the second group of countries (see Figure 2.2.3)

Figure 2.2.3 Perceived skills and opportunities to start a business.



In addition to the above attitudinal factors, we also asked respondents whether they felt their personality, skills and abilities were most suited for entrepreneurship, professional or leadership work. Also, the respondents were asked which career was most appealing to them (entrepreneurship, professional, or leadership/managerial careers) when they were younger,

and whether they are most likely to be an entrepreneur, professional or leader/manager five years later.

Table 2.2.1 Entrepreneurship, Professional & Leadership careers

Career options	Career interest when younger (%)	Career that skills, etc are most suited to (%)	Likeliest career choice five years later (%)
Entrepreneurship	26.1	22.2	27.7
Professional	50.7	43.0	30.1
Leadership	12.5	19.5	17.5
None of the above	10.7	15.3	24.7

As evident in Table 2.2.1, the most common career interest is professional (50.7%), followed by entrepreneurship (26.1%) and leadership (12.5%). A minority group of respondents (10.7%) did not share in any of the aforementioned careers. Similarly, 43.0% of respondents felt that their personality, skills and abilities were most suited for professional careers. Fewer respondents felt entrepreneurship (22.2%) and leadership (19.5%) careers were most suitable for them. When asked which will be their most likely career choice five years later, 30.1% of the respondents mentioned professional career, 27.7% said entrepreneurship and a smaller portion 17.5% stated leadership. There is no form of comparison with other countries as the above three questions were only asked of Singaporean respondents.

In examining the overall attitudes and perceptions of respondents towards entrepreneurship, we also investigated how these attitudinal variables are related to entrepreneurial intention and start-up experience (including established businesses and exited businesses). We found that the following four attitudinal variables (in descending order of significance) were instrumental; *perceived skills, knowledge and experience to start a business, perceived personality, skills and abilities to be most suited to entrepreneurship careers, entrepreneurial interests when younger, perceived good opportunities in next six months*. The above four variables had

correlation coefficients of 0.25 or higher, suggesting that they are related to a person's entrepreneurial intention and start-up experience (see Table 2.2.2). The other attitudinal variables like fear of failure and perceptions of entrepreneurs' societal status and career prospects were not good indicators of entrepreneurial intention and start-up experience. These attitudinal variables show a low correlation of below 0.10.

The results show that entrepreneurship related positively with education and training. It is possible that a higher level of effective entrepreneurship education and training for the current workforce could result in higher perceived skills and opportunities, translating to a greater level of entrepreneurship in Singapore.

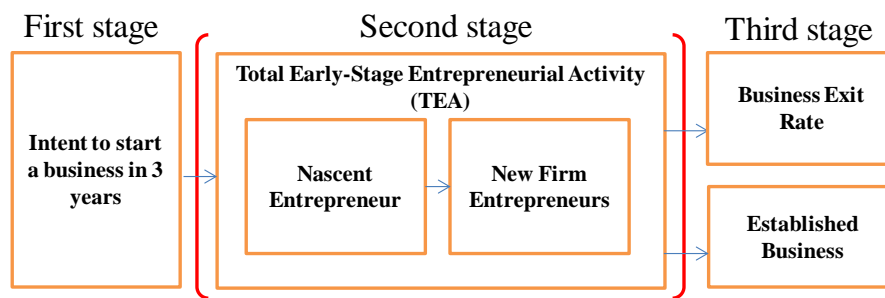
Table 2.2.2 Correlation between attitudinal factors and entrepreneurial intention and/or start-up experience[^]

Attitudinal variables	Entrepreneurial intention and/or start-up experience
Perceived skills, knowledge and experience in entrepreneurship	0.40**
Perceived personality, skills and abilities. to be most suited to entrepreneurship careers (as compared to non-entrepreneurship careers)	0.29**
Having entrepreneurial interests when younger	0.26**
Perceived good opportunities in next six months	0.25**
Perceived that entrepreneurship is a good career choice	0.09**
Perceived fear of failure will prevent self from starting business	-0.07**
Perceived that successful entrepreneurs enjoy high societal status	-0.01

** $p < 0.01$

[^] Respondents who either have entrepreneurial intention or start-up experience or both are coded as belonging to group 1, otherwise group 0

3.0 Total Early-Stage Entrepreneurial Activity Prevalence Rate (TEA)



The TEA rate is the sum of the nascent entrepreneurship rate (percentage of respondents actively involved in a start-up business with no wages paid for more than 3 months) and the new firm entrepreneurship rate (firms more than 3 but less than 42 months old) with individuals in both categories only counted once. Because majority of new businesses typically do not survive for a very long time, having high rates in both categories is very desirable.

Table 3.0.1 reports the TEA rates for the 25 selected economies in the GEM 2012 adult population survey. A higher score indicates that a greater percentage of respondents in that particular country have been participating in either nascent entrepreneurial or new firm activities. The 2012 TEA rates ranged from 12.8% (the United States) to 4.0% (Japan). Singapore ranked 2nd in TEA rate (11.6%), just one notch behind the United States. This finding marks an increase from last year's rate of 6.6% (ranked 12th). In Table 3.0.1, we also report the GDP per capita (purchasing power parity) and the resident unemployment rates for each country in 2012.

Table 3.0.1 TEA rate

Rank	Country	TEA Rate (%)	GDP per capita PPP (\$)*	Unemployment rate (%)**
1	United States	12.8	49,800	8.2
2	Singapore	11.6	60,900	2.0
3	Netherlands	10.3	42,300	6.8
4	Slovakia	10.2	24,300	12.8
5	Austria	9.6	42,500	4.4
6	United Kingdom	9.0	36,700	7.8
7	Portugal	7.7	23,000	15.3
8	Taiwan	7.5	38,500	4.3
9	Malaysia	7.0	16,900	3.0
10	Norway	6.8	55,300	3.1
11	Korea	6.6	32,400	3.8
12	Israel	6.5	32,200	6.3
13	Greece	6.5	25,100	24.4
14	Sweden	6.4	41,700	7.5
15	Ireland	6.2	41,700	14.6
16	Finland	6.0	36,500	7.3
17	Switzerland	5.9	45,300	3.0
18	Spain	5.7	30,400	24.9
19	Slovenia	5.4	28,600	12.3
20	Denmark	5.4	37,700	6.4
21	Germany	5.3	39,100	6.5
22	Belgium	5.2	38,100	7.6
23	France	5.2	35,500	9.8
24	Italy	4.3	30,100	10.9
25	Japan	4.0	36,200	4.4
	Average	6.8		

*Note: Per capita GDP purchasing power parity figures in US dollars obtained from the CIA world factbook. [Central Intelligence Agency. (2012). *The World Factbook*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html>]

**Note: Unemployment estimates obtained from the CIA world fact book. [Central Intelligence Agency. (2012). *The World Factbook*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2129rank.html>]

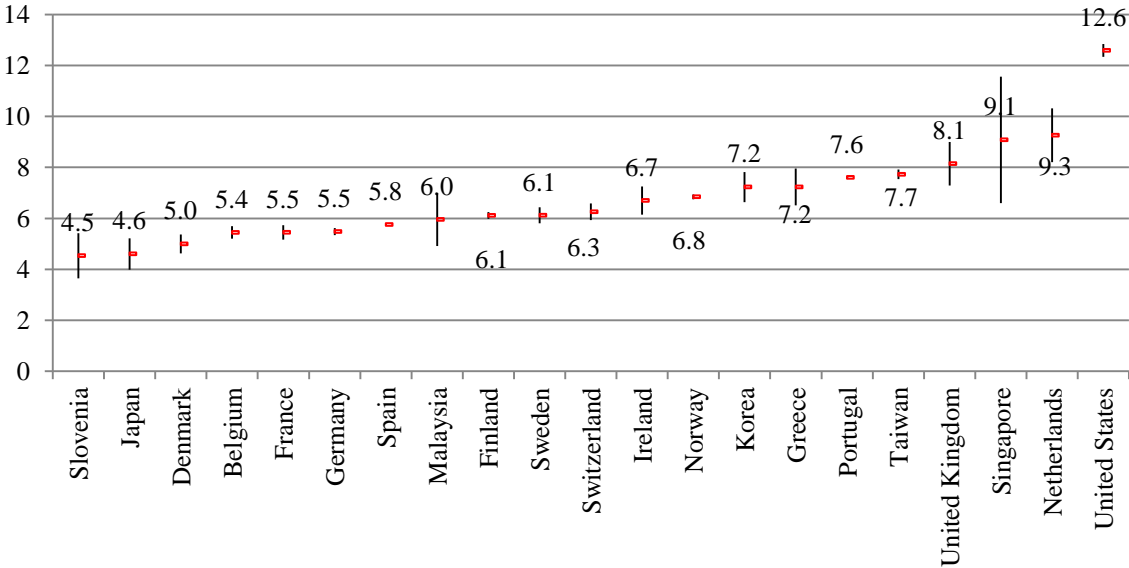
3.1 Comparisons with past year studies and other countries

Similar to the Entrepreneurial Intention rate, the TEA rate in Singapore has increased over the years. The TEA rate of 11.6% last year represents an increase from GEM 2011’s figure of 6.6%. Compared to the period 2004-2006, the GEM 2011-2012 revealed a higher percentage of nascent entrepreneurs and new business owners. We found that the TEA rate was 5.9% on average for the period 2004-2006, which increased to 9.1% for the period 2011-2012.

Comparing to 20 other innovation-driven economies which participated in both GEM 2011 and 2012, Singapore had the 3rd highest percentage of early-stage entrepreneurs, only below the United States and the Netherlands. (see Figure 3.1.1)

Figure 3.1.1

Rates of TEA (%) across 21 economies in 2011-12



One possible reason behind the higher level of TEA and Entrepreneurial Intention rates surveyed in 2012 as compared to 2011 is the continuation of strong economic growth since the 2009 recession. Singapore’s GDP grew strongly by 4.9% in 2011 following an increase of

14.8% in 2010, further signalling a recovery from the recession. This may have further instilled confidence in the Singapore economy among aspiring entrepreneurs, thus resulting in a higher rate of TEA and Entrepreneurial Intention in 2012.

The positive relationship between economic growth and the level of entrepreneurship is further supported by other countries’ data. Using the GEM findings in 22 innovation-driven economies (including Singapore) from the last 13 years (2001-2012), we found strong positive correlations between the rates of TEA and Entrepreneurial Intention and GDP growth over the past one, two, and three years (see Table 3.1.1). In other words, if the country registers strong economic growth over the past few years, it is likely to experience a higher level of entrepreneurship.

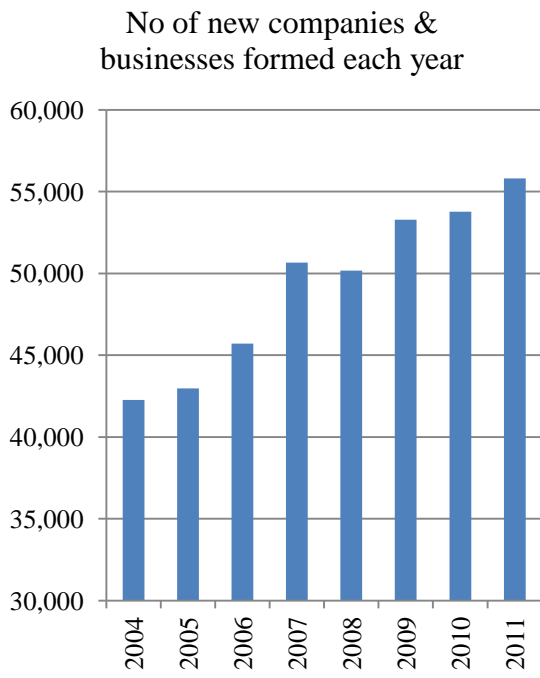
Table 3.1.1 Correlation between TEA & Entrepreneurial Intention rates and GDP growth in 22 economies during 2001-2012*

Correlation	Entrepreneurial Intention rate (n=211)	TEA rate (n=228)
Average annualised GDP growth over the past one year	0.39	0.29
Average annualised GDP growth over past two years	0.49	0.38
Average annualised GDP growth over the past three years	0.50	0.41

**The above figures show the average correlations computed for each of the survey years since 2001 for TEA rate and 2002 for Entrepreneurial Intention rate.*

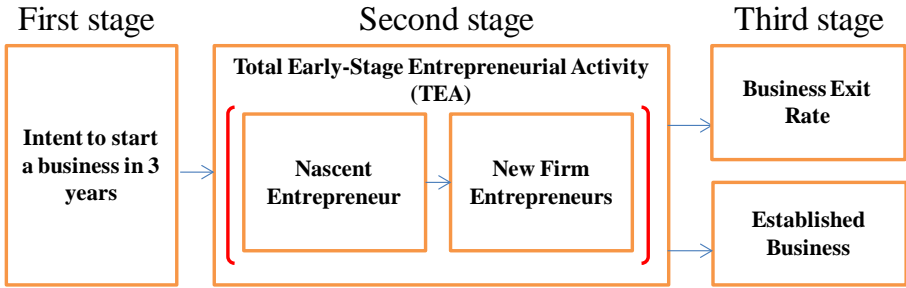
We also found that Singapore currently enjoys a higher level of entrepreneurship as compared to 2004-06. This is consistent with the national census. Over the past years, the formation of new businesses and companies has risen 32% from 42,269 in 2004 to 55,811 in 2011. This further indicates a more entrepreneurial economy in recent years. (See figures 3.1.2)

Figure 3.1.2



Source: Department of Statistics, Singapore

3.2 TEA: Nascent and New Firm Rates



One way to examine the TEA is via the number of nascent entrepreneurs as well as the number of new firm entrepreneurs. Nascent entrepreneurs are respondents (working age adults aged between 18 to 64 years old) in a country who have been actively engaged in a new business over the last 12 months. This activity in the GEM is defined as concrete actions taken towards the creation of a new business. For example, actions can include looking for equipment, scouting for locations or sourcing for funding. To qualify for this category individuals must also expect to be owners of such new venture, but wages and salaries would not have been paid for more than three months.

New firm entrepreneurs are also counted in the TEA rate. These are individuals currently managing a new business as opposed to trying to start one. They must personally own all or part of the new firm which has been running for more than 3 months but less than 42 months (or 3.5 years).

Tables 3.2.1 and 3.2.2 report the level of nascent and new firm entrepreneurs present amongst adults between the ages of 18–64 years old in Singapore as well as the countries selected for comparison. A higher score in either category indicates that there is a larger percentage of individual engaged in nascent or new firm entrepreneurship. The rate of nascent entrepreneurship in selected economies ranged from 8.9% of the respondents (United States) to 2.3% (Japan). Singapore ranked 2nd in nascent entrepreneurship with a rate of 7.6%. The rate of the new firm entrepreneurship in selected economies ranged from 6.3% of the

respondents (the Netherlands) to 1.5% (France). Singapore was ranked 4th, with the new firm entrepreneurship rate of 4.2%.

Table 3.2.1 Nascent entrepreneurship rates

Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	United States	8.9	14	Israel	3.5
2	Singapore	7.6	15	Finland	3.5
3	Slovakia	6.7	16	Spain	3.4
4	Austria	6.6	17	Taiwan	3.3
5	United Kingdom	5.3	18	Belgium	3.3
6	Sweden	4.6	19	Denmark	3.1
7	Portugal	4.3	20	Slovenia	3.0
8	Netherlands	4.1	21	Switzerland	2.9
9	Ireland	3.9	22	Malaysia	2.8
10	Greece	3.8	23	Korea	2.6
11	France	3.7	24	Italy	2.5
12	Norway	3.7	25	Japan	2.3
13	Germany	3.5			
	Average	4.1			

Table 3.2.2 New firm entrepreneurship rates

Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	Netherlands	6.3	14	Greece	2.8
2	Taiwan	4.2	15	Finland	2.7
3	Malaysia	4.2	16	Slovenia	2.5
4	Singapore	4.2	17	Spain	2.5
5	United States	4.1	18	Denmark	2.4
6	Korea	4.1	19	Ireland	2.3
7	Slovakia	3.9	20	Germany	2.2
8	United Kingdom	3.7	21	Belgium	2.0
9	Portugal	3.6	22	Italy	1.9
10	Austria	3.4	23	Sweden	1.9
11	Norway	3.2	24	Japan	1.7
12	Israel	3.0	25	France	1.5
13	Switzerland	3.0			
	Average	3.1			

3.3 Characteristics of Early-Stage Businesses

3.3.1 New Technology Utilisation

The early-stage businesses were assessed if they were early adopters of new technologies. To gauge this, the respondents were asked to indicate if the technologies utilised in creating their products or services are (i) only available within the past year;(ii) available in the last one to five years; or (iii) available for more than the last five years. While the technologies used are likely to differ across industries and countries, the overall rate of new technology adoption could serve as a reasonable proxy measure of the level of technopreneurship in that country.

Table 3.3.1 presents the level of new technology utilisation reported by early-stage businesses in the 25 countries. Compared to other economies, Singapore ranked 4th among those with the largest percent of early-stage businesses reported to have employed the latest or new technology in their services or products. About 15.4% of Singapore's early-stage businesses utilised technologies that were only available last year, while another 28.5% (rank 2nd) employed technologies available in the last one to five years. This was considerably higher than the corresponding averages of 10.6% and 19.8%.

Table 3.3.1 Level of new technology utilisation

Latest Technology: Only available last year			New technology: Available in the last 1–5 years			No New Technology		
Rank	Country	Rate (%)	Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	Israel	20.9	1	Greece	35.3	1	Greece	54.7
2	Italy	19.8	2	Singapore	28.5	2	Singapore	56.1
3	Slovakia	16.3	3	Portugal	26.1	3	Italy	56.2
4	Singapore	15.4	4	Slovenia	24.6	4	Israel	57.8
5	Malaysia	15.0	5	Italy	24.0	5	Malaysia	61.6
6	Germany	14.4	6	Malaysia	23.4	6	Portugal	64.7
7	France	13.0	7	Ireland	22.8	7	France	65.6
8	Spain	12.5	8	France	21.4	8	Slovakia	66.4
9	Switzerland	11.7	9	Israel	21.3	9	Japan	68.3
10	Japan	10.8	10	Belgium	21.2	10	Spain	68.3
11	Taiwan	10.4	11	Japan	20.9	11	Ireland	69.2
12	Korea	10.3	12	Norway	20.7	12	Belgium	69.3
13	Greece	10.0	13	United States	20.3	13	Slovenia	69.4
14	Belgium	9.6	14	Spain	19.2	14	Germany	70.4
15	Portugal	9.3	15	United Kingdom	17.9	15	Norway	72.6
16	Sweden	8.5	16	Slovakia	17.4	16	United States	72.9
17	Finland	8.3	17	Sweden	16.0	17	Taiwan	75.1
18	Ireland	8.1	18	Denmark	15.8	18	Sweden	75.5
19	Netherlands	7.6	19	Austria	15.7	19	Switzerland	75.5
20	United States	6.8	20	Germany	15.3	20	United Kingdom	76.0
21	Norway	6.7	21	Netherlands	14.8	21	Finland	77.0
22	United Kingdom	6.1	22	Finland	14.7	22	Netherlands	77.6
23	Slovenia	6.1	23	Taiwan	14.5	23	Austria	78.7
24	Austria	5.6	24	Switzerland	12.8	24	Korea	78.7
25	Denmark	3.2	25	Korea	11.0	25	Denmark	81.0
	Average	10.6		Average	19.8		Average	69.5

3.3.2 Innovation & differentiation

Another important characteristic of early-stage businesses is the degree of innovation and differentiation in terms of their products and services offered. Respondents were asked whether (i) their potential customers will consider their products or services new and unfamiliar; and (ii) if there are other competing businesses offering the same products or services.

Table 3.3.2 presents the level of innovation and differentiation as reported by early-stage businesses in the 25 countries. In general, Singapore's early-stage businesses did not perceive themselves to be as innovative and differentiated as many of their counterparts in other countries. Only 37.9% (rank 21st) of Singapore's early-stage businesses felt that their products or services are different from most or all other businesses, which was lower than the international average of 47.7%. Similarly, 43.5% (rank 15th) of Singapore's early-stage businesses felt that their products or services are new or different to some or all their potential customers, as compared to the average 47.6% among the 25 comparison countries.

Table 3.3.2 Level of innovation & differentiation

Product or service different from most or all other businesses			Product or service new or different to some or all potential customers		
Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	United Kingdom	63.0	1	Italy	79.3
2	United States	60.1	2	France	69.4
3	Slovenia	59.1	3	Taiwan	62.6
4	Ireland	58.3	4	Denmark	61.1
5	Denmark	57.8	5	Belgium	53.3
6	Switzerland	56.4	6	Korea	52.4
7	Portugal	55.1	7	Slovakia	52.0
8	France	54.0	8	Israel	49.1
9	Germany	53.2	9	Slovenia	49.1
10	Spain	52.9	10	Ireland	48.6
11	Austria	50.0	11	Austria	48.2
12	Norway	49.6	12	United States	47.4
13	Belgium	49.6	13	Japan	45.1
14	Israel	49.6	14	Finland	44.0
15	Sweden	45.8	15	Singapore	43.5
16	Netherlands	45.2	16	Portugal	43.2
17	Malaysia	44.5	17	Switzerland	42.6
18	Finland	41.7	18	Netherlands	42.1
19	Greece	40.0	19	Spain	41.7
20	Slovakia	39.3	20	Germany	39.9
21	Singapore	37.9	21	Greece	39.7
22	Korea	36.5	22	United Kingdom	37.8
23	Italy	32.5	23	Sweden	36.0
24	Japan	31.1	24	Malaysia	34.5
25	Taiwan	30.0	25	Norway	28.2
	Average	47.7		Average	47.6

3.3.3 Internationalisation

Internationalisation of early-stage businesses is measured in GEM APS by the degree to which the service or product to be delivered by the company is reported to be sold to foreign consumers. From Table 3.3.3, 16.3% (rank 2nd) of Singapore based early-stage businesses had 75% to 100% of its customers based overseas which is higher than the average for selected economies (8.5%). Similarly, 26.8% (rank 1st) of early stage businesses in Singapore had 25% to 75% of their customers based overseas. The high level of internationalisation of Singapore based early-stage businesses was expected given the limited size of the local Singapore market.

Table 3.3.3 Internationalisation of early-stage entrepreneurial activity

Level of internationalisation								
Foreign customers: Less than 25%			Foreign customers: 25% to 75%			Foreign customers: More than 75% to 100%		
Rank	Country	Rate (%)	Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	Singapore	57.0	1	Singapore	26.8	1	Slovenia	16.4
2	Slovenia	68.0	2	France	20.7	2	Singapore	16.3
3	France	69.9	3	Switzerland	16.7	3	Denmark	14.3
4	Ireland	72.1	4	Slovenia	15.5	4	Ireland	13.9
5	Austria	73.5	5	Austria	15.4	5	Austria	11.1
6	Switzerland	74.9	6	Slovakia	15.2	6	Korea	10.1
7	Portugal	76.4	7	Portugal	14.2	7	Italy	10.1
8	Korea	76.8	8	Ireland	14.1	8	Finland	9.9
9	Israel	77.5	9	Sweden	13.8	9	Israel	9.6
10	Sweden	78.1	10	Korea	13.0	10	France	9.4
11	Denmark	79.1	11	Israel	12.9	11	Portugal	9.4
12	Finland	79.3	12	Greece	12.0	12	Greece	8.6
13	Greece	79.4	13	Finland	10.8	13	Switzerland	8.4
14	Slovakia	79.5	14	Taiwan	9.7	14	Sweden	8.1
15	Italy	82.8	15	United Kingdom	8.9	15	Netherlands	7.6
16	Taiwan	85.0	16	United States	8.2	16	Norway	7.6
17	Japan	85.3	17	Japan	7.6	17	Japan	7.1
18	Spain	85.9	18	Spain	7.1	18	Spain	6.9
19	Netherlands	86.4	19	Italy	7.1	19	Taiwan	5.3
20	United Kingdom	87.0	20	Germany	7.1	20	Slovakia	5.3
21	United States	87.5	21	Denmark	6.6	21	Belgium	5.3
22	Norway	88.6	22	Netherlands	6.0	22	United States	4.3
23	Germany	90.5	23	Norway	3.8	23	United Kingdom	4.2
24	Belgium	91.8	24	Malaysia	3.5	24	Germany	2.5
25	Malaysia	96.0	25	Belgium	2.9	25	Malaysia	0.5
Average		80.3	Average		11.2	Average		8.5

3.3.4 Business Collaboration

Early-stage businesses were also asked to indicate if they are working with other enterprises or organisations in various aspects of business operations, including (i) the production of goods and services; and (ii) the procurement of supplies. As evident in Table 3.3.4, Singapore has the highest score on business collaborations among early-stage businesses, 74.9% and 83.9% (both rank 1st) of which had external collaborations to produce goods and services and procure supplies respectively.

Table 3.3.4 Level of business collaborations*

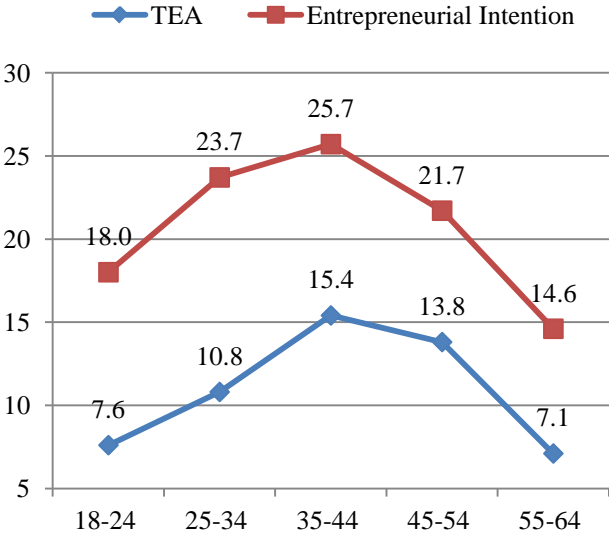
Production of goods & services			Procurement of supplies		
Rank	Country	Rate (%)	Rank	Country	Rate (%)
1	Singapore	74.9	1	Singapore	83.9
2	United Kingdom	67.0	2	United Kingdom	70.6
3	Denmark	60.3	3	Israel	63.9
4	Israel	60.2	4	Denmark	60.1
5	France	59.9	5	Slovakia	59.5
6	Portugal	59.3	6	Norway	59.2
7	Slovakia	58.1	7	Belgium	58.1
8	Italy	56.6	8	Sweden	56.8
9	Belgium	54.9	9	Austria	56.3
10	Netherlands	53.3	10	France	54.5
11	Austria	52.4	11	Portugal	53.4
12	Germany	52.2	12	Germany	51.9
13	Slovenia	50.4	13	Italy	49.9
14	Sweden	48.2	14	Slovenia	49.0
15	Norway	47.9	15	Malaysia	47.8
16	Malaysia	47.1	16	Taiwan	46.5
17	Taiwan	46.7	17	Finland	43.7
18	Korea	43.9	18	Korea	43.5
19	Finland	43.3	19	Netherlands	42.1
20	Spain	39.8	20	Switzerland	37.4
21	Switzerland	38.6	21	Spain	36.9
22	Japan	36.0	22	Ireland	36.1
23	Greece	35.7	23	Japan	35.9
24	Ireland	33.7	24	Greece	29.0
	Average	50.9		Average	47.6

*Score for the United States are not available as the respondents were not presented this set of questions.

4.0 Age and Entrepreneurship

We assessed whether there is any differences in the level of entrepreneurship among the different age groups in Singapore, each of which was adequately surveyed in GEM 2012. Entrepreneurship seems to be most prevalent for people aged between 35 and 44 in Singapore. TEA and Entrepreneurial Intention rates were highest for this age group, about 15.4% and 25.7% respectively. On the other hand, the rates were lowest among the age groups 18-24 and 55-64 in Singapore. TEA and Entrepreneurial Intention rates were 7.6% and 18.0% respectively for the 18-24 age group. TEA and Entrepreneurial Intention rates for the 55-64 age group were also similar, at 7.1% and 14.6% respectively. This forms an inverted U-curve across the various age groups, as shown in Figure 4.0.1, where entrepreneurship seems to become more prevalent as age increases until around 35 to 44 years, and then it decreases with age.

Figure 4.0.1 Age and level of entrepreneurship (%)



The United States, the Netherlands, the United Kingdom, Norway and South Korea shared similar findings about age and entrepreneurship as Singapore. For example, TEA rate peaks at

16.5% for the United States, 13.7% for the Netherlands and 12.8% for the United Kingdom. However, the other 19 innovation-driven economies, such as Taiwan and Malaysia, reported the highest prevalence rate of entrepreneurship in the age group of 25-34 years old. Table 4.0.1 shows the various TEA rates for the five respective age groups in the top 10 innovation-driven economies ranked in terms of TEA rates.

Table 4.0.1 TEA rate for respective age groups in top 10 innovation-driven economies (ranked in terms of TEA rates)[^]

TEA (%) for respective age groups	18-24	25-34	35-44	45-54	55-64	Overall
United States	10.1	14.1	16.5	12.4	10.2	12.8
Singapore	7.6	10.8	15.4	13.8	7.1	11.6
Netherlands	7.4	11.8	13.7	11.9	5.2	10.3
Slovakia	12.8	13.9	9.9	10.3	3.5	10.2
Austria	7.1	12.5	12.2	9.6	4.8	9.6
United Kingdom	7.1	10.5	12.8	8.0	5.6	9.0
Portugal	6.4	10.6	8.13	7.2	4.6	7.7
Taiwan	5.8	11.6	10.1	5.1	3.3	7.5
Malaysia	6.0	9.3	7.5	5.4	4.6	7.0
Norway	3.0	7.9	9.2	5.5	6.9	6.8

[^]The age group with the highest rates for each country are highlighted in red.

5.0 National Expert Survey Results

The national expert survey (NES) offers a different insight into the dynamics of the entrepreneurial scene in Singapore. The experts interviewed were at the top of their respective fields, including chief executive officers, directors of government agencies, professors and successful entrepreneurs, coming from a diverse range of institutions, industries and government organizations such as venture capital firms, universities and incubation firms. The expertise and experiences of these selected experts with the policies and programs that affect entrepreneurs adequately complement the findings of the APS which by design examines the whole adult work population. Specifically, the NES examines nine factors or framework conditions that are believed to facilitate entrepreneurship within a given country. These are presented in Table 5.0.1. Readers interested in the full list of the questions of the NES may refer to appendix B.

Table 5.0.1 Framework conditions

Framework conditions	Entrepreneurship factor
Financial Support	Examines the level of funding available to nascent and new firms.
Government Policies	Examines the level of support governmental policies provide nascent and new firms.
Government Programmes	Examines the level of support governmental programs provide nascent and new firms.
Education and Training	Examines the level of entrepreneurial education and training institutes of learning provide in the nation.
Research and Development Transfer	Examines the ease at which new technological, science and other knowledge advancements can be accessed and translated to new business ventures.
Commercial and Professional Infrastructure	Examines the availability, affordability and accessibility of commercial and professional services for early-stage entrepreneurship.
Market Openness	Examines how open the local markets are to a new goods and services as well as level to which established businesses (via existing policy and otherwise) are able to limit competition from new businesses.
Access to Physical Infrastructure	Examines the access and quality new firms have to the existing physical infrastructure within a country.
Cultural and Social Norms	Examines the socio-cultural factors within a country.

5.1 Overall Scores for all Nine Framework Conditions

Table 5.1.1 provides the summary of NES overall scores for each of the nine framework conditions. From the total of 69 countries that participated in the NES, the expert ratings for Singapore were compared to the average from the 25 countries which were innovation-driven or, in some cases, their geographic and cultural similarities with the Singapore economy. We also identified countries with the lowest and highest NES scores. For a list of the countries that Singapore was compared with please see appendix C. For the list of the 37 national experts interviewed please see appendix D.

The rating scale used in the NES was a 5-point scale with “1” representing “Completely False” response, “2” representing “Somewhat False” response, “3” representing “Neither True nor False” response, “4” representing “Somewhat True” response, and “5” representing “Completely True” response. An average score above 3.0 indicates that experts generally rated a particular statement towards being “true”; while an average expert score below 3.0 would mean experts generally rated a particular statement towards the direction of being “false”.

As can be seen in Table 5.1.1., Singapore was ranked quite highly in all framework conditions among 25 comparison countries in 2012. Specifically, Singapore was ranked 1st in the areas of Financial Support and Government Policies, and 3rd in Education and Training and Access to Physical Infrastructure. On the other hand, Singapore did not rank as well in Commercial & Professional Infrastructure (rank 12th). Across the 9 framework conditions, the lowest overall scores for Singapore were observed for Education and Training, and Research and Development Transfer, while the highest scores were observed for Access to Physical Infrastructure and Government Policies.

In general, the overall scores for all framework conditions in GEM 2012 were similar to the previous year.

Table 5.1.1 Overall results for nine framework conditions

Framework conditions	Singapore 2011 (average)	Singapore 2012 (average)	Rank 2012	Average for selected 25 economies	Selected economies (Highest)	Selected economies (Lowest)
Financial Support	3.1	3.4	1	2.6	3.4 (Singapore)	1.7 (Greece)
Government Policies	4.0	3.8	1	2.7	3.8 (Singapore)	1.7 (Greece)
Government Programmes	3.5	3.5	5	2.8	3.6 (France)	1.7 (Greece)
Education & Training	2.8	2.9	3	2.5	3.3 (Netherlands)	1.9 (Spain)
Research & Development Transfer	2.9	2.9	4	2.6	3.7 (Switzerland)	2.4 (Slovakia)
Commercial & Professional Infrastructure	3.3	3.3	12	3.2	3.8 (Netherlands)	2.4 (Korea)
Market Openness	3.0	3.1	7	2.9	3.4 (Malaysia)	2.4 (Spain)
Access to Physical Infrastructure	4.7	4.4	3	4.0	4.7 (Switzerland)	2.7 (Italy)
Cultural & Social Norms	3.2	3.3	5	2.8	4.1 (Israel)	2.1 (Greece)

5.2 Financial Support

This framework condition examines the level of funding available to nascent and new firms. Sources of funding may include equity, debt funding, angel investors, venture capitalists and IPOs. Overall in terms of financial support for early-stage entrepreneurship, Singapore ranked 1st among selected economies. Local experts in general agreed that there is sufficient equity funding for new businesses, and also rated favourably the level of funding made available by the government and private individuals (other than founders).

Table 5.2.1 Framework condition: Financial support

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, there is sufficient equity funding available for new and growing firms	3.7	2	2.7	3.9	1.7
In my country, there is sufficient debt funding available for new and growing firms	3.2	4	2.6	3.6	1.5
In my country, there are sufficient government subsidies available for new and growing firms	4.1	1	3.0	4.1	2.1
In my country, there is sufficient funding available from private individuals (other than founders) for new and growing firms	3.4	1	2.6	3.4	1.6
In my country, there is sufficient venture capitalist funding available for new and growing firms)	3.1	3	2.7	3.5	1.8
In my country, there is sufficient funding available through initial public offerings (IPOs) for new and growing firms	2.9	6	2.4	3.5	1.3

5.3 Government Policies

This framework condition examines the level of support governmental policies provided to nascent and new firms. Examples of governmental policy include business-friendly bureaucracy, taxes and priority of nascent and new firms when setting national policy.

Singapore was ranked 1st again in 2012 among selected economies across all factors examined for government policy. Local experts felt that policymakers place high priority in new and growing businesses. Several areas of government policy such as taxes, licensing and regulations were also rated highly by local experts.

Table 5.3.1 Framework condition: Government Policies

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, Government policies (e.g., public procurement) consistently favour new firms	2.9	4	2.3	3.5	1.4
In my country, the support for new and growing firms is a high priority for policy at the national government level	3.8	2	3.0	3.9	1.8
In my country, the support for new and growing firms is a high priority for policy at the local government level	3.8	1	2.9	3.8	1.6
In my country, new firms can get most of the required permits and licenses in about a week	4.1	1	2.4	4.1	1.3
In my country, the amount of taxes is NOT a burden for new and growing firms	4.3	1	2.8	4.3	1.7
In my country, taxes and other government regulations are applied to new and growing firms in a predictable and consistent way	4.1	1	2.9	4.1	1.7
In my country, coping with government bureaucracy, regulations, and licensing requirements it is not unduly difficult for new and growing firms	3.7	2	2.6	3.8	1.5

5.4 Government Programmes

This framework condition examines the level of support governmental programs provide nascent and new firms. Examples of factors examined include the number government programs, the level of competence from these programs and the efficacy of programs helping early-stage entrepreneurship.

Singapore ranked higher than the average for selected economies in five out of six categories of Government Programmes. Local experts in general agreed that government programmes are adequate and effective in supporting new and growing firms. On the other hand, there is room for improvement for science parks and business incubators to provide better support for new businesses (see Table 5.4.1).

Table 5.4.1 Framework condition: Government programmes

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, a wide range of government assistance for new and growing firms can be obtained through contact with a single agency	3.4	2	2.6	3.4	1.4
In my country, science parks and business incubators provide effective support for new and growing firms	3.4	17	3.4	4.2	2.0
In my country, there are an adequate number of government programs for new and growing businesses	3.9	1	3.1	3.9	2.0
In my country, the people working for government agencies are competent and effective in supporting new and growing firms	3.3	5	2.9	3.8	1.4
In my country, almost anyone who needs help from a government program for a new or growing business can find what they need	3.3	3	2.7	3.4	1.6
In my country, Government programs aimed at supporting new and growing firms are effective	3.5	2	2.7	3.5	1.7

5.5 Education and Training

This framework condition examines the level of entrepreneurship education and training that public and private institutes of learning provide in the nation. Although Singapore appeared to be ranked higher than the average for other countries, the scores for Singapore and other countries with regard to Education and Training were quite low. In fact, three out of six scores for Singapore were below 3.0. (see Table 5.5.1) There is much room for improvement to encourage entrepreneurship education in Singapore as well as other countries.

Table 5.5.1 Framework condition: Education and Training

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative	2.9	3	2.4	3.5	1.7
In my country, teaching in primary and secondary education provides adequate instruction in market economic principles	2.5	3	2.1	3.2	1.6
In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation	2.4	4	2.0	2.7	1.3
In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms	3.1	4	2.6	3.3	1.9
In my country, the level of business and management education provide good and adequate preparation for starting up and growing new firms	3.0	14	3.1	3.6	2.4
In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms	3.3	4	2.9	3.7	2.2

5.6 Research and Development Transfer

This framework condition examines the ease at which new technological, science and other knowledge advancements can be accessed and translated to new business ventures. Examples of factors examined include the affordability of these new technologies for early-stage businesses and the level of support for commercialization of ideas from engineers and scientists. Singapore ranked either on-par or above-average among selected economies, except for the question on affordability of new technologies which Singapore scored relatively low at 2.2 (rank 17th). Local experts also have some concerns if technologies are readily available and efficiently transferred to new and growing firms.

Table 5.6.1 Framework condition: Research and development transfer

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, new technology, science, and other knowledge are efficiently transferred from universities and public research centres to new and growing firms	2.8	7	2.6	3.7	2.0
In my country, new and growing firms have just as much access to new research and technology as large, established firms	2.6	5	2.4	3.6	1.9
In my country, new and growing firms can afford the latest technology	2.2	17	2.4	3.4	1.9
In my country, there are adequate government subsidies for new and growing firms to acquire new technology	3.1	6	2.6	3.4	1.8
In my country, the science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area	3.4	8	3.2	4.3	1.8
In my country, there is good support available for engineers and scientists to have their ideas commercialized through new and growing firms	3.3	6	2.9	3.7	1.7

5.7 Commercial and Professional Infrastructure

This framework condition examines the availability, affordability and accessibility of commercial and professional services for early-stage entrepreneurship. Examples of factors examined include the sufficiency and cost of subcontractors, suppliers and consultants.

Singapore ranked 12th overall in Commercial & Professional Infrastructure and also did not rank well in the five items in this category. Local experts in general did not agree that the quality services of subcontractors, suppliers and consultants are affordable and accessible for new and growing firms, giving the two items an average score of 2.8 and 3.0 respectively. The availability, affordability and accessibility of commercial and professional services for new businesses is apparently an area of concern in 2012.

Table 5.7.1 Framework condition: Commercial and professional infrastructure

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, there are enough subcontractors, suppliers, and consultants to support new and growing firms	3.4	18	3.6	4.2	2.7
In my country, new and growing firms can afford the cost of using subcontractors, suppliers, and consultants	2.8	10	2.6	3.1	2.1
In my country, it is easy for new and growing firms to get good subcontractors, suppliers, and consultants	3.0	12	3.0	3.7	2.4
In my country, it is easy for new and growing firms to get good, professional legal and accounting services	3.6	11	3.5	4.2	2.5
In my country, it is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit, and the like)	3.4	11	3.2	4.2	2.0

5.8 Market Openness

This framework condition examines how open the local markets are to new goods and services as well as the level to which established businesses (via existing policy and otherwise) are able to limit competition from new businesses. Singapore’s expert rating scores on market openness were mixed. (see Table 5.8.1) While local experts rated well on the effectiveness of anti-trust legislation and progressiveness of consumer markets, they did not agree on the affordability of market entry and the absence of unfair competition for new and growing firms, giving the two items an average score of 2.7 each. Future policy interventions could help to create a more level playing field in the Singapore market.

Table 5.8.1 Framework condition: Market openness

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, the markets for consumer goods and services change dramatically from year to year	3.3	7	3.0	4.4	2.4
In my country, the markets for business-to-business goods and services change dramatically from year to year	3.2	7	3.0	4.0	2.4
In my country, new and growing firms can easily enter new markets	2.9	10	2.8	3.5	2.1
In my country, the new and growing firms can afford the cost of market entry	2.7	8	2.6	3.5	2.0
In my country, new and growing firms can enter markets without being unfairly blocked by established firms	2.7	13	2.8	3.6	2.1
In my country, the anti-trust legislation is effective and well enforced	3.4	4	3.0	4.1	1.9

5.9 Access to Physical Infrastructure

This framework condition examines the access and quality new firms have to the existing physical infrastructure within a country. Examples of factors examined include access of physical infrastructures such as roads, and utilities as well as their cost.

From Table 5.9.1, Singapore scores were considerably higher than the average across all categories of physical infrastructure measured, ranking among the top three for three out of five items. However, Singapore ranked 16th on the cost of good access to communications.

Table 5.9.1 Framework condition: Access to physical infrastructure

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, the physical infrastructure (roads, utilities, communications, waste disposal) provides good support for new and growing firms	4.6	2	3.8	4.8	2.8
In my country, it is not too expensive for a new or growing firm to get good access to communications (phone, Internet, etc)	4.0	16	4.1	4.6	3.5
In my country, a new or growing firm can get good access to communications (telephone, internet, etc) in about a week	4.5	5	4.1	4.7	3.2
In my country, new and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer)	4.4	3	4.0	4.8	3.2
In my country, new or growing firms can get good access to utilities (gas, water, electricity, sewer) in about a month	4.6	3	4.1	4.8	2.4

5.10 Cultural and Social Norms

This framework condition examines the socio-cultural factors within a country. Examples of factors examined encompass a wide range of socio-cultural factors include individualism, creativity, and cultural appetite for entrepreneurial risk.

From Table 5.10.1, experts ranked Singapore culture as highly supportive of “individual success achieved through own personal efforts” and emphasizing “self-sufficiency, autonomy and personal initiative”. This is consistent with the ideals of a meritocratic society that Singapore has adopted. Scores for the other cultural questions such as entrepreneurial risk taking, creativity and innovativeness were close to the average score of other countries indicating that there is some room for improvement.

Table 5.10.1 Framework condition: Cultural and social norms

Item	Singapore (average)	Rank	Selected economies (average)	Selected economies (Maximum)	Selected economies (Minimum)
In my country, the national culture is highly supportive of individual success achieved through own personal efforts	3.7	4	3.0	4.5	2.1
In my country, the national culture emphasizes self-sufficiency, autonomy, and personal initiative	3.7	3	2.9	4.5	1.7
In my country, the national culture encourages entrepreneurial risk-taking	2.7	8	2.5	4.3	1.8
In my country, the national culture encourages creativity and innovativeness	3.0	10	2.9	4.6	1.9
In my country, the national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life	3.5	6	3.0	4.0	2.1

6.0 Concluding Remarks and Implications

Given the importance of entrepreneurship as a key to economic development, there remains a need for instruments such as the GEM to monitor, inform and facilitate policy making processes. As the largest survey of entrepreneurial activities around the world, the GEM fulfils this role well. The GEM consortium has been growing since its inception (ten members in 1999, forty-two in 2006 and sixty-nine in 2012), indicating the importance that countries around the world place on entrepreneurship and this study. The well-established and globally standardized research methodology of the GEM surveys allows us not only to have confidence in our findings, but also to compare them with those from other countries. Readers are encouraged to refer to the 2012 Global Report available at: [<http://www.gemconsortium.org/docs/2645/gem-2012-global-report>]. The 2012 GEM Singapore survey has yielded a large number of results. In this section we focus on five key messages from these findings.

First, our findings in 2012 and earlier years show that Singapore has evolved into a more entrepreneurial economy, with 11.6% of respondents actively starting their businesses while one-fifth of them having the intention to start their businesses within three years. Singapore is currently among the top few developed countries with high concentration of new business owners and aspiring entrepreneurs. For the past decade, the government has been promoting entrepreneurship as a viable career choice and cultivating an enterprising mindset among the people. In view of the higher level of entrepreneurial aspirations among Singaporeans, more resources and efforts in the future can then be channelled towards other entrepreneurship issues that are further downstream.

Secondly, we found that people of middle-age, notably 35 to 44 years, are most predisposed to entrepreneurship. This represents an interesting finding for policymakers as people in this age group are predominantly working professionals and leaders with many years of industry

experience. It will be a boon not only for them but also for the nation if they can successfully apply their existing skills and knowledge in their own businesses. Future policies or programmes can be targeted at this segment of the population to enable them to complete a smooth career transition to become successful entrepreneurs.

While Singapore has achieved a high start-up rate, there is still more potential for improvement. The TEA rate (11.6%) is only slightly more than half of the Entrepreneurial Intention rate (21.4%), indicating that there is a gap between entrepreneurial intention and actual participation in entrepreneurial activities. This could be due to the lack of perceived skills among the local respondents, where only 22.5% of them felt they had sufficient skills, knowledge and experience to succeed in entrepreneurship. The phenomenon is not only present in Singapore, but also in other East Asian economies like Taiwan and Korea. While Taiwan ranked top in the developed world for Entrepreneurial Intention rate at 26.9%, only 7.5% of its respondents were involved in early-stage businesses. Similarly for Korea, 14.6% of respondents intended to start a business, but only 6.6% were involved in early-stage businesses. These three economies were among the five countries with the lowest percentage of perceived skills. Clearly, there is a relationship between perceived skills and the conversion of entrepreneurial intention into action. More education and training programmes could be introduced to bring about a higher level of entrepreneurial skills and knowledge among Singaporeans to further increase the level of entrepreneurship in Singapore.

Fourth, given the globalised and dynamic nature of the economy, Singapore's early-stage businesses are in general among those with the most internationalised client bases, and are most likely to utilise the latest technologies and seek external business collaborations. On the other hand, the level of innovation among Singapore's early-stage businesses can be further improved. Our findings merely represent a preliminary analysis on the strengths and weaknesses of Singapore's start-ups in general. Further research could be done to better

understand the nature of start-ups, which will serve as a useful tool for informing future policies.

Lastly, a common issue of concern among the 37 local experts in 2012 was affordability of technology, professional services and infrastructure services. Several measures were already put in place by the government recently to tackle rising business costs. It will be important to track and monitor in the future whether such interventions are effective, especially for early-stage businesses. Furthermore, Singapore did not rank well among comparison countries in terms of Commercial and Professional Infrastructure. The start-up services industry whose knowledge and expertise are important for start-ups to tap for growth plays a vital role in the entrepreneurship sector. Future studies could be conducted to understand the ways to improve the start-up services industry.

Appendix A: The GEM Framework

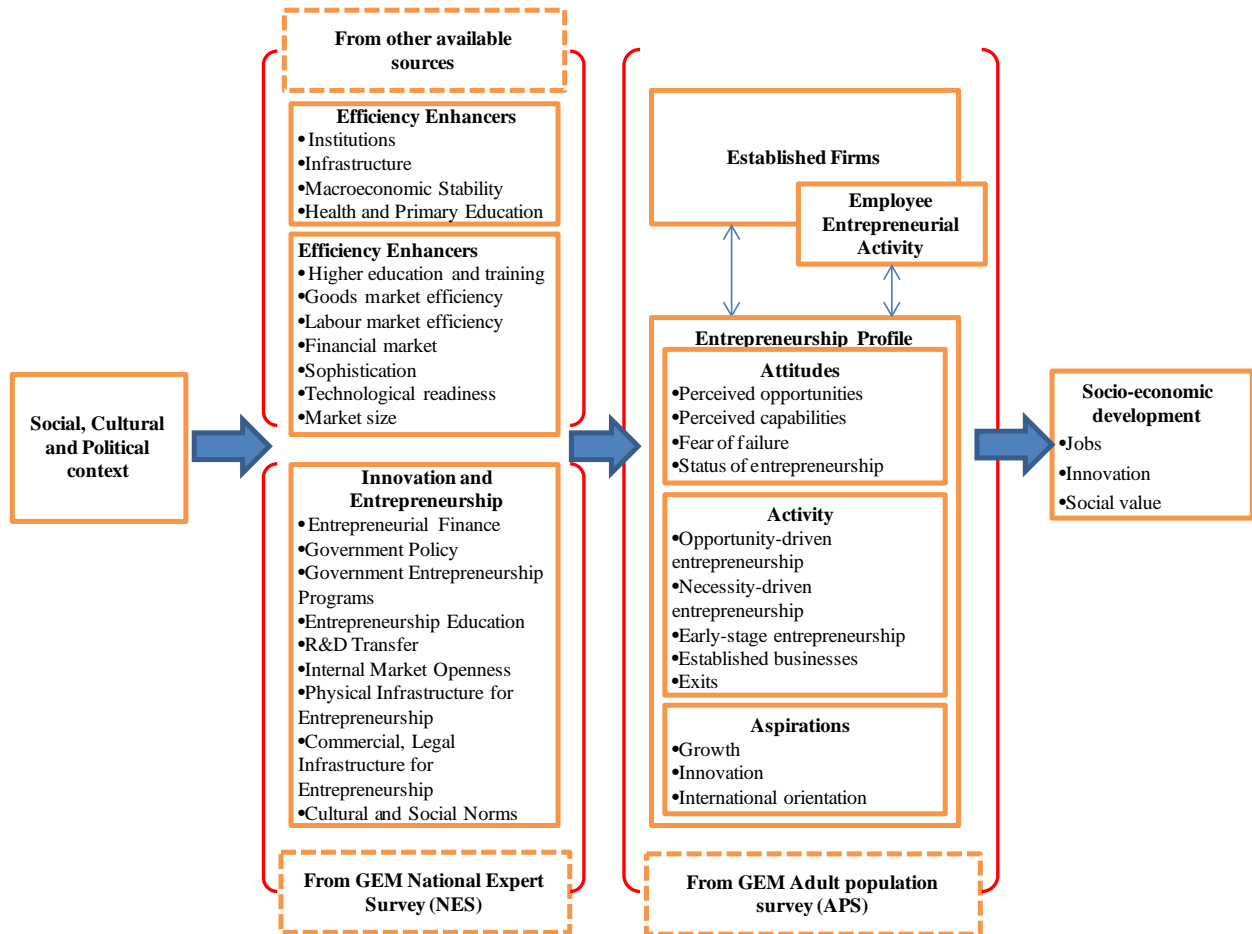
Figure A below illustrates the GEM conceptual model of the various institutions within a country that are deemed to be important to the development of entrepreneurship. These have been adopted from the World Economic Forum's (WEF) Global Competitiveness Report.

[World Economic Forum. (2012). The global competitiveness Report. Retrieved from http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2012-13.pdf].

Beyond contributing to the general well-being of the populace of a country, the “Basic requirements”, with key factors such as macroeconomic stability, form the first essential block of prerequisites for entrepreneurship; this is followed by “Efficiency enhancers such as higher education and training as well as technological readiness. Together these two blocks serve as the bedrock from which entrepreneurship can effectively emerge with minimal hindrance.

Highlighted in the figure are nine entrepreneurship framework conditions believed to positively enhance the entrepreneurial climate within a country. These nine framework conditions are examined via the interview data generated by the National Expert Survey conducted by most participating GEM consortium members. The survey of these national experts on these nine framework conditions provides valuable additional insight into the entrepreneurial scene in the country and the institutions supporting it. This would be otherwise unavailable via the adult population survey. For more information regarding the model, the framework conditions and entrepreneurship, readers may refer to the 2012 GEM Global Report available at: [<http://www.gemconsortium.org/docs/2645/gem-2012-global-report>].

Figure A. GEM framework



Appendix B: GEM Questions

Appendix B lists the full set of items used in the 2012 GEM questionnaire. Statistics for items not covered in this report are available upon request from the authors. Unless otherwise stated, responses from the items recorded as valid were: Yes, No, Don't know and Refused to answer to answer.

Appendix B.1: Adult Population Survey

Introduction (core questions)

- i1. Do you know someone personally who started a business in the past 2 years?
- i2. In the next six months, will there be good opportunities for starting a business in the area where you live?
- i3. Do you have the knowledge, skill and experience required to start a new business?
- i4. Would fear of failure prevent you from starting a business?

Introduction (optional questions)

- 1k. In your country, most people would prefer that everyone had a similar standard of living.
- 1l. In your country, most people consider starting a new business a desirable career choice.
- 1m. In your country, those successful at starting a new business have a high level of status and respect.
- 1n. In your country, you will often see stories in the public media about successful new businesses.

Nascent Entrepreneurs (core)

- 1A1. Are you, alone or with others, currently trying to start a new business, including any self-employment or selling any goods or services to others?
- 1A2. Are you, alone or with others, currently trying to start a new business or a new venture for your employer as part of your normal work?
- 1B. Over the past twelve months have you done anything to help start this new business, such as looking for equipment or a location, organizing a start-up team, working on a business plan, beginning to save money, or any other activity that would help launch a business?
- 1C. How many months have you been involved in starting this business?
Response options: Open ended response, Don't know and Refused to answer.
- 1D1. Will you personally own all, part, or none of this business?
Response options: All, Part, None, Don't know and Refused to answer.
- 1D2. How many people, including yourself, will both own and manage this new business?
Response options: Open ended response, Don't know and Refused to answer.
- 1E1. Has the new business paid any salaries, wages, or payments in kind, including your own, for more than three months? "Payments in kind" refers to goods or services provided as payments for work rather than cash.
- 1E2. What was the first year the founders of the business received wages, profits, or payments in kind from this business? "Payments in kind" refers to goods or services provided as payments for work rather than cash.
Response options: Open ended response, Don't know and Refused to answer.
- 1E3. Did the founders of this business receive any wages, profits or payments in kind from this business before 1 January 2009? "Payments in kind" refers to goods or services provided as payments for work rather than cash.

- 1F. What kind of business is this? What will it be selling? How would it be listed in a business directory, such as the phone book yellow pages?
Response options: Open ended response, Don't know and Refused to answer.
- 1G1. Will all, some, or none of your potential customers consider this product or service new and unfamiliar?
Response options: All, Part, None, Don't know and Refused to answer.
- 1G2. Right now, are there many, few, or no other businesses offering the same products or services to your potential customers?
Response options: Many business competitors, Few business competitors, No business competitors, Don't know, Refused to answer to answer.
- 1G3. Have the technologies or procedures required for this product or service been available for less than a year, or between one to five years, or longer than five years?
Response options: Less than a year, Between one to five years, Longer than five years, Don't know, Refused to answer.
- 1G4. What proportion of your customers will normally live outside your country? Is it more than 90%, more than 75%, more than 50%, more than 25%, more than 10%, or 10% or less?
Response options: More than 90%, More than 75%, More than 50%, More than 25%, More than 10%, Under 10%, None, Don't know and Refused to answer.
- 1H1. Not counting the owners, how many people are currently working for this business? Please include all exclusive subcontractors, meaning people or firms working ONLY for this business and not working for others as well.
Response options: Open ended response, Don't know and Refused to answer.
- 1H2. Not counting owners, how many people, including both present and future employees, will be working for this business five years from now? Please include all exclusive subcontractors, meaning people or firms working ONLY for this business, and not working for others as well.
Response options: Open ended response, Don't know and Refused to answer.
- 1K1. Are you involved in this start-up to take advantage of a business opportunity or because you have no better choices for work?
Response options: Take advantage of a business opportunity, No better choices for work, Combination of both of the above, Have a job but seek better opportunities, Others (open ended response), Don't know and Refused to answer.
- 1K2. Which one of the following, do you feel, is the most important motive for pursuing this opportunity?
Response options: Greater independence, Increase personal income, Just to maintain income, None of these (others, open ended response), Don't know and Refused to answer.

Business Relations (Nascent entrepreneurs)

- 1SP1. Are you working together with other enterprises or organizations to produce goods or services
- 1SP1A. Is this collaboration intense or not so intense? "The collaboration should be considered intense if it is close or committed or it has a considerable investment of effort, time or energy."
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 1SP2. Are you working together with other enterprises or organizations to procure supplies?
- 1SP2A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 1SP3. Are you working together with others to market your products or services to potential customers?
- 1SP3A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 1SP4. Are you working together with others about how to make your new business effective?
- 1SP4A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.

Intrapreneurship (Nascent entrepreneurs)

- 1EP1. Are you in employment in addition to working on this new business?
- 1EP2. Were you in employment before you started working on this new business?

- 1EP3. Is your business idea based on an idea you encountered through your experience as an employee?
- 1EP4. Does, or will, one of your current or previous employers provide financial support or physical infrastructure to your new business?
- 1EP5. Will you engage current or previous co-workers in the new business?
- 1EP6. To what extent is the technology of your new business related to the core technologies of your most recent employer? Is it closely related, partially related or not related?
Response options: Closely related, Partially related, Don't know and Refused to answer.

Owner managers

- 2A. Are you, alone or with others, currently the owner of a business you help manage, self-employed, or selling any goods or services to others?
Response options: Same business, Different business, Don't know and Refused to answer.
- 2C. Is this the same business as you referred to in the previous questions, or is it a different business?
- 2D1. Do you personally own all, part, or none of this business?
Response options: All, Part, None, Does not apply, Don't know and Refused to answer.
- 2D2. How many people, including yourself, both own and manage this business?
Response options: Open ended response, Don't know and Refused to answer.
- 2E2. What was the first year the founders of the business received wages, profits, or payments in kind from this business? "Payments in kind" refers to goods or services provided as payments for work rather than cash.
Response options: Open ended response, Don't know and Refused to answer.
- 2E3. Did the founders of the business receive any wages, profits or payments in kind from this business before 1 January 2009?
- 2F. What kind of business is this? What is it selling? How would it be listed in a business directory, such as the phone book yellow pages?
Response options: Open ended response, Don't know and Refused to answer.
- 2G1. Do all, some, or none of your potential customers consider this product or service new and unfamiliar?
Response options: All, Some, None consider this new and unfamiliar, Don't know and Refused to answer.
- 2G2. Right now, are there many, few, or no other businesses offering the same products or services to your potential customers?
Response options: Many business competitors, Few business competitors, No business competitors, Don't know and Refused to answer.
- 2G3. Have the technologies or procedures required for this product or service been available for less than a year, or between one to five years, or longer than five years?
Response options: Less than a year, Between one to five years, Longer than five years, Don't know and Refused to answer.
- 2G4. What proportion of your customers normally live outside your country. Is it more than 90%, more than 75%, more than 50%, more than 25%, more than 10%, or 10% or less?
Response options: More than 90%, 75% to 95%, 50% to 75%, 25% to 50%, 10% to 25%, Under 10%, None, Don't know and Refused to answer.
- 2H1. Not counting the owners, how many people are currently working for this business? Please include all exclusive subcontractors, meaning people or firms working ONLY for this business and not working for others as well.
Response options: Open ended response, Don't know and Refused to answer.
- 2H2. Not counting owners, how many people, including both present and future employees, will be working for this business five years from now? Please include all exclusive subcontractors, meaning people or firms working ONLY for this business, and not working for others as well.
Response options: Open ended response, Don't know and Refused to answer.
- 2K1. Did you become involved in this firm to take advantage of a business opportunity or because you had no better choices for work?

Response options: Take advantage of business opportunity, No better choices for work, Combination of the above, Have a job but seek better opportunities, Others (open ended response), Don't know and Refused to answer.

- 2K2. Which one of the following, do you feel, was the most important motive for pursuing this opportunity?
Response options: Greater independence, Increase personal income, Just to maintain income, None of these (open ended response), Don't know and Refused to answer.
- 2L. Did you start this business? Were you one of its first owners and managers?

Business Relations (Owner managers)

- 2SP1. Is your business working together with other enterprises or organizations to produce goods or services
2SP1A. Is this collaboration intense or not so intense? "The collaboration should be considered intense if it is close or committed or it has a considerable investment of effort, time or energy."
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 2SP2. Is your business working together with other enterprises or organizations to procure supplies?
2SP2A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 2SP3. Is your business working together with others to sell your products or services to your current customers?
2SP3A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 2SP4. Is your business together with others to sell your products or services to new customers?
2SP4A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 2SP5. Is your business together with others to create new products or services to your current customers?
2SP5A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.
- 2SP6. Is your business together with others to create new products or services to new customers?
2SP6A. Is this collaboration intense or not so intense?
Response options: Intense, Not so intense, Don't know, Refused to answer.

Intrapreneurship (Owner managers)

- 2EP1. Are you in employment in addition to working on this new business?
2EP2. Were you in employment before you started working on this new business?
2EP3. Is your business idea based on an idea you encountered through your experience as an employee?
2EP4. Does, or will, one of your current or previous employers provide financial support or physical infrastructure to your new business?
2EP5. Will you engage current or previous co-workers in the new business?
2EP6. To what extent is the technology of your new business related to the core technologies of your most recent employer? Is it closely related, partially related or not related?
Response options: Closely related, Partially related, Don't know and Refused to answer.

Potential Entrepreneurs and discontinuers

- 3A. Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years?
3B. Have you, in the past 12 months, sold, shut down, discontinued or quit a business you owned and managed, any form of self-employment, or selling goods or services to anyone?
3C1. Did the business continue its business activities after you quit?
3C2. What was the most important reason for quitting this business?
Response options: An opportunity to sell the business the business was not profitable, Problems getting finance, Another job or business opportunity, The exit was planned in advance, Retirement, Personal reasons, An incident, Others (open ended response), Don't know and Refused to answer.

Informal investors

- 4A. Have you, in the past three years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds?
- 4B. Approximately how much, in total, have you personally provided to these business start-ups in the past three years, not counting any investments in publicly traded stocks or mutual funds?
Response options: open ended response, haven't provided funds, Don't know and Refused to answer.
- 4C. What was your relationship with the person that received your most recent personal investment? Was this a...
Response options: a) Close family member, such as a spouse, brother, child, parent or grandchild, b) Some other relative, kin or blood relation, c) A work colleague, d) a friend or neighbour, e) a stranger with good business idea, f) other (open ended response), Don't know and Refused to answer.

Employment and EEA

- 5E. Which of the following describes your current employment status?
Response options: Chose all that apply.
- 5E1. Employed by others in full-time work
- 5E2. Employed by others in part-time work
- 5E3. Self-employed
- 5E4. Seeking employment
- 5E5. Not working because I am retired or disabled
- 5E6. A student
- 5E7. Full-time home-maker
- 5E8. Other (open ended response)

EEA (Employed)

- 5SP1. What type of organization are you working for: for a private for-profit firm, for the government or for a not for-profit organization?
Response option: Private for profit, Government, Not for profit, Other (open ended response), Don't know, Refused to answer
- 5SP2. How many employees are there in the organization you are working for?
Response option: Open ended response, Don't know and Refused to answer.
- 5SP3. In the last three years, have you been involved in the development of new activities for your main employer, such as developing or launching new goods or services, or setting up a new business unit, a new establishment or subsidiary?
- 5SP4. And are you currently involved in the development of such new activity?
- 5SP5. The first phase consists of idea development for a new activity. This includes for example active information search, brainstorming on new activities and submitting your own ideas to management. Have you been actively involved in this phase in the past three years?
- 5SP7. I would like you to consider the most significant new activity you have been actively involved with in the past three years for your main employer. The next questions deal with this particular new activity. Could you describe this new activity in one sentence?
Response option: Open ended response, Don't know and Refused to answer.
- 5SP04. Has a new legal entity been created for this business activity, do you expect it to be created, or will the new business activity remain within the organization that employs you?
Response option: New legal entity has been created, New legal entity will be created, Don't know, Refused to answer
- 5SPO6. Do you, or did you, personally take any risks in getting involved in this new activity?
- 5SPO7A. What kinds of risks did you take? Did you risk loss of status?
- 5SPO7B. What kinds of risks did you take? Did you risk damage to career?
- 5SPO7C. What kinds of risks did you take? Did you risk loss of job?
- 5SPO7D. What kinds of risks did you take? Did you risk loss of own money invested?

5SPO7E. What kinds of risks did you take? Other risks (open-ended question)

5SPO8. To what extent does your current employer provide support when employees come up with ideas for new goods or services? Is this: to large extent, to some extent or not at all?

Response option: To large extent, To some extent, Not at all, Don't know, Refused to answer

5SPO10. What is your job title? (Open-ended question)

Demographics

7A. What is your gender?

Response option: Male, Female, Don't know, Refused to answer

7B. What is your current age (in years)? (Open-ended question)

7C. I am now going to read a list of age ranges. Would you be willing to indicate the range that best describes your age?

Response option: Below 18, 18-24, 25-34, 35-44, 45-54, 55-64, 65-99, Refused to answer

7E. How many members make up your permanent household, including you? (Open-ended question).

7F. Now I am going to read a list of income ranges. Which of these ranges best describes the total annual income of all the members of your household, including your income, as one combined figure?

Response option: Below \$2000, \$2000-\$3999, \$4000-\$7999, \$8000-\$8999, Above \$8999, Don't know, Refused to answer

7G. What is the highest level of education you have completed?

Response option: Primary school or no formal education, Completed secondary school/'O' level, ITE/'A' level, Degree/Diploma, Post-graduate, Don't know, Refused to answer

Immigration

7SP1. Were you born in *Singapore*?

7SP2. In what year did you first move to *Singapore*? (Open-ended question)

7SP3. In what country were you born? (Open-ended question)

7SP4. Was your mother born in *Singapore*?

7SP5. In what country was she born? (Open-ended question)

7SP6. Was your father born in *Singapore*?

7SP7. In what country was he born? (Open-ended question)

Appendix B.2: National Expert Survey

Finance

- A1 In my country, there is sufficient equity funding available for new and growing firms
- A2 In my country, there is sufficient debt funding available for new and growing firms
- A3 In my country, there are sufficient government subsidies available for new and growing firms
- A4 In my country, there is sufficient funding available from private individuals (other than founders) for new and growing firms
- A5 In my country, there is sufficient venture capitalist funding available for new and growing firms)
- A6 In my country, there is sufficient funding available through initial public offerings (IPOs) for new and growing firms

Government Policies

- B1 In my country, Government policies (e g , public procurement) consistently favor new firms
- B2 In my country, the support for new and growing firms is a high priority for policy at the national government level
- B3 In my country, the support for new and growing firms is a high priority for policy at the local government level
- B4 In my country, new firms can get most of the required permits and licenses in about a week
- B5 In my country, the amount of taxes is NOT a burden for new and growing firms
- B6 In my country, taxes and other government regulations are applied to new and growing firms in a predictable and consistent way
- B7 In my country, coping with government bureaucracy, regulations, and licensing requirements it is not unduly difficult for new and growing firms

Government Programs

- C1 In my country, a wide range of government assistance for new and growing firms can be obtained through contact with a single agency
- C2 In my country, science parks and business incubators provide effective support for new and growing firms
- C3 In my country, there are an adequate number of government programs for new and growing businesses
- C4 In my country, the people working for government agencies are competent and effective in supporting new and growing firms
- C5 In my country, almost anyone who needs help from a government program for a new or growing business can find what they need
- C6 In my country, Government programs aimed at supporting new and growing firms are effective

Education and Training

- D1 In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative
- D2 In my country, teaching in primary and secondary education provides adequate instruction in market economic principles
- D3 In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation
- D4 In my country, Colleges and universities provide good and adequate preparation for starting up and growing new firms
- D5 In my country, the level of business and management education provide good and adequate preparation for starting up and growing new firms
- D6 In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms

Research and Development Transfer

- E1 In my country, new technology, science, and other knowledge are efficiently transferred from universities and public research centers to new and growing firms
- E2 In my country, new and growing firms have just as much access to new research and technology as large, established firms
- E3 In my country, new and growing firms can afford the latest technology
- E4 In my country, there are adequate government subsidies for new and growing firms to acquire new technology
- E5 In my country, the science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area
- E6 In my country, there is good support available for engineers and scientists to have their ideas commercialized through new and growing firms

Commercial and Services Infrastructure

- F1 In my country, there are enough subcontractors, suppliers, and consultants to support new and growing firms
- F2 In my country, new and growing firms can afford the cost of using subcontractors, suppliers, and consultants
- F3 In my country, it is easy for new and growing firms to get good subcontractors, suppliers, and consultants
- F4 In my country, it is easy for new and growing firms to get good, professional legal and accounting services
- F5 In my country, it is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit, and the like)

Market Openness

- G1 In my country, the markets for consumer goods and services change dramatically from year to year
- G2 In my country, the markets for business-to-business goods and services change dramatically from year to year
- G3 In my country, new and growing firms can easily enter new markets
- G4 In my country, the new and growing firms can afford the cost of market entry
- G5 In my country, new and growing firms can enter markets without being unfairly blocked by established firms
- G6 In my country, the anti-trust legislation is effective and well enforced

Physical Infrastructure

- H1 In my country, the physical infrastructure (roads, utilities, communications, waste disposal) provides good support for new and growing firms
- H2 In my country, it is not too expensive for a new or growing firm to get good access to communications (phone, Internet, etc)
- H3 In my country, a new or growing firm can get good access to communications (telephone, internet, etc) in about a week
- H4 In my country, new and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer)
- H5 In my country, new or growing firms can get good access to utilities (gas, water, electricity, sewer) in about a month

Cultural and Social Norms

- I1 In my country, the national culture is highly supportive of individual success achieved through own personal efforts
- I2 In my country, the national culture emphasizes self-sufficiency, autonomy, and personal initiative
- I3 In my country, the national culture encourages entrepreneurial risk-taking
- I4 In my country, the national culture encourages creativity and innovativeness
- I5 In my country, the national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life

Opportunities to Start Up

- K1 In my country, there are plenty of good opportunities for the creation of new firms
- K2 In my country, there are more good opportunities for the creation of new firms than there are people able to take advantage of them
- K3 In my country, good opportunities for new firms have considerably increased in the past five years
- K4 In my country, individuals can easily pursue entrepreneurial opportunities
- K5 In my country, there are plenty of good opportunities to create truly high growth firms

Abilities, Knowledge to Start Up

- L1 In my country, many people know how to start and manage a high-growth business
- L2 In my country, many people know how to start and manage a small business
- L3 In my country, many people have experience in starting a new business
- L4 In my country, many people can react quickly to good opportunities for a new business
- L5 In my country, many people have the ability to organize the resources required for a new business

Entrepreneur Social Image

- M1 In my country, the creation of new ventures is considered an appropriate way to become rich
- M2 In my country, most people consider becoming an entrepreneur as a desirable career choice
- M3 In my country, successful entrepreneurs have a high level of status and respect
- M4 In my country, you will often see stories in the public media about successful entrepreneurs
- M5 In my country, most people think of entrepreneurs as competent, resourceful individuals

Intellectual Property Rights

- N1 In my country, the Intellectual Property Rights (IPR) legislation is comprehensive
- N2 In my country, the Intellectual Property Rights (IPR) legislation is efficiently enforced
- N3 In my country, the illegal sales of 'pirated' software, videos, CDs, and other copyrighted or trademarked products is not extensive
- N4 In my country, new and growing firms can trust that their patents, copyrights, and trademarks will be respected
- N5 In my country, it is widely recognized that inventors' rights for their inventions should be respected

Support for Women Starting Businesses

- P1 In my country, there are sufficient social services available so that women can continue to work even after they start a family
- P2 In my country, starting a new business is a socially acceptable career option for women
- P3 In my country, women are encouraged to become self-employed or start a new business
- P4 In my country, men and women get equally exposed to good opportunities to start a new business
- P5 In my country, men and women have the same level of knowledge and skills to start a new business

Attention to High Growth

- Q1 In my country, there are many support initiatives that are specially tailored for high-growth entrepreneurial activity
- Q2 In my country, policy-makers are aware of the importance of high-growth entrepreneurial activity
- Q3 In my country, people working in entrepreneurship support initiatives have sufficient skills and competence to support high-growth firms
- Q4 In my country, potential for rapid growth is often used as a selection criterion when choosing recipients of entrepreneurship support
- Q5 In my country, supporting rapid firm growth is a high priority in entrepreneurship policy

Interest in Innovation

- R1 In my country, companies like to experiment with new technologies and with new ways of doing things
- R2 In my country, consumers like to try out new products and services
- R3 In my country, innovation is highly valued by companies
- R4 In my country, innovation is highly valued by consumers
- R5 In my country, established companies are open to using new, entrepreneurial companies as suppliers
- R6 In my country, consumers are open to buying products and services from new, entrepreneurial companies

Immigration and Entrepreneurship

- V1 Laws and regulations to promote and support entrepreneurial activity of migrants coming from *developing* countries are adequate
- V2 Laws and regulations to promote and support entrepreneurial activity of migrants coming from *developed* countries are adequate.
- V3 Foreigners from *developing* countries experience a greater number of formal restrictions than natives, when they want to start-up a business.
- V4 Foreigners from *developed* countries experience a greater number of formal restrictions than natives, when they want to start-up a business.
- V5 Entrepreneurs who have migrated from *developing* countries have **worse** access to private sector finance than native entrepreneurs.
- V6 Entrepreneurs who have migrated from *developed* countries have **worse** access to private sector finance than native entrepreneurs.
- V7 Entrepreneurs who have migrated from *developing* countries have **worse** access to start-up support programs than native entrepreneurs
- V8 Entrepreneurs who have migrated from *developed* countries have **worse** access to start-up support programs than native entrepreneurs.
- V9 Migration and integration policy explicitly identifies the potential of entrepreneurial activity.

Business Relations

- W1 Public institutions often organize fairs and events where entrepreneurs meet and form contacts.
- W2 The government has a policy for promoting and supporting collaboration among businesses.
- W3 The local public authorities promote and support collaboration among businesses.
- W4 The educational system teaches that businesses ought to collaborate.
- W5 Training courses for entrepreneurs include training in collaboration.
- W6 Business owners believe that informal agreements are more effective than contracts between businesses.
- W7 Business owners believe they gain advantages through collaboration.

Appendix C: Comparison Countries participating in APS & NES

The 24 countries included in the comparison with Singapore for APS and NES are listed below. Note that these countries were selected on the basis of their innovation-driven economy or in some cases, their geographic and cultural similarities with the Singapore economy. For a full listing of all 69 participating countries readers may refer to the 2012 GEM Global Report available at: [<http://www.gemconsortium.org/docs/2645/gem-2012-global-report>].

APS & NES comparison countries in alphabetical order:

1. Austria
2. Belgium
3. Denmark
4. Finland
5. France
6. Germany
7. Greece
8. Ireland
9. Israel
10. Italy
11. Japan
12. Korea
13. Malaysia
14. Netherlands
15. Norway
16. Portugal
17. Slovakia
18. Slovenia
19. Spain
20. Sweden
21. Switzerland
22. Taiwan
23. United Kingdom
24. United States

Appendix D: NES Experts

Table D lists, in no particular order, the National Experts who were interviewed in the 2012 GEM Singapore.

Table D: NES Experts

Salutation	Name	Position	Affiliation
Dr	Alex Lin	Mentor	NTU Ventures Pte Ltd
Mr	Alfred Leong	Founder	All ID Asia Pte Ltd
Dr	Arcot Desai Narasimhalu	Director	Institute of Innovation and Entrepreneurship, SMU
Mr	Arthur Fong	Deputy Director	Media Development Authority
Ms	Chan Mei-Yin	Executive Director	Laras Ethno Pte Ltd
Dr	Chava Vijaya Saradhi	Senior Assistant Director	Nanyang Innovation & Enterprise Office
Mr	Chew Mun Hou	CEO	iAxil Pte Ltd
Mr	Colin Ong	Managing Director	MR=MC Consulting Pte Ltd
Ms	Davina Kiang	Senior Investment Manager	SPRING SEEDS Capital
Mr	Donnie Seet	Deputy General Manager	Youth Enterprise Academy
Mr	Eric Mun	CEO	The Institute of Environmental Science and Engineering Pte. Ltd. (IESE).
Ms	Florence Leong	Founder & Director	BioVation Management
Dr	Foo Say Wei	Deputy Director	Nanyang Technopreneurship Center
Mr	Gareth P. Walker	Founder	Walker Group
Mr	Garion Chan	Founder	Wolf Packs LLP
Mr	Harville Tan	Manager	Infocomm Development Authority
Mr	Hui Wing Feh	Director	ODM Innovations Pte Ltd
Mr	Inderjit Singh	Member of Parliament	Parliament of Singapore
Mr	Jeremy Snyder	CEO	HeyPal
Mr	Joseph Wong	Founding Director	TrainingGearAsia Pte Ltd
Mr	Ken Koh	Founder & Managing Director	Talentpreneur Hub Pte Ltd
Mr	Kenneth Tsang	Former CEO	Zenithoptimedia
Mr	Kenny Lew	Founder	Entreport Asia
Mr	Chak Kong Soon	CEO & Managing Partner	Stream Global Pte Ltd
Mr	Lim Song Joo	Founder	BWG Consulting Pte Ltd
Mr	Mike Zhan	Managing Director	Smart Space Pte Ltd
Mr	Nicholas Chan	Founder and Director	Azione Capital Pte Ltd
Mr	Ong Sang Bin	Mentor	NTU Ventures Pte Ltd
Mr	Patrick Lim	Head of Entrepreneurship Development	SPRING Singapore
Dr	Ravishankar Sharma	Professor	Wee Kim Wee School of Communication and Information, NTU

Mr	Rick Tay	Deputy Director	Nanyang Technopreneurship Center
Mr	Roderick Chia	Partner	IDM Venture Capital
Ms	Rosalind Tan	Incubation Manager	Expara IDM Ventures
Mr	Ryan Soh	CEO	MoneyTree Singapore Pte Ltd
Dr	Steven Fang	Group CEO	Cordlife Limited
Mr	Tan Wenyong	Investment Manager	SPRING SEEDS Capital
Mr	Tng Tai Hou	Vice President	Exploit Technologies Pte Ltd
