

Identifying the growth determinants of high-growth firms:

A systematic literature review

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Mart Heidemann

Abstract

Since company growth greatly contributes to the creation of jobs and of wealth, it is interesting to identify the determinants of company growth. To distinguish between the successful companies of tomorrow and those which fail to grow, numerous studies tried to identify the determinants causing company growth. It appears that the literature regarding the determinants of such high-growth firms (HGFs) is fragmented. Therefore, this study provides a systematic literature review of the empirical literature concerning HGFs and their growth-factors. Based on the review of 32 articles, twenty-nine determinants of company growth are identified. Those determinants relate to the characteristics of the founder, internal environment (divided in team characteristics and product/service characteristics), and external environment. In addition of the identified determinants of growth, a balanced scorecard for HGFs is developed. The balanced scorecard enables managers to evaluate their companies' performance in terms of high-growth.

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1. Introduction

Numerous studies have tried to identify the determinants of firms' growth, mainly in order to distinguish between the successful businesses of tomorrow and those which fail to grow (Janssen, 2009). Identifying these determinants could help allowing the implementation of better-targeted economic policies, since growing firms greatly contribute to the creation of jobs and of wealth (Storey *et al.*, 1987; Westhead and Birley, 1995; Gallagher and Miller, 1991; McMahon, 1998). Only 6% of all small- and medium-sized enterprises (SMEs) in the United Kingdom were responsible for half of all new jobs between 2002 and 2008 (Anyadike-Danes *et al.* (2009). This 6% group firms were referred to as high-growth firms (HGFs). HGFs in the United States, while representing only 1% of all US businesses, also generate around 10% of all new jobs annually (Stangler, 2010). Examination of 20 data sets from a variety of sources on SMEs by Henrekson and Johansson (2010) made them concluding that "a few rapidly growing firms generate a disproportionately large share of all new net jobs". Thus, because HGFs engender a lot of new jobs, HGFs attract significant interest by governments and policy makers across many countries last years. But, achieving high-growth is rare and indeed, high-growth spurts are unpredictable and difficult to maintain (Barringer *et al.*, 2005). High-growth is according to Parker *et al.* (2010) usually a one-time occurrence; thus, of the few firms that do grow fast, only a very small proportion continue to do so and are exceptions to the rule (Storey, 2011). Identifying those determinants of high-growth is thus of great importance in supporting firms regarding the generation of jobs and wealth.

But, studying these HGFs comes with several challenges. It is for example difficult to identify SMEs with high employment growth potential, especially before growth commencing. Also predicting future performance at start-up phase is difficult since growth patterns are episodic and non-linear (Garnsey *et al.*, 2006). Another reason which makes it difficult to empirically track and sample HGFs is caused by the fact that many HGFs are acquired following their growth or shut down based on the major risks involved in such rapid expansion (Delmar *et al.*, 2013). In addition, there is also a lack of publicly available data that enables tracking SMEs and their performance (Dwyer and Kotey, 2016), as well as the inconsistency in definitions and measures used in researching HGFs. A fragmented nature of research related to HGFs is a consequence of the challenges mentioned above.

Therefore, a systematic literature review is conducted to provide an overview of the existing literature regarding the growth factors of HGFs, and answer the following research question: '*What are the determinants of growth in HGFs?*'.

To ensure methodological rigor and an unbiased search procedure, this review is based on the standards of the PRISMA statement (Liberati *et al.*, 2005). This systematic literature review reports current findings and tries to visualize the differentiators of fast-growing companies with their non- or slow-growing counterparts. This systematic literature review is based on scientific literature, and focuses on empirical research towards rapid-growing companies. Findings from the empirical studies can be categorized within three themes, which are: ‘founder characteristics’, ‘internal environment’, and ‘external environment’. If these three categories are matching the competencies mentioned in the literature, growth is more likely to occur. In addition, a balanced scorecard for HGFs is developed based upon the growth determinants as identified in the literature. The balanced scorecard enables managers to assess their companies’ performance, in comparison with how the HGFs obtained their growth.

2. Methodology

This study applies a systematic literature review to answer the research question, developed as: ‘*What are the determinants of growth in HGFs?*’. The aim of a systematic literature review is to provide a clear, targeted answer to a specific research question (Hannes *et al.*, 2007) and allow for replication (Johnson *et al.*, 2002). An effective systematic literature review create a firm foundation for advancing knowledge, facilitate theory development and discover areas where research is needed (Webster and Watson, 2002). Reasons for conducting a systematic literature are summarizing the evidence about a technology or treatment, summarizing the evidence or advantages of a specific method, identifying research gaps in the existing research in order to suggest for further investigation, or provide deep understanding for the phenomenon (Kitchenham and Charters, 2007). This research mainly focusses on providing a deep understanding of the concepts of HGFs, and to identify possible gaps in the literature or recommend further research.

2.1 Defining and conceptualizing high-growth firms

The definition of HGFs varies in existing literature. HGFs’ definition has been subject to significant variations, including the type of firms studied, as well as the measure and mode of growth (Demir *et al.*, 2016). As to the type of firms studied, research has shown that HGFs exist in all industries and include all firm sizes, but there is an over-representation of small and young firms (Daunfeldt *et al.*, 2016; Delmar and Shane, 2003; Delmar *et al.*, 2003). Measures of high-growth can count on less agreement in the existing literature. Various studies have used relative growth measures, for example a firm’s growth rate relative to the overall population of firms in an industry, region, or country. Other studies have used absolute growth measures, such as increase in sales, employees, or productivity over a certain time frame (Havnes and Senneseth, 2001). Focusing on relative growth measures tent to over-sample smaller firms, while focusing on absolute growth measures tend to over-sample larger firms (Delmar, 1997). To deal with this contradiction, a combination of absolute- and relative growth measures could be used, or define a minimum size criteria for inclusion in a study (Daunfeldt *et al.*, 2014). An increasing accepted definition of HGFs, is the definition designed by the Organization for Economic Co-Operation and Development (OECD) in 2010. This definition combines relative- and absolute growth measures to deal with the overrepresentation of large (absolute growth measure) or small (relative growth measure) firms. The OECD defines a firm as a HGF if it

grows at an average annual growth in turnover of at least 20% over a three-year period and employ ten or more employees at the start of the observation period.

As mentioned above, the OECD uses sales (interchangeably called turnover or revenue) as growth indicator, but others also use growth in employees (Delmar, 1997; Shepherd and Wiklund, 2009) or productivity (Du and Temouri, 2015). Due the absence of a consistent and straightforward measure for HGFs, scholars are sceptical about the emergence of a single definition of HGFs, as different research questions require different definitions of firm growth (Coad *et al.*, 2014). To identify the determinants of growth, this review will take all relevant studies into account, regardless of the used definition. Included studies thus could use different definitions, but should all contribute in identifying the growth determinants of HGFs.

2.2 Data collection

This systematic research is thus focussing on the determinants of growth, which are specific to the fast-growing companies. To find relevant articles, several online databases, to which the University of Twente provides access to¹, were assessed. A title-based search was conducted in a Boolean way. This approach enables to target the relevant articles more specific. A Boolean search combines one (or more) concepts with another one (or more) by linking the concepts with ‘AND’. As shown in figure 1, the search combined any of the concepts on the left with any of the concepts on the right. Note that the asterisks are used for expanding the cocncepts. For example, the asterisk in ‘compan*’ means that titles with ‘company’ as well as ‘companies’ are both included.

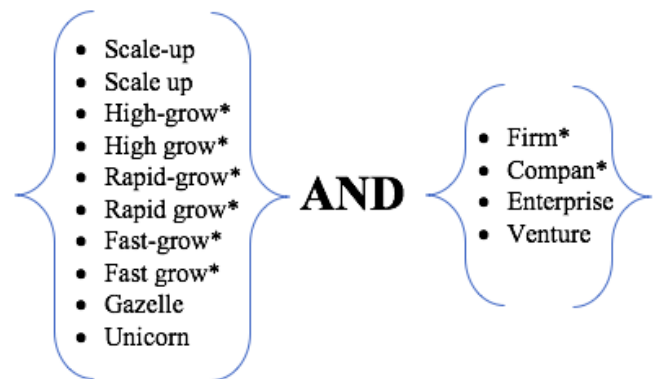


Figure 1. Key terms used in the Boolean search

This resulted in a list of 295 peer-reviewed articles, which were checked upon relevance. Those articles were screened based on their title and abstract. Included articles should thus (partly) relate to the identification of growth determinants in such HGFs. This process resulted in a final dataset of 30 relevant articles. In addition, as a consequence of cross-referencing, two more articles were added. Those articles were obtained from references in Dwyer and Kotey

¹ These databases are: WorldCat.org, ScienceDirect, Wiley Online Library, MEDLINE, SpringerLink, IEEE Publications Database, Directory of Open Access Journals, AMS Journals, ACM Digital Library, Staten-Generaal Digitaal: Dutch Parliamentary Papers, SPIE Digital Library, Informa Healthcare e-Journals, and BioOne

(2016), and include the articles of Harms and Ehrmann (2009) and O'Regan *et al.* (2006). So, this systematic literature review will include a total of 32 articles, of which 16 articles (50%) are published in one of the leading journals in management, entrepreneurship, and innovation (Gilbert *et al.*, 2006; Macpherson and Holt, 2007)² A summary of those articles is presented in Appendix A. The articles are presented in chronological order (within a timespan from 1990 till 2017) and further describes the 1) sample, 2) definition of HGF used, 3) theory build upon, 4) type of research, 5) findings, and 6) success factors.

2.3 Literature review on HGFs

As briefly mentioned in the previous paragraph, this literature review will consist out of 32 articles. Those 32 articles are a result of a screening process from 295 peer-reviewed articles and cross-referencing. In this paragraph, the screening process will be explained in more depth. In the first place, only peer-reviewed articles were assessed to ensure quality. The 295 peer-reviewed articles were checked for relevance according to title and abstract. Articles marked as possibly relevant should thus at least partly answer the question: “*What are the determinants of growth in HGFs?*”. From the total 295 articles, 54 were identified as possibly relevant. Those 54 articles should thus contribute in answering the research question.

Nevertheless, 24 more articles (from those 54 selected articles) were deleted since they were not of empirical kind, and thus evidence from practice can't be ensured. Other deleted articles were only focussing on the differences between high-tech firms and low-tech firms instead of high-growth firms. Furthermore, cross-referencing resulted in the addition of two more articles, since they contribute in answering the research question. So, the final sample consists of 32 articles.

The final selection has in common that they performed empirical research, but differentiate in the way of executing the research. 23 articles (72%) performed quantitative research, 7 articles (22%) used a qualitative research method, while another 2 articles (6%) combined quantitative and qualitative research. In general, quantitative research is used to quantify a problem by generating numerical data, or data that can be transformed into usable statistics to generalize results from a larger sample. Qualitative research is primarily exploratory research, and used for understanding underlying reasons, opinions and motivations. Therefore, in large samples

² Those articles are published in the following leading journals: *International Small Business Journal*, *Small Business Economics*, *Strategic Entrepreneurship Journal*, *Strategic Management Journal*, *Entrepreneurship & Regional Development*, *Industrial and Corporate Change*, *Research Policy*, *Technovation*, and *Journal of Business Venturing*.

quantitative research will enable researchers to indicate differences between specific groups, while qualitative research is looking in more depth to underlying relations, but only for one (or a couple) of cases, since it is a time-intensive approach. Nevertheless, in this systematic literature review both types of research are taken into account, as they both provide partly an answer to the growth determinants of HGFs.

2.4 Context of included studies

Appendix A, provides an overview in more detail of the included articles. As shown in Appendix A, the articles use different datasets and are investigating different industries and countries. So, there may be success factors more specific for a certain country or industry than another. The article of Goedhuys and Sleuwaegen (2016) provides an example of this by pointing out the importance of investing in own transportation networks for delivery. This research is executed in 11 Sub-Saharan African countries, where infrastructure, such as roads, ports, communication facilities and provision of energy, is poor. So, investments in good transportation in these countries is key for widening the relevant market in which firms can grow. For firms in other countries, this may be less relevant, since infrastructure in most countries is well developed. Investments in own transportation networks therefore may be not that efficient. Outsourcing of transportation may be more relevant for firms in more developed countries such as the Netherlands. This example provides the insight that the findings are not an exact recipe to success, but have to be implemented in such a way that it matches the context of the specific firm.

3. Literature review: determinants of high-growth

The results of the literature review will be explained in this chapter. As shown in figure 2 (page 25), the growth determinants are divided in three different categories (founder characteristics, internal environment, and the external environment). Those categories are constructed by the author's opinion, and are the overarching element of the growth determinants included. Founder characteristics and the internal environment (HRM, management, strategy, and innovation) are also mentioned in other literature reviews. Among others Wennberg (2013) and Demir *et al.* (2016) wrote about these components. Two other recurring findings from the literature are that 'young' and 'small' companies experience a higher probability of becoming a HGF (Segarra and Teruel, 2014; Mazzucato and Parris, 2015). Since this is a phase in a company's lifecycle and thus can't be controlled, these concepts gain less attention in this review. So, this chapter will describe the components of a company which can be controlled, like the chosen strategy, or how to reward well performing employees.

3.1 Founder characteristics

Because it 'all starts' with the founders, the founder characteristics will be mentioned first. The founders are the core of the business, because they face a problem or recognize an opportunity in the market and possess the motivation to start a business. But, according literature, not all entrepreneurs are becoming successful. They differ in capabilities, experiences, networks and so on. This paragraph indicates under what conditions entrepreneurs experience a greater probability of transforming their business into a HGF.

3.1.1 Affinity with the product/market/technology

The next component of increasing the probability of becoming a HGF is that firms have products/markets/technologies closely related to the founders. Relatedness comes down to familiarity and affinity with the product/market/technology. This can be caused by obtained experience in a specific industry, or with a certain product. The importance of the relatedness between the founder(s) and their industry experience was detected by Feeser and Willard in 1990 already (Feeser and Willard, 1990). They discovered that from the 108 founders they investigated, HGF founders establishing new ventures with the same or closely related products/markets/technologies outnumbered low growth founders doing the same by a margin of 2 to 1. Hinton and Hamilton (2013) also found that having a relevant and long industry experience are more important driver to success than university degrees. "The considerable skills and knowledge they bring into the business help to determine its success." (p.42).

Barringer *et al.* (2005) also found evidence for the importance of relatedness. In their study, founders with prior experience in the same or closely related industry were found in 76% of the HGFs and only in 24% of the slow-growth firms. They mention: “Apparently, related industry experience provides a founder with critical knowledge plus the advantages of access to a network of contacts that can help a firm overcome liabilities of newness and build a growth-oriented business.” (p.678).

3.1.2 Founded by team

High- and low-growth firms appear to differ systematically in the size of the founding team. This was discovered firstly by Roberts (1972) and gained support by Feeser and Willard (1990) later on. HGFs are more likely to be started by larger teams than low growth firms. Feeser and Willard (1990) state that “if you want to establish what is to become a high growth firm, having more members on the start-up team is preferable to having fewer.” (p. 94). More recently, Román *et al.* (2017) indicated similar results. According to them, “team participation rather than a single-founder was positive for the company, since having a range of views would allow better decision making.” (p. 120). Hinton and Hamilton (2013) pointed out that HGFs are characterized by ‘joint complementary founders’. Founders with complementary skills, provide the financial and management expertise to back up the technical competencies of the other founding member and therefore avoid the immediate need to hire key support staff. HGFs are thus more likely to be founded by a group of people, since they can complement on competencies.

3.1.3 Higher education

Higher levels of education are seen as a determinant of increasing the chances of both survival and high growth (Cooper *et al.*, 1994). Barringer *et al.* (2005), Savarese *et al.* (2016), and Li *et al.* (2016) also affirmed the importance of college education. College educated founders achieved the necessary skills to set-up a business, particularly for technically oriented businesses. College education also supports the participation in a useful and suitable social network for help in setting-up a business. Higher educated people thus should experience a greater probability of becoming a HGF. Goedhuys and Sleuwaegen (2010) also indicated that higher educated entrepreneurs (graduate or postgraduate degree) raise the employment growth levels by 2% versus their lower educated counterparts. They also found that higher and university education raise the probability of being a HGF by respectively 1% and 2%, and at the same time reduces the probability of strong decline by 5.5% and 7.6% (Goedhuys and Sleuwaegen, 2016). The positive relationship of a higher education and a greater probability of

becoming successful when setting-up a business may sound logical, since more relevant knowledge is acquired. On the other hand, Hinton and Hamilton (2013) mentioned that relevant and long industrial experience are more relevant than university degrees.

3.1.4 Managerial experience

It may sound logical, but managerial experience also increases the probability of becoming a HGF. As a consequence of managerial experience, problems faced by the firm for the first time, can be solved by a manager that experienced the problem before. However, Mthimkhulu and Aziakpono (2016) found that the advantage of experienced managers diminishes after a certain time. They discovered that moderately experienced managers (between six and ten years) can be associated more with HGFs than managers with more than ten years of experience. This is interesting, because that assumes that the advantages of managerial experience can be compared with a parabola opening downwards. This seems debatable because one would think that ‘the more experience, the better’.

Roman *et al.* (2017) identified another type of managerial experience in HGFs. They found that the founders of the HGFs investigated all had prior experience in large-scale businesses. Due to this, the skill of managing large-scale projects is acquired. Mthimkhulu and Aziakpono (2016) and Román *et al.* (2017) thus acknowledge the importance of managerial experience.

3.1.5 Bring in ‘professionals’

Similar to the previous growth factor, this factor is also about experience, but focused on experience from others. A common statement in rapidly growing firms is that they quickly outgrow the founders’ managerial capacity, and that the founders should be replaced by or supplemented by ‘professional’ management. Willard *et al.* (1992) empirically tested this, and found that founder-managed HGFs, as well as, ‘professionally’ managed HGFs, can be successful. Their research showed that founder-managed HGFs in general were smaller, and growing at a lower rate, but showed higher rates of profitability. According to them, founder-managers apparently are able to adopt to the increasing complexity of rapid growth without sacrificing performance or losing control. Despite this, a similar research by Lee (2014) found that managerial capacity or skillset are truly a barrier for HGFs. Firms experiencing rapid growth thus face difficulties in adopting to the new situation. ‘Professional’ managers should be able to successfully manage the growing firm. Bringing them in would therefore a great idea when a founder-manager notices that his managerial capacity is outgrown. It is thus not necessarily, since Willard *et al.* (1992) showed that founder-managers are also capable of managing the HGF.

3.1.6 Intrinsic motivation

Founders among HGFs are more frequently citing business opportunities or positive ideas as underlying motives for starting-up a business, while founders of non-HGFs were motivated more often by unemployment, fear of redundancy, and internal motives (Littunen and Tohmo, 2013). In other words, Littunen and Tohmo (2013) state that when founders are motivated for setting-up a business by what they call, ‘pull’ factors (such as a positive idea or business opportunities) have a greater probability of becoming a HGF than when they’re motivated by ‘push’ factors (dissatisfaction with their current job, or be faced with the prospect of unemployment). It thus seems to be important that starting-up a business is supported by an intrinsic motivation. Barringer *et al.* (2005) adds to this the idea of an ‘entrepreneurial story’. They identified that some entrepreneurs make significant sacrifices to start their business. Others might also have salient life experience that set them on the path to become entrepreneurs. Such ‘entrepreneurial stories’ might spur these entrepreneurs to push their business onto a trajectory of rapid growth. The basic idea of having an ‘entrepreneurial story’ is thus that an entrepreneur is intrinsically motivated for setting-up a business. So, they truly believe in their business plan, or observed business opportunities, and are willing to make sacrifices for it. So, having an ‘entrepreneurial story’ will increase the probability of becoming a HGF.

3.2 Internal environment

The next theme is divided in two ‘subthemes’: team characteristics and product/service characteristics. According literature, the probability of becoming a HGF can be increased by certain characteristics regarding the people working in the company, and the type of product/service the company sells. So, the composition of a business plays an important role in increasing the probability of becoming an HGF. First, the team characteristics will be outlined, thereafter the product/service characteristics will be discussed.

3.2.1 Team characteristics

The section that provides attention to the team characteristics is divided into two components: 1) the managerial team and 2) Human Resource Management. Those two components are further distinguished below.

3.2.1.1 Managerial team

The managerial team focusses on the direction the company wants to go, and how this could be realized. According the literature included in this review, there are some conditions

regarding the managerial team that increase the probability of becoming a HGF. The components regarding the managerial team are outlined next.

3.2.1.1.1 Detailed long-range planning

The next 'managerial trait' of HGFs is a detailed long-range plan. Upton *et al.* (2001) indicate that the majority of HGFs express their vision and plans to achieve it in written form and that they prepare formal business plans with a three-year (or longer planning) horizon. Those plans appear to be sufficiently detailed "to enable the firms to tie them back into performance and adjust management compensation when necessary." (p.67). Upton *et al.* (2001) also discovered that the HGFs in their sample involved the board of directors in developing those business plans, which in line is with previous findings of Rue and Ibrahim (1996). For the plan to be effective, communication with employees is crucial. The majority of HGFs (82%) shared information regarding actual company performance versus the goals of the detailed long-range plan with all employees. So, a detailed long-range plan, build together with the board of directors, and shared with all employees, should positively affect the chances of becoming a HGF.

3.2.1.1.2 Obtain venture capital financing

Niosi (2002) found that HGFs more often searched and obtained venture capital (VC) financing. Mohr *et al.* (2013) also report that HGFs are more likely than other firms to be recipients of VC. Kelly and Kim (2016) found that growth in R&D expenditures in VC-backed firms is greater than that of non-VC-backed firms. VC investments are characterized by involvement and results in an accelerated commercialization process through quick product development based on existing research and technological know-hows (p. 1487). So, access to, and obtaining of, venture capital should increase the probability of becoming a HGF.

3.2.1.1.3 Group management style

According to Littunen and Tohmo (2003) there was a distinct association between the management styles between HGFs and the other firms. HGFs are mainly associated with what is called a 'group management style'. Group management styles are characterized by the involvement of a group of people in decision-making processes. Regarding key affairs, 59% of the HGFs in Littunen and Tohmo (2003) didn't count solely on the entrepreneur, but were managed by a group of employees. Another 22% of the HGFs in their sample use a 'network building strategy'. Here, the entrepreneur obtained ideas of how to manage a firm through discussions with customers as well as with his entrepreneurial and other business contacts or specialists. The 'group management style' would thus be preferred the most, since it

characterizes most HGFs. The ‘network building strategy’ would be another possibility, but possesses the risk of employees feeling left-out.

3.2.1.1.4 Committed to growth

HGFs differ from slow-growth firms in their commitment to growth. Barringer *et al.* (2005) found that a lack of growth can be attributed to both external and internal factors, such as motivational issues. A firm’s intensity of commitment to growth may motivate the employees of a firm to make growth happen. The process of motivating employees is managements’ responsibility. To increase the commitment to growth, and thus increasing the probability of becoming a HGF, a growth-oriented vision can be implemented. The importance of commitment to growth is also appointed by Román *et al.* (2017). The HGFs they investigated all declared commitment to growth as part of the company’s core, while on the other hand, two-thirds of the companies with moderate growth did not considered this. So, a great commitment to growth, in the form of a growth-oriented vision for example, will support a company in becoming a HGF.

3.2.1.1.5 Consistency in decision-making

Another aspect of managing growth is building systems and culture in line with previous decisions. HGFs are able to build systems to manage their rapid growth, while they aren’t conflicting with the pro-growth culture that the founders cultivated (Hinton and Hamilton, 2013). According one of the participants in their qualitative study one of the key strategies to ensure growth is defining structure inside the business. “When you’ve only got six people, it’s easy to manage that. When you get a big bigger, you’ve got to have a structure.” (p. 45). Creating and defining a matching structure/culture to the founder and company is thus of great importance when the company aims for growth, or actually is growing.

3.2.1.2 Human Resource Management

Human Resource Management also has an impact on the ‘human factor’ in a company, just as the managerial team it is about people within the company. In this systematic literature review, there are two main components discovered regarding Human Resource Management. These components are ‘employee training’ and ‘rewarding employees’.

3.2.1.2.1 Employee training

Employee training or ‘training on the job’ is an often-mentioned element in the pursuit of growth. The findings of Goedhuys and Sleuwaegen (2010) are therefore interesting, since they found that training of the labor force doesn’t have a stretching effect, but rather a compressing effect. An explanation of this contradiction finding may be found in the fact that they

researched Sub-Saharan African companies, which are less developed and may not be representative for other parts in the world. Barringer *et al.* (2005) showed that HGFs differ from slow-growth firms in employee development. The HGFs reported the role of the training programs in helping them to achieve their objectives or in equipping their employees for advancement. HGFs depend heavily on the abilities and efforts of their employees to maintain their growth-oriented strategies. Arrighetti and Lasagni (2013) also found trained workforces more often in HGFs than in other firms. According to Pfeffer and Sutton (2006) “the best firms must always employ the best people.” Which is what Hinton and Hamilton (2013) noticed. The HGFs they investigated saw and treated their staff as their key resource, which is wise since Mthimkhulu and Aziakpono (2016) also discovered that in-house training programs improve performance.

3.2.1.2.2 Reward well-performing employees

To elicit high performance levels from employees, attract and retain high-quality employees, and shift a portion of a firm’s business risk to the employees are some examples of the benefits that can be achieved by rewarding employees. Rewarding well-performing employees can thus be very beneficial for a company. Barringer *et al.* (2005) and Walker (2010) found that rewarding employees more often happens in HGFs than other firms. The HGFs provided their employees with financial incentives and stock options as part of their compensation packages. The importance of rewarding superior performance by employees is also mentioned by the founder/CEO of HGFs in Hinton and Hamilton (2013) and Ng and Hamilton (2016). They mention that people got rewarded for superior performance, with the expectation the employees continue their performance. Others reward employees when, for example, patents they filed got granted, or use informal awards that recognize new ideas.

3.2.2 Product/service characteristics

The product/service characteristics are divided in three components, which are ‘the product/service’, ‘strategy’, and ‘innovation’. Because a company usually starts with the commercialization of a certain product or service, those three components represent the core of the business. Companies differentiate in the type (and how) they offer their products and services. So, the categories in which those three components are divided are supporting companies in offering unique and valuable products/services, which should lead to high-growth.

3.2.2.1 The product/service

The elements related to the product/service are about clients, markets, sales, competitors, and production processes. This section aims to provide the product/service conditions, of which the probability of becoming a HGF will be increased.

3.2.2.1.1 *Stable product/market focus*

Feeser and Willard (1990) found that HGFs have a more stable product/market focus than low growth firms. Less than 17% of the HGFs substantially (or completely) changed their initial product/market focus, while this was 55% for the low-growth firms. On the other hand, around 34% of the HGFs reported no change at all in their initial product/market focus, while less than 6% of the low growth firms reported such stability. They thus suggest that HGFs tend to adhere to their initial product/market focus, while low growth firms change theirs. Chandler *et al.* (2014) expand this view, according to their research, HGFs search for opportunities in underserved and new markets or provide a ‘total customer solution’ which provides more than only the product/service. So, companies aiming for growth, it is recommended to stay close to the initial product/market focus, which a focus on opportunity recognition.

3.2.2.1.2 *Non-domestic sales / international operations*

HGFs tend to derive a significant percentage of their revenues from non-domestic sales (Feeser and Willard, 1990; Niosi, 2002; Mohr *et al.*, 2013; Gabrielsson *et al.*, 2014; Mason *et al.*, 2015; Román *et al.*, 2017). Whereas low growth firms were split evenly, half deriving significant revenues from foreign sales and half not, nearly seven times as many HGFs derive significant revenues from non-domestic sales as do not (Feeser and Willard, 1990). Mohr *et al.* (2013) also found significant results for international operations in HGFs. According to them international markets facilitate high-growth especially for technology-based firms with specialized products and customers, which also supports the work of Coeurduroy and Murray (2008) who argue there are reinforcing feedback effects between international operations and high-growth. But also in non-technology-based firms. Despite this, Bamiatzi and Kirchmaier (2014) indicated HGFs grew domestically, but were investigating HGFs in declining environments, which may declare those findings. This might imply that HGFs adopt a more ‘global’ perspective and compete across a broader range of markets and competitors than their low-growth counterparts. This ‘global’ perspective is also found by Mascarenhas *et al.* (2002) in their research towards the strategies of forty-five HGFs.

3.2.2.1.3 Flexible production process

A flexible production process enables a firm to rapidly adopt to changed needs and observed opportunities. In Littunen and Tohmo (2003) the most successful companies were characterized by such a flexible production process to complement an active market development strategy. In addition, all HGFs in Hinton and Hamilton (2013) gave credit of their growth success thanks to being both opportunity-oriented and flexible in the way that they had responded to perceived changes in technology or customer needs. Furthermore, they state that “increased operational flexibility leads to a more profitable business and improved cash flow, essential to any small business that wishes to grow with no or little external funding.” (p. 44). This idea is also supported by Du and Temouri (2015), which found that firms with a higher total factor productivity are more likely to become HGFs. To sustain HGF status, Gabrielson *et al.* (2014) also recommend for improvements in the production process, because several benefits, such as shorter lead times, decreased costs, reduced inventory expenses, inventory systems that make the production process more efficient and effective, thereby creating economies of scale and making room for further market expansion and growth (Chinta and Kloppenborg, 2010; Li *et al.*, 2011).

3.2.2.1.4 Customer knowledge

Customer knowledge refers to maintaining a keen sense of customer needs and desires. For HGFs it is common to use words like ‘trust’ and ‘relationship’ in the context of talking or surveying customers to better understand their needs (Barringer *et al.*, 2005). Hinton and Hamilton (2013) state that customer knowledge, obtained by close relationships, to a large extent direct future strategies since client needs and desires are what has to be satisfied. Mascarenhas *et al.* (2002) and Ng and Hamilton (2016) also acknowledge the importance of customer knowledge for HGFs. For example, one company organizes meetings on regular basis with customers, to better understand and satisfy their needs (p. 905). In Mascarenhas *et al.* (2002), HGFs select a small set of important clients, develop a closer relationship with those clients, and are thereafter better able to redesign their product offerings to provide more value to the customers. A great understanding of the clients a company wants to serve thus should result in a greater probability of becoming a HGF.

3.2.2.1.5 Minimal competition

Hinton and Hamilton (2013) found that only one of the HGFs in their research had more than three competitors. The HGFs are thus characterized by a unique position in the market, where competition is low. HGFs are apparently able to identify underserved markets from which they

can benefit. One of the interviewees state that they “currently have non [serious competitors]. We’ve positioned ourselves at the top of the food chain.” (Hinton and Hamilton, 2013, p.44). In addition, O’Regan *et al.* (2006) and Harms and Ehrmann (2009) also found that HGFs are opportunity oriented. O’Regan *et al.* (2006) found that 71.8 percent of the HGFs in their sample characterized themselves as ‘prospectors. ‘Prospectors’ are continually looking for new opportunities by scanning the environment and innovation to meet market needs. Harms and Ehrmann (2009) identified a positive relationship between ‘entrepreneurial management’ (EM) and growth. EM highlights the pursuit of opportunities as a key aspect of entrepreneurship. Those HGFs are thus able to position the company in the market in such a way that competition is low and unique value is created. By creating such a position in the market, the probability of becoming a HGF will increase. Despite their unique position, HGFs perceive their operating environment as turbulent and subject to competitive advances from overseas as well as substitute goods (O’Regan *et al.*, 2006).

3.2.2.2 Strategy

The next components regarding the product/service characteristics is ‘strategy’. Strategy is the primary building block of distinctiveness and competitive advantage. Strategy formulation is an organizational-level process that encompasses a range of activities firms engage in establishing and sustaining a competitive advantage.

3.2.2.2.1 Co-operation

The ‘co-operation’ factor is mentioned the most regarding firm growth. Co-operation can involve mergers and acquisitions, relationships with universities, alliances, and the number of establishments created. Feeser and Willard (1990) were the first ones hypothesizing that HGFs would be more acquisitive than low growth firms. They discovered that sixty percent of the low growth firms didn’t experience any acquisition activity, while around sixty percent of the HGFs did. Nevertheless, those findings weren’t significant, but company growth caused by acquisitions gained more attention. In addition, Mascarenhas *et al.* (2002), Arrighetti and Lasagni (2013) and Mason *et al.* (2015) also found that firms that have carried out mergers and acquisitions have a greater probability of being a HGF. Satterthwaite and Hamilton (2017) found that HGFs “on average operate through almost five times as many establishments than do non-HGFs in the same industry.” (p. 253). These high numbers of establishments per HGF include branch outlets or franchises. This seems to be a logic consequence of growth.

Littunen and Tohmo (2003) and Mohr *et al.* (2013) found that firms benefit from ‘co-operation between firms’ in achieving high-growth. Mohr *et al.* (2013) acknowledge the importance of

multiple alliances to the achieved ‘complementary resources’, of which both parties can benefit. According to them, especially technology-oriented and market-oriented alliances with small firms in the own industry seem to promote growth. The idea of ‘shared resources’ supports previous research from Barringer *et al.* (2005). They also found that HGFs more often participated in interorganizational relationships, to co-opt a portion of their resource needs from their partners, which is common for firms to accelerate their growth trajectories.

Finally, Savarese *et al.* (2016) related co-operation with universities and public research institutes to innovation. They found that the use of multiple external resources (obtained by co-operation with third parties) was most significant to firm growth.

In short, co-operation (or relationships between companies) can play an important role in achieving high-growth. Co-operation may be beneficial, since risk, costs, or resources can be shared with others.

3.2.2.2.2 ‘First to market’ or ‘early follower’ strategy

“A first-to-market’ strategy was followed by over 44 percent of the firms, while an additional 37 percent pursued an early follower strategy.” (Upton *et al.*, 2001). Thus, around 81 percent of the HGFs followed a rapid market timing strategy when introducing new products. Hinton and Hamilton (2013) also found that HGFs opportunity exploitation could be characterized as ‘pioneering’. These firms were no first-to-market with a new idea, but provide significant differentiation through creative promotion and/or by changing the focus of the service, which is more in line with an ‘early follower’ strategy. Contrary, Feeser and Willard (1990) found that also low-growth firms reported being early entrants into their chosen products/markets. This is not consistent with previous empirical findings, which may be caused by the sample of high-tech firms only, where markets can be defined narrow, since technologies can be used for a broad range of goals.

3.2.2.2.3 High-quality products/services

HGFs tend to pursue a high-quality strategy. Upton *et al.* (2001) found that over sixty-six percent of their HGFs used such as strategy. The majority of HGFs thus achieved fast growth by providing the customers superior products/services. Bamiatzi and Kirchmaier (2012) also found that HGFs prefer to build a “reputation for providing better quality rather than better prices.” (p. 277). Increased quality usually ensures the addition of something unique added. The importance of adding unique value is also underlined in similar research (Barringer *et al.*, 2005; Chandler *et al.*, 2014). When the creating of unique value succeed, customers are willing to be price takers, “because they perceived the value proposition to be worth the premium.”

(Hinton and Hamilton, 2013, p. 46). Román *et al.* (2017) found that HGFs are selling products for higher prices, which also reflects the relation between higher quality products and accelerated growth. A focus on quality and adding unique value are closely related to a differentiation strategy, which in turn enables firms to earn above-average returns (Porter, 1985; Ireland and Hitt, 1997). So, by implementing a differentiation strategy, chances of becoming a HGF will increase.

3.2.2.3. Innovation

The final component of the product/service characteristics is ‘innovation’. Joseph Schumpeter defined innovation first in 1930. Innovation has numerous implications. For example, innovation can be the introduction of a new product or modifications brought to an existing product, the discovery of a new market, or the development of new sources of supply with raw materials. The definition of innovation by Crossan and Apaydin (2010) was considered to be the most complete (Organisation for Economic Co-operation and Development, 2014). According to them, innovation is “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and the establishment of new management systems. It is both a process and an outcome.” So, this section will relate to improvements regarding to the product/service, as mentioned in the included articles.

3.2.2.3.1 Distribution innovation

Distribution innovation is about understanding the structure, dynamics, and underserved weakpoints in an existing distribution system and then exploiting them with an innovation. In doing this, firms should focus on particular suppliers and customers to strengthen the relationship and prevent competitor imitation (Niosi, 2002). The newly created distribution model is then leveraged internationally to gain market entry. Mascarenhas *et al.* (2002) and Goedhuys and Sleuwaegen (2016) also point out the importance of distribution innovation. Advantages of this are reduced transaction costs with infrastructure, geographical expansion to gain volume, and avoid delays in delivery. Firms using distribution innovation strategies benefit from those innovations and are more often related with high-growth.

3.2.2.3.2 Introduction of new or significantly improved products

The last innovation related factor is the introduction of new (or significantly improved) products. Goedhuys and Sleuwaegen (2010) found that product innovation make firms grow stronger by two percent points. The likelihood of becoming a HGF is much higher for companies when they are successfully introducing new or significantly improved products. The

well-established construct of ‘entrepreneurial orientation’ (EO) influences the proclivity to engage in innovations. So, firms with a high degree of EO tend to innovate more and therefore might achieve a higher share of sales generated by new products. Harms and Ehrmann (2009) found that such an ‘entrepreneurial orientation’ is positively related with growth. In line with Goedhuys and Sleuwaegen (2010), Mascarenhas *et al.* (2002) and Chandler *et al.* (2014) found that HGFs have products/services that differ systematically from the products/service offered by the other firms. This can be related to a differentiation strategy, as mentioned before, but also indicates that HGFs are able to sell exclusive products. When new or significantly improved products are developed, Niosi (2002), found that patenting those major novelties is a way to sustain the obtained advantages.

3.2.2.3.3 Use of new technologies

The first ‘innovation related’ factor to growth is the use of new technologies. Román *et al.* (2017) found that two-third of the HGFs in their sample use new technologies in their productive tasks, while none of the other firms were associated with the use of new technologies. Using new technologies may be connected to greater performance in production and higher quality. In Hinton and Hamilton (2013) the importance of using new technologies is also mentioned. One of the interviewees stated that “there is new technology coming all the time and we need to be abreast of that new technology in order to advise our customers.” (p.43).

3.2.2.3.4 Improvements in production processes

Bamiatzi and Kirchmaier (2014) observed that most of the HGFs examined are heavily focused on product, process or service innovations. Those HGFs devote a substantial percentage of annual revenues to constantly improve production processes and to implement new product development ideas. One of the interviewees stated that “constantly changing business is absolutely essential for [the] company’s success.” (p. 272). Process and product development are mutually supportive, since new products generate the need for new processes, while new processes provide prospects for new products. Gabrielsson *et al.* (2014) acknowledge the importance of engagement in university collaborations, but they deem that development activities aimed at improving production processes are of greater importance to achieve and sustain growth.

3.2.2.3.5 Internal R&D investments

Another often mentioned factor related to growth are R&D investments. Segarra and Teruel (2014) found that firms investing in R&D demonstrate a greater propensity in becoming a HGF. HGFs are also increasing their growth performance by investing intensely in R&D

(Mazzucato and Parris, 2016). Those R&D investments seem to be especially effective in intense competitive environments. Goedhuys and Sleuwaegen (2016) also acknowledge the importance of R&D investment to increase the probability of becoming a HGF. Nevertheless, R&D investments comes with risks, according to them, outcomes of R&D investments are hard to predict and the economic returns often subject to long time lags.

3.2.2.3.6 Use of external resources

Savarese *et al.* (2016) found that ‘openness’ is the most important variable of innovation related to firm growth. Openness refers to the use of multiple external resources (participation in exhibitions; use of databases; universities and public research institutes; supplier; consultant and sectoral firm associations; etc.). This combination of different types of knowledge is what spurs innovation and avoids lock-in. Ng and Hamilton (2016) found that HGFs in several instances “invited partners and their external network to collaborate in the R&D process to augment their innovation capability and maintain growth.” (p. 905). The use of external networks regarding innovation processes provides some competitive advantage, which isn’t easy to imitate.

3.4 External environment

The last component of the factors which can cause growth is the external environment. The external environment may be a factor on which a founder or company hasn’t much influence, and researchers found that external factors as industry, government, and even location doesn’t affect the chances of high-growth (Almus, 2002; Harms and Ehrmann, 2009; Lee, 2014; Mason *et al.*, 2015; Li *et al.*, 2016). Nevertheless, according Giner *et al.* (2017) there are some conditions of the external environment in which the chances of becoming a HGF are increased. These conditions relate to a companies’ physical location in a large urban area or/and in a technical district.

3.4.1 Located in large urban area

Li *et al.* (2016) and Giner *et al.* (2017) found that a firm’s location in a large urban area positively influences the probability of becoming a HGF. Previous research showed that large urban areas can facilitate for example in access to advanced services, highly skilled workers, knowledge, financial resources, risk capital firms, and high levels of public infrastructure and services (Fujita and Thisse, 2002; Rosenthal and Strange, 2004; Espitia-Escuer *et al.*, 2015).

3.4.2 Located in technical district

Another specific location which increases the likelihood of becoming a HGF is the establishment in a technical district (Giner *et al.*, 2017). Technical districts support competitive advantage through easier access to knowledge flows generated by firms, public and private research centers and training institutes.

3.5 Growth

Growth is what all of the above-mentioned factors should result in. The three components (founder characteristics, internal environment, and external environment) are divided into sub-categories and play all a different, but related, role to achieve company growth. There may be one or another factor more relevant or important for a certain company, but in fact should every factor result in company growth. Growth thus can be seen as the ‘outcome’ of all those factors mentioned above. In addition to Appendix A, figure 2 provides a visualization of how growth could be realized according the growth factors column from Appendix A. The three categories, as mentioned in the introduction (‘founder characteristics’, ‘internal environment’, and ‘external environment’), are the basis of this model. The model summarizes the findings from the literature in a visualized way. There are at first certain founder characteristics, which increases the probability of becoming a HGF. The box in the middle represents the product/service characteristics and how this should be managed by the people within the company. This thus represents the components which can be controlled and steered in the desired direction. At third, the external environment plays a role in becoming a HGF. For example, companies located in a large urban area experience a greater probability of becoming a HGF, than a company located in a rural area. When those three categories are in line with the conditions mentioned in the literature, company growth is more likely to occur.

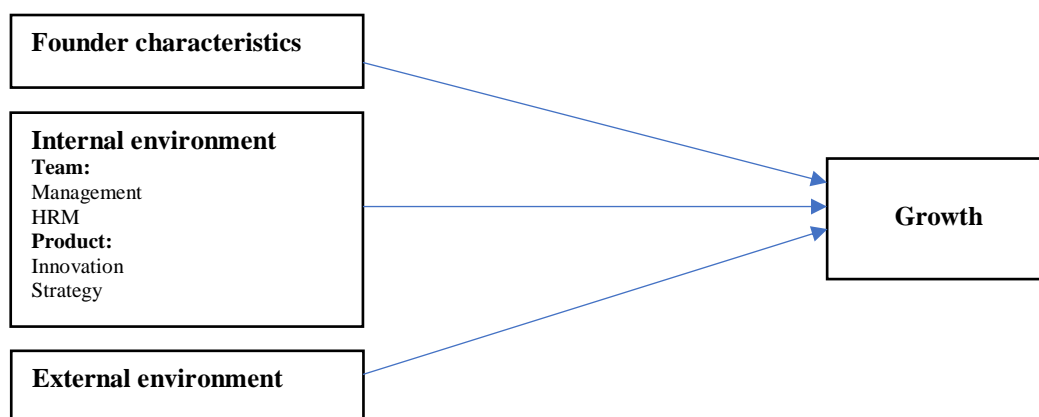


Figure 2. Visualization of growth related factors

4. Discussion

The goal of this review was to identify the factors that differentiate HGFs from their non- or low-growth counterparts. To identify the characteristics of those HGFs, the following research question was developed: “*What are the determinants of growth in HGFs?*”. In answering this question, this review presented literature regarding HGFs within a timespan from 1990 till 2017. The articles included performed empirical research towards the growth drivers of these successful companies. As mentioned before, the growth drivers obtained from the literature, were divided in three categories. Which are the 1) founder characteristics, 2) internal environment, and 3) external environment. This chapter is categorized as suggested by the PRISMA statement (2009) and will firstly provide a summary of the evidence found, afterwards the limitations of this systematic literature review will be indicated, and finally, the conclusions that can be drawn from this systematic literature review will be given.

4.1 Summary of evidence

The HGF literature has expanded last years, since their contribution to economic wealth and job creation is widely acknowledged nowadays. According the included literature, HGFs differentiate from their non- or low-growth counterparts regarding the composition of the above-mentioned categories. As shown in the result section, the composition of these categories relates to the founder characteristics, internal environment, and external environment. The growth factors identified are characterized by a certain interrelationship. The presence of a specific growth factor, promotes the presence of another related growth factor. For example, consistency in decision-making processes is likely to occur when the company also has a detailed long-range plan. So, the growth factors, as identified by the included literature, demonstrate interrelationship to a certain extent.

When investigating the growth factors in more detail, we identify differences between HGFs and other firms by six founder-related factors, twenty-one factors related to the internal environment, and two external environmental factors.

The six founder characteristics distinguishing HGFs from the non- or low-growth counterparts relate to affinity with the specific product/market/technology, obtained experience, and higher education. Furthermore, HGFs are more often founded by a team of at least two people in comparison with other firms. It seems obvious that these factors contribute to a greater probability of becoming successful, since more knowledge and experience is obtained by, for example, university degrees and other managerial functions. Higher education and experience,

also shape a relevant social network from which can be benefited. The advantages of team-founded companies over companies with one founder seems self-evident as well, since having a range of people experience a greater amount of knowledge, skills, experiences, and network, and therefore allow better decision making. The other founder-related characteristics relate to their affinity with the product, market, or technology. Founders with affinity for the product, market, or technology, obtained in prior industrial experience for example, are willing to make significant sacrifices in realizing their business plans. Founder characteristics that aren't mentioned in the included literature, but are by Audretsch (2012), are related to gender and class. According to Audretsch' findings, males with a middle- or upper-lower-class background experience a greater probability of becoming a HGF. Also, specific personality characteristics aren't mentioned in the included literature, which may affect an entrepreneurs' success. So, the impact of those factors is not validated in this review, but nevertheless also may influence entrepreneurial success. Thus, according the included literature, a group of at least two higher educated founders with prior industrial and managerial experience, experience a greater probability of becoming successful, and thus reach high-growth.

The growth factors related to the internal environment of a company are more diversified and contribute the greatest to the identified growth factors in this systematic literature review (twenty-one of the total twenty-nine growth factors in this literature review are related to the internal environment of a company). This also is explicable, since companies are able to organize the company towards own wishes and preferences. Companies also have less influence on the external environment or founder characteristics, since these are 'given' and usually can't be affected by a single company. The included literature thus puts a lot of attention to the factors on which a company has influence on. A companies' internal environment is distinguished in team characteristics and product/service characteristics. The team characteristics focusses towards the human side of a company, from rewarding well-performing employees to the composition of the decision-making team. Overarching elements of these human-related growth factors is 'openness' towards employees in several processes. Employees are for example involved in decision-making processes, stimulated to contribute to the growth-oriented vision, trained on the job, and rewarded for their performances by financial incentives or stock options. Thus, the conditions regarding the human side of a company should mainly focus on providing the employees a significant amount of responsibility, involvement in decision-making processes, and opportunities for personal development. By this, employees stay motivated to contribute to the organizational goals. Surprisingly, the importance of employee selection as a contribution for high-growth experienced little attention in this review,

while this is an often-mentioned growth factor in the management literature. A well-working employee selection process results in the engagement of good talent and secures the transfer of the firm's culture or ideology to new recruits. Hambrick and Crozier (1985) were among the first to identify the importance of such effective HRM practices for high-growth. The phenomenon of employee selection related to HGFs is thus also not a 'young' or 'new' concept in relationship with high-growth. Therefore, it is interesting to investigate the relationship of employee selection processes in HGFs and in the low- or normal-growth companies.

When looking to the growth factors related to the product/service offered by the HGFs, it is perceived that uniqueness, flexibility, and quality are the main contributors to success. The growth factors identified to promote unique and high quality products or services relate to a deep understanding of customer needs and desires, improvements in production processes, and the use of new technologies. Offering unique and high quality products, also relates to other growth factors. Companies with products of this kind thus experience first-mover advantages, with minimal competition, and are forced to international operations due the lack of substitutes. In addition, organizational flexibility is of great importance since customer needs and desires are constantly changing. Companies should thus be able to rapidly and smoothly adopt new technologies, and other innovations. Flexibility in those organizational processes could be stimulated by co-operation between companies, universities, public research institutes, etc. The main advantage of co-operation is that risks, costs, and resources can be shared, and thus are mutually complementing. Those findings relating the controllable aspects of a company are mainly in line with findings in Audretsch (2012) and Wennberg (2013).

Finally, and as mentioned before, companies have almost no influence in shaping the external environment. The external environment often is analyzed by a PESTEL analysis, which monitors factors that have an impact on a company. Those factors relate to politics, economy, society, technology, environment, and legality. It thus is more how companies are responding to changes and developments in their external environment. Despite this, the included literature mentions two external factors that should contribute to growth. Those factors involve a company's physical location in a large urban area and in a technical district. Such a location facilitates the access to advanced services, highly skilled workers, knowledge, financial resources, and high levels of public infrastructure and services.

Summarizing, the growth-factors are obtained from the HGF literature over the years (1990 till 2017) and demonstrate the differentiators of HGFs compared to the firms showing normal- or low-growth trends. The growth-factors identified demonstrate a significant portion of interrelation, and are in general mutually reinforcing. Certain growth factors may be more

relevant for a certain company than another, but in general should all the above-mentioned growth-factors contribute to company growth. And since growth is one of the most prominent business objectives of many firms, those factors should support companies in realizing their growth ambitions and thus decrease the risk of losing their competitive edge, customers, market valuation, investment capital and resources.

4.2 Limitations

As in all cases, this systematic literature review comes with several limitations. This section discusses limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). This categorization is also suggested by Liberati *et al.* (2009).

First the limitations regarding the review-level will be outlined, since the selection procedure of inclusion is determinative for the outcome of the study. The studies included in this systematic literature review are obtained from online databases to which the University of Twente provides access to. Included articles should indicate what factors or determinants contribute to firm growth, or what differentiates HGFs from their non- or low-growth counterparts. This selection procedure was conducted manually, and lacks a process of revising by a second researcher, therefore it is possible that a certain study is not included. The idea of a systematic literature review is that another researcher would include the same articles, when using the same databases, but since this process is done individually, this can't be guaranteed. Limitations regarding study- and outcome-level involve differences in the journals in which the studies are published and the definition of HGFs used by the researchers, as well as the countries and/or industries the research was subjected to. Therefore, this systematic literature review may not be that specific for certain countries and/or industries, and thus gains less generalizability. Half of the studies included were published in one of the leading journals in management, entrepreneurship, and innovation, which ensures high quality. This may be problematic since the contribution to growth may be more widely acknowledged and supported for those studies in leading journals than those in other journals. The use of different definitions of HGFs also limits the strength of the findings. Firms count as a HGF firm under different circumstances when different definitions are used. For example, included studies differ between relative- and absolute growth measures, as well as the type of growth measured (in terms of employees, productivity, or sales). The way the observed growth factors contribute to growth remains therefore unknown. It is thus possible that certain growth factors mainly influence employee growth, while other growth factors have a strong contribution to sales. So,

the outcome of implementing a specific growth factor may, on beforehand, be unknown. Finally, research performed in different countries, and industries, may also influence the strength of the relevance of the findings for companies in a specific country or industry. Articles included in this systematic literature review investigated growth factors of HGFs in each continent, and in different industries. Growth factors indicated by Román *et al.* (2017) in the Chilean wine-industry may for example be less relevant for the manufacturing firms in Italy investigated by Arrighetti and Lasagni (2013). The inconsistency in the observed countries and industries has consequences in implementing these growth factors for a specific company, since it may be less relevant for the country or industry in which that company is operating. This systematic literature review thus involves research from numerous countries and industries worldwide, which may provide an extensive view, but alerts companies at the same time, since a company has to implement these growth factors in such a way it's relevant and beneficial for its contextual environment.

4.3 Conclusions

HGFs have been consistently found in the literature to contribute a large share of job creation and economic wealth (Storey *et al.*, 1987; Westhead and Birley, 1995; Gallagher and Miller, 1991; McMahon, 1998). Such HGFs therefore contribute in the development of policies regarding reducing unemployment and foster economic growth. To formulate policy to promote HGFs, the factors that are differentiating these HGFs from their low- or normal-growth counterparts has to be identified. This systematic literature review has reviewed the extant literature attempting to identify these factors leading to high-growth. The studies included are almost exclusively concerned with firm- and founder-specific characteristics. In addition, studies concerned locational determinants of high-growth firms were scarce, but gained some attention in this systematic literature review. To outline the determinants of high-growth, distinction in three categories was made: founder characteristics, internal environment, and external environment. The 'growth-factors' indicated by the studies included, thus suited in one of the three categories.

There were six founder-characteristics identified that increase the probability of becoming a HGF, these are: higher education, team-founded, managerial experience, affinity with product/market/technology, intrinsic motivation, and bring in 'professionals'. The internal environment is in turn divided in two 'subthemes': team characteristics and product/service characteristics. The team characteristics of HGFs relate to aspects of the managerial team itself,

and Human Resource Management. The growth determinants of this ‘human-side’ of a company are: commitment to growth, consistency in decision-making, detailed long-range planning, group management style, employee training, and rewarding well-performing employees. The product/service characteristics of HGFs relate at first to the product/service, but also to strategy and innovation. The growth factors indicated by the literature relating to the product/service sold by a company are: customer knowledge, flexible production processes, stable product/market focus, minimal competition, international operations, a ‘*first to market*’ or ‘*early follower*’ strategy, products/services of high-quality, co-operation, use of new technologies, improvements in production processes, internal R&D investments, and the use of external resources. The third category relates to a companies’ external environment, and more specific, to a companies’ physical location. According the literature there are two factors that increase the probability of becoming a HGF, these are the location in a large urban area, and the location in a technical district.

The body of research relating to HGFs is increased extensively over the last years. But, as indicated before in this study, remains relatively fragmented because of the use of different definitions of HGFs. This study aims to foster the discussion around the fragmented literature of HGFs and provokes further research related to the growth factors identified, where both supporting, and rejecting, evidence is appreciated.

By conducting this systematic literature review, twenty-nine growth factors were identified. These growth factors were obtained from studies in different countries and/or industries, which may have consequences regarding the relevance for a certain growth-factor. To avoid implementing a growth-factor which doesn’t contribute to growth, it is recommended to first research why and how a specific growth factor can support the company in their growth objective.

5. Practical implications and future research

This systematic literature review, reviewed research to HGFs and their growth determinants from a wide timespan (1990 to 2017). The identified growth determinants can be useful for multiple parties, such as companies, policy makers, and research institutes. In the first place, the findings can support young companies in their objective to grow. The company should then investigate how a certain growth factor contributes to growth in their specific context. Also, other companies can benefit from these findings, since they can evaluate their own performance in comparison with the determinants of growth as identified in the literature. Second, since those HGFs significantly contribute to economic wealth and job creation, and their growth determinants are identified, policy-makers should be able to develop policies to promote the increase of these HGFs. At third, the findings of this study may also be relevant for research institutes, or other kind of research, since there are probably more determinants leading to growth. This systematic literature review thus can be expanded with these newly discovered growth determinants. Potential, certain growth determinants need to be adjusted, or even rejected, since there is found no evidence for their contribution to growth in future research. The findings of this systematic literature review thus have multiple implications. Also, the findings aren't a 'guideline' or warrant to success, but increase the probability of becoming a HGF, and thus promotes company growth.

5.1 Proposed further research

5.1.1 Framework

Additional research towards the identified growth determinants in this systematic literature review is needed, since the combination of the growth determinants isn't validated yet. The included literature contains research to a wide variety of countries and industries, and thus may the growth determinants not be relevant for every company. There should be determinants more specific and relevant depending a companies' constitutional environment. So, the interpretation of figure 4 (see Appendix B) is sensitive to changes based on the experiences companies had during their growth phases and specific to their industry or region. It thus is possible that certain growth determinants, as identified in the literature have no impact to certain companies, or there are growth factors missing.

5.1.2 Implications for practice

To indicate the relevance of the identified determinants of growth, or if certain growth determinants are still missing, a balanced scorecard is developed. Balanced scorecards are both a means of processing data and a tool for implementing a management philosophy. A balanced

scorecard system is designed to achieve multiple goals: align strategy and operations, facilitate communication, visualize data in a dynamic and clear manner, objectively identify opportunities for improvement, and support decision making (Li and Dalton, 2003). The first generation of balanced scorecard designs use a ‘four perspective’ approach to identify what measures to use to track the implementation of strategy. These perspectives are in general: financial, customer, internal business processes, and learning and growth. Figure 3 represents the framework of such a balanced scorecard.

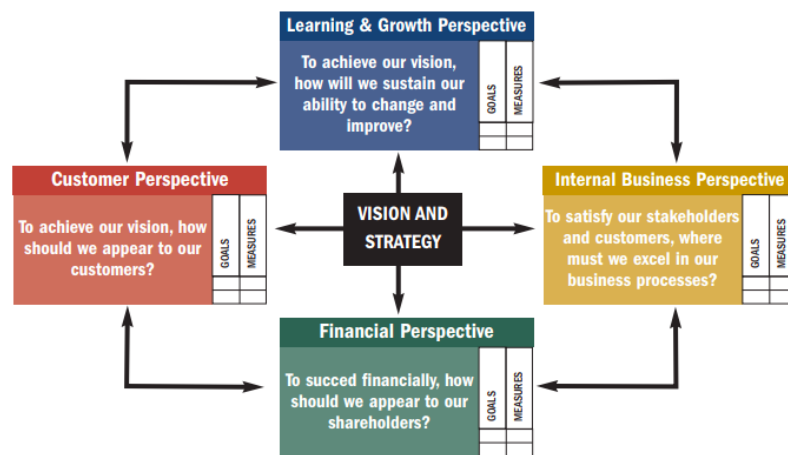


Figure 3. ‘General framework’ of a balanced scorecard

Since this research is about HGFs, the developed framework will differentiate from the ‘general framework’ of a balanced scorecard. This systematic literature review identified twenty-nine factors associated with HGFs, divided into three categories. High-growth status should thus be the result, or outcome, of the composition of the three categories as proposed by the literature. Thus, founder characteristics, internal environment, and external environment should represent a composition of the identified growth determinants. To determine if, or to what extent, a company is a HGF, figure 4 is developed (see Appendix B). Figure 4 represents the factors associated with HGFs in the included literature. Therefore, the more familiar a company is with those factors, the higher the probability is of being a HGF.

To support managers with a tool to evaluate their company’s performance in terms of high-growth, a balanced scorecard for HGFs is developed (see Appendix C). The balanced scorecard for HGFs is divided into the three categories, with the corresponding subthemes, as identified in the literature review. Managers are thus able to evaluate their performance concerning each category individually, and therefore exactly know on which to focus regarding improvements. The statements in Appendix C are constructed as a consequence of an operationalization process. The growth determinants, as identified in the literature review, are defined in a

measurable way. The process of operationalization thus defines a tenuous concept so as to make it clearly distinguishable, measureable, and understandable by empirical observation. In a broader sense, it defines the extension of a concept. For example, the growth determinant ‘affinity with the product/market/technology’, as identified as one of the founder characteristics related to HGFs, could be operationalized by the indicators ‘prior industrial experience’ or ‘preferences’. Thus, the concepts (growth factors) are transformed into distinguishable, measureable, and understandable statements by the process of operationalization.

After completing the balanced scorecard, the concerning company will be evaluated with a score. These scores vary between ‘100’ and ‘-100’, where a score of 100 is the maximum score (and -100 thus is the lowest possible score). So, a score of 100 would mean that the concerning company meets the characteristics of being a HGF regarding every aspect. The points are ‘collected’ while answering the fifty statements presented in Appendix C. So, when a manager totally agrees upon a statement, 2 points will be given. When the statement is unfamiliar to the manager and the company, and they thus totally disagree, -2 points will be given. When a company scores at least 50 points, it is assumable that the company is a HGF. The argument for the selected threshold of 50 points is that on average each statement is evaluated with 1 point, and thus all the statements are familiar to the companies. Since this balanced scorecard is only a proposal for the practical use of the findings from this study, the threshold of 50 points may be adjusted afterwards. Actual HGFs (for example, according to the OECD (2010) definition) could complete the balanced scorecard, and depending on their scores, the threshold of the probability of a company being a HGF could be adjusted.

To summarize, the balanced scorecard in Appendix C is not a final version. Depending on the data collected from the respondents, changes could be made. As mentioned in the limitations of this systematic literature review, the balanced scorecard is thus sensitive to changes. Managers may acknowledge importance to factors leading to their growth that are missing. Another possibility is that a certain growth driver isn’t relevant for a specific company, and thus could be removed. When managers use the balanced scorecard, data will be generated from which patterns, specific to a country or industry, can be identified. This could result in an improved balance scorecard for HGFs regarding a specific industry or country.

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Appendix A: Empirical studies on high-growth firms (in chronological order)

Author(s) and (year)	Sample	High-growth definition	Theory	Type of research (quantitative or qualitative)	Findings	Success factors
Feeser and Willard (1990)	78 high-technology firms (SIC 3573 industry), from which 39 high-growth firms (<i>Inc.</i> 's 100 list ³) and 39 low-growth firms (Standard & Poor's and Dun & Bradstreet's listings)	HGF when listed in <i>Inc.</i> 's 100 list in 1980 or 1986 ⁴	1) Technical entrepreneurs often start businesses closely related to their previous employment (Cooper, 1986; Feeser, 1987). 2) Most of HGFs are started as partnerships (Hartman, 1986). 3) Successful growth firms concentrate on their initial product/focus/technology and introduced product enhancements related to those areas (Roberts & Berry (1985). 4) In high tech, pioneers get arrows in their backs; those who follow get the profits (Kneale, 1987)	Quantitative	HGFs are more likely than low growth firms to have products/markets/technologies closely related to those of their founders' incubator organizations. Larger founding teams enhance the probability of a firm's success. HGFs also have a more stable product/market focus than low growth firms. No support was found for HGFs being market pioneers, HGFs (and low-growth firms) are mostly reporting they're 'early entrants'. HGFs are more likely to derive a significantly percentage of their revenues from non-domestic sales than low-growth firms. The assumption that HGFs are more acquisitive than low-growth firms is not supported.	Products/markets/technologies closely related to the founders' incubator organization, having more members on the start-up team (at least 2), a stable product/market focus, deriving a significant percentage of revenues from non-domestic sales
Willard <i>et al.</i> (1992)	155 (mostly high-tech) manufacturing firms taken from <i>Inc.</i> 's 1985, 1986, 1989, and 1990 lists of the 100 fastest-growing publicly held firms in the United States	HGF when eligible for listing in the <i>Inc.</i> 100	The assumption that non-founder (presumably professionally) managed rapidly growing manufacturing firms outperform similar firms headed by founder CEOs (Buchele, 1967; Clifford & Cavanaugh, 1985)	Quantitative	'Professionally managed' or non-founder managed HGFs aren't outperforming (in a statistically significant sense) HGFs in which the founder is CEO. The applicability of conventional wisdom regarding the 'leadership crisis' in HGFs may no longer be valid, if it ever was	HGFs can be successfully ran by both the founder, as well as a 'professional' (non-founder) CEO
Upton <i>et al.</i> (2001)	65 fast-growing family firms ⁵ , of which data is derived from a survey of the regional and national winners of the ' <i>Ernst & Young Entrepreneur of the Year Program</i> '	HGF when winner of regional or national ' <i>Ernst & Young Entrepreneur of the Year Program</i> '. Those winners represent the fastest growing firms in the United States	Family firms must consider growth strategies to avoid the decline and loss of the family business, to promote continuity and family unity, and to save jobs and create wealth (Poza, 1989)	Quantitative	Family HGFs express their vision and plans in formal business plans with a three-year (or longer) planning horizon. These plans are sufficiently detailed to enable them to tie back into performance and adjust management compensation when necessary. Those plans are compared with actual performance and shared with all employees. Most family HGFs chose for a 'high quality' strategy and	Adopt detailed long-range planning (with involvement of the board of directors), communicate the plan (and current performance in comparison with the plan) with all employees on a

³ The May issue of the *Inc.* lists the 100 fastest-growing publicly held firms in the United States annually.

⁴ To be eligible for listing in the *Inc.* 100, firms must meet the following criteria: 1) the firm must be independent and publicly held in the year it is listed, 2) the firm must have a sales history of at least five years, 3) sales in the initial year of that five-year period must be at least \$100,000, but no more than \$25 million, and 4) sales cannot decline between years four and five.

⁵ Upton *et al.* define a business as a 'family business' when: 1) family ownership and control; 2) family influence on decision-making; and 3) intent to transfer the firm to the next generation (Sharma *et al.*, 1997).

					describe themselves as ‘first to market’ or ‘early followers’	regular basis, develop a strategy on the motivation for quality and reputation, determine whether benefits could be derived from a ‘first to market’ or ‘early follower’ strategy when introducing new products
Mascarenhas <i>et al.</i> (2002)	45 rapidly growing firms from a broad range of industries. The companies studied were identified from multiple sources ⁶ .	The 45 firms studied from these lists: 1) sustained rapid growth over 3 years (1995-1998), 2) maintained strong profitability or stock market returns, and 3) covered publically traded/private held, service/manufacturing, and consumer/industrial product dimensions in order to capture diverse growth strategies	Literature gap, numerous firms enter growth situations based on incorrect premises only to endure long painful losses and ultimately embarrassing, costly, and sometimes fatal exits (Aaker and Day, 1986). Therefore Mascarenhas <i>et al.</i> (2002) try to identify common strategies that lead to sustainable growth	Qualitative	Rapid firm growth is achieved by implementing one of the following strategies: 1) product proliferation, 2) mass market development, 3) increasing value to select customers, 4) distribution innovation, and 5) acquisition and consolidation. While implementing one of the five strategies, firms boosted their performance by being an early mover, and continuously fine tuning their product offering and market position	There are five strategies causing high-growth, these strategies are: 1) product proliferation, 2) mass market development, 3) increasing value to select customers, 4) distribution innovation, and 5) acquisition and consolidation
Niosi (2002)	30 fast-growing Canadian biotechnology firms and a similar sample of companies experiencing little or no growth	Growth of 50% and over, either of total employment and/or sales between 1994 and 1998; only firms having crossed the threshold of 25 employees and/or 2 million Canadian dollars in sales qualified as rapid growth enterprises	Their theoretical framework is based on competence, and evolutionary theories of the firm (such as the resource-based and competencies theories of the firm	Quantitative	Rapid growth is associated with a certain age of the firm, usually over 10 years. The firms are also operating in the area of human health products, which is an area without the problems of consumer acceptance. Furthermore, HGFs adopt a strategy of patenting major novelties, searched and obtained venture capital financing, and targeted large markets by exporting their products, usually through alliances with foreign pharmaceutical corporations. Internal R&D capabilities avoided delays in delivering their products, or in moving results from one phase to the next	Strategies of patenting major novelties, search and obtained venture capital financing, targeted large markets by exporting products, usually through alliances. Internal R&D capabilities to avoid delays in delivery
Almus (2002)	3,702 firms from Eastern and Western Germany. These firms operate in the manufacturing, construction, trade or selected branches of the service sector and don't have the legal forms of freelance, registered society or registered cooperative	A firm is a fast-growing one if it belongs to the upper 5 or 10% of the Birch (1979) Index distribution ⁷	Firm growth explained by Storey's (1994) fast growth hypotheses. Storey indicates three categories of factors which influence the probability that a firm becomes a fast-growing one. These are 1) entrepreneurial characteristics, 2) strategic factors, and 3) firm characteristics	Quantitative	Regarding Eastern and Western Germany, there are no signs found that technology-intensive manufacturing branches and knowledge-based business-related service sectors consist of firms that have better chances to grow fast than other economic sectors. For Eastern Germany, a ‘first mover advantage’ occurred in 1990, after the fall of the Berlin Wall. Firms founded in 1990 experienced a greater performance than the firms founded in 1992 and 1993	In the case of Germany, the probability of becoming a fast-growing firm isn't industry/sector dependent. There are no signs that technology-intensive manufacturing branches and knowledge-based business-related service sectors have better chances to grow fast than other economic sectors

⁶ Sources included ‘www.marketguide.com’, ‘INC.’, and *Business Week* lists of rapidly growing companies.

⁷ The Birch Index (BI) is a combined measure of absolute and relative growth. This measure reduces the bias towards any particular firm size.

Littunen and Tohmo (2003)	The sample consists of 138 metal-based manufacturing and 62 business service firms from Finland. At the seven-year follow-up 86 firms had survival, 55 firms had closed down and 59 firms refused to participate in the follow-up. The study concentrates on the 86 surviving firms (65% business service firms, 35% metal-based manufacturing)	High-growth firms were identified on the basis of two criteria: 1) More than doubling sales over the 1990-1997 period (1990 = base accounting year beginning in month of start-up); 2) Reaching a minimum sales turnover of FIM 500,000 (≈\$100,000)	Focus on Storey's (1994) key elements of small firm growth. These components are: 1) the starting resources of the entrepreneur(s), 2) the characteristics of the firm, and 3) the types of strategy associated with growth	Quantitative and qualitative	Motives for starting-up a business for owners of high-growth business are more frequently cited as 'positive situational' and 'business opportunities'. High-growth firms don't count solely on the entrepreneurs' resources, key affairs are managed by a group of people (group management style). The members of this entrepreneurial team participate directly in the activities and handle interest group relations. Entrepreneurial teams bring great competitive advantage, innovations and efficiency. Another finding is the importance of co-operation between firms and changes in external personal networks. Regarding strategy, growth could not be explained by a single type of strategy. Nevertheless, high-growth firms in the sample were characterised by an ability to make changes in their production process to complement an active market development strategy	Positive situational and 'pull' factors such as business opportunities as motivation for starting-up the firm. Expanding the entrepreneurial team by using a 'group management style'. Co-operation between firms and changes in external personal networks. Create the ability to make changes in the production process to complement an active market development strategy
Barringer <i>et al.</i> (2005)	50 rapid-growth firms and 50 slow-growth firms coming from a randomly selected set of narrative case studies provided by the Ewing Marion Kauffman Foundation	A rapid-growth firm is defined as one with a 3-year compound annual growth rate of 80% or higher (slow-growth firm are those firms with a 3-year compound annual growth rate of 35% or lower)	Only one in seven companies generate sustained, profitable growth. The figures are even lower for rapid-growth firms (Zook and Allen, 1999)	Quantitative	Rapid-growth firms differ from the slow-growth firms in four categories, which are: founder characteristics, firm attributes, business practices, and HRM practices. Founders of rapid-growth firms differ from founders of low-growth firms on college education, entrepreneurial story and prior industry experience. For firm attributes, rapid-growth firms distinguish regarding the commitment on growth, growth-oriented vision, and participation in interorganizational relationships. Creating unique value and customer knowledge are the two business practices which distinguishes rapid-growth firms from low-growth firms. For HRM practices, rapid-growth firms differ in employee development, training, financial incentives, and stock options	Founder characteristics (relevant industry experience, college education, entrepreneurial story), Firm attributes (commitment to growth, growth-oriented vision, participation in interorganizational relationships), business practices (create unique value, customer knowledge), and HRM practices (employee development, training, financial incentives, stock options)
Perks (2006)	4 German and 2 French fast-growth medium-sized (50-499 employees) firms from a dataset of 500 fast growth firms (Europe's 500, 2005). The firms are independent, that is not a subsidiary of another company or group and no external shareholder has more than 50% of the company's equity	Fast-growth firm when: medium-sized (50-499 employees) and grew in employment by an annual average of at least 20% over a 5-year period	1) Fast-growth firms are more likely to engage in strategic planning in contrast to slow growth firms (Barringer <i>et al.</i> , 1998; Eggers, 1999; Siegel <i>et al.</i> 1993). 2) Founders of fast growth small to medium-sized have their own unique strategic management style based on their personal preferences, prejudices and attitudes (Storey, 1998)	Qualitative	Fast-growth medium-sized firms 'use' a hybrid strategic management style. For some firms the hybrid style is a synthesis of the elements of <i>small firms</i> and entrepreneurial orientation, rarely using formalized strategic management concepts, retain simple organizational structures, and are led by an opportunity-seeking prospector able to engage the energy of others in a focus on adapting to customer needs. Alternatively, the hybrid is a synthesis of <i>large firms</i> and entrepreneurial orientation, in which the firms adopt some of the organizational and formalized planning elements of large firms and retain the attributes of the entrepreneurially oriented firm. The strategic management styles are shaped in line with the preferences, prejudices and attitudes of the entrepreneur and become 'unique'	Unique strategic management styles. As a consequence of adopting a hybrid strategic management style, shaped by the entrepreneurs' preferences, prejudices, and attitudes

O'Regan <i>et al.</i> (2006)	207 electronic/engineering SMEs from the UK, data gathered by means of a self-reporting survey questionnaire	HGFs are those firms having a sales growth rate of at least 30 percent per year for three or more consecutive years	The industrial positioning and resource-based view (McNamara <i>et al.</i> , 2003)	Quantitative	HGFs are sales oriented rather than innovation oriented. The vast majority of the HGFs in the sample regarded themselves as prospectors, rather than defenders, analysers or reactors. High growth is also explained by the environment (turbulent and subject to competitive advances from overseas as well as substitute goods) and actively using e-commerce	Prospector strategy, turbulent environment with intense competition, actively using e-commerce
Harms and Ehrmann (2009)	64 German Gazelle, retrieved from Germany's 2003 Entrepreneur-of-the-Year contest	HGF when inclusion in Germany's 2003 Entrepreneur-of-the-Year contest. The contest is open to all independently held firms with a proven track record of organic growth registered in Germany. Finalists have to meet two requirements: The firms must rank among the top growth performers based on the Birch Index, and a group of high-ranking experts from academia and business must agree on the sustainability of the business model	Performance is influenced by the entrepreneur, firm-related aspects, strategy, and the environment (Storey, 1994; Mugler, 1998)	Quantitative	Age, size, and industry aren't related to innovativeness or growth. Entrepreneurial orientation (EO) and entrepreneurial management (EM) didn't have a significant relationship with innovativeness, but did have with growth. So, the relationships between entrepreneurship and growth are stronger than the relationships between entrepreneurship and innovativeness. EO and EM thus are more relevant in chasing growth than innovativeness	EO (influence the proclivity to engage in innovations) and EM (conceptualisation of entrepreneurship as an opportunity-oriented strategic approach) are stronger associated with growth than with innovativeness
Goedhuys and Sleuwaegen (2010)	947 entrepreneurial firms (of which 205 high-growth firms) with 5 to 500 employees in 11 understudied SSA (Sub-Saharan African) countries ⁸ , active in food processing (235 firms), wood, wood products and furniture (205 firms), garments (154 firms), and metal products (104 firms)	High-growth firm when a firm had 5 (or more) employees in 2002, and grew by at least 10% annually in employees over the period 2002-2005	Gap in literature. High-growth firms in advanced economies experienced a lot of attention already, whilst this isn't the case for developing countries, including Sub-Saharan Africa (SSA)	Quantitative	Firms that actively service their product markets experience a much higher likelihood of becoming a high-growth firm. They successfully introduce new or significantly improved products and invest in own transportation for delivery or linking with clients through their own websites. A number of firm-specific human capital variables, including higher education of the manager and training of the labour force, don't have a stretching effect but rather a compressing effect on the distribution	Actively service the product markets, by successfully introducing new or significantly improved products and investing in own transportation for delivery or linking with clients through their own websites
Walker (2010)	50 'high-growth' and 50 'low-growth' Australian firms drawn from the Connect4 database. High-growth firms were those in GICS 3520 (Pharmaceuticals, Biotechnology and Life Sciences),	HGF based on industry sector. Selected on the basis that their industry price/book ratios represented high extremes respectively	In Australia, managers of high-growth firms are more likely to work towards improving performance when their remuneration is performance-based, assuming that performance measures are based on	Quantitative	High-growth firms make more intensive use of performance-based compensation. The findings also indicate that high-growth firms rely more on market-based and non-financial performance standards than firms in the low-growth group. The results furthermore indicate	High-growth firms make more intensive use of performance-based compensation

⁸ The 11 understudied SSA countries are Angola, Botswana, Burundi, Congo D.R., the Gambia, Guinea, Guinea Bissau, Namibia, Rwanda, Swaziland, and Tanzania.

	4510 (Software and Services), 4520 (Technology Hardware and Equipment). Low-growth firms were drawn from GICS 2010 (Capital Goods), 2520 (Consumer Durables and Apparel), 2510 (Automobiles and Components), and 5510 (Utilities)		accounting metrics (Hutchinson and Gul, 2004)		that performance-based pay is positively related with firm size and high-growth	
Mohr <i>et al.</i> (2013)	2,974 high-technology firms (of which 165 high-growth firms) active in and around Cambridge, UK. Data derived from the Cambridge Technology Enterprise Data set (CamTED)	High-growth firm when firm had at least 10 employees at the beginning of the measurement period with an average annualized growth in employment greater than 20% per annum, over a three-year period (OECD definition ⁹)	Enterprises grow when they forge effective relationships. Such relationships range from supplier/buyer exchanges to more formal alliances, joint ventures, and mergers (Barringer <i>et al.</i> , 2005; Arikan and McGahan, 2010; Kale and Singh, 2007; Villalonga and McGahan, 2005; Wang and Zajac, 2007)	Quantitative	High-growth firms are characterized by 1) international operations (international markets facilitate high growth especially for technology-based firms with specialized products and customers), 2) spin-off origin (a proxy for alliance relations with the organization of origin), 3) multiple alliances to access complementary resources early on (especially with firms in the same industry)	International operations, spin-off activity, alliance portfolio
Arrighetti and Lasagni (2013)	777 Italian manufacturing firms obtained by matching and merging data from the VIII and IX waves of the Survey on Manufacturing Firms collected by Capitalia. The data span the 1998-2003 period	All firms belonging to the top 10% (two different measures: in terms of employment, and in terms of sales) of the fastest-growing firms in a five-year period are HGFs.	1) There is no significant relationship among the level of innovation in the firm, the technological intensity of the sector, and rapid growth (Wyrwich, 2010), 2) Firm growth is negatively associated with initial size (Arrighetti and Ninni, 2009; Becchetti and Trovato, 2002; Correa Rodriguez <i>et al.</i> , 2003; Goddard <i>et al.</i> , 2002; Oliveira and Fortunato, 2006; Teruel-Carrizosa, 2010), 3) HGFs are more likely to be young (Anyadike-Danes <i>et al.</i> , 2009), 4) Increasing productivity doesn't guarantee growth (Botazzi <i>et al.</i> , 2002; Botazzi <i>et al.</i> , 2006), 5) access to credit and the availability of internal financial resources has a decisive impact on growth (Carpenter and Petersen, 2002; Huynh and Petrunia, 2010), 6) firms owned and managed by one or few persons tend to be more flexible than those with multiple owners (Parker <i>et al.</i> , 2010)	Quantitative	Firms that have carried out mergers and acquisitions have a greater probability of being a HGF. Rapid growth is often tied to a favourable market trend. HGFs are not found to be concentrated in specific industries. Younger firms have a significant higher probability of becoming a HGF. More productive firms are more likely HGFs, while more profitable firms or those with more solid finances aren't more likely to be HGFs. Also, HGFs are more likely to have concentrated ownership (which suggests that HGFs rely on rapid and prompt decision-making processes to a greater extent than other firms). HGFs also tend to have more highly educated and trained workforces than other firms (which increases firm's ability to recognise market opportunities and exploit them)	Increasing the probability of becoming a HGF by: mergers and acquisitions, favourable market trend, young firms, efficiency and increasing productivity, concentrated ownership, higher educated and trained workforce

⁹ The OECD definition of high-growth firms, the standard measure in many firm growth studies (Eurostat-OECD, 2007; Goedhuys and Sleuwaegen, 2010), identifies high-growth firms as follows: "All enterprises with an average annualized growth greater than 20% per annum, over a three-year period with at least 10 employees in the beginning of the measurement period. Growth can be measured by the number of employees or by turnover."

Hinton and Hamilton (2013)	Six out of 215 Christchurch-based (New Zealand) fast-growing companies (from the Deloitte Fast 50 awards ¹⁰) that were following a business-to-business sales strategy and agreed to participate on condition of anonymity	High-growth firm when a business won at least one 'Fast 50' in the period 2002-2007	New Zealand firms followed similar routes to high-growth in the business-to-business setting, and to what extent is this due to deliberate influences (Storey, 2011; Westhead and Wright, 2011)	Qualitative	High-growth firms found their balance regarding four themes, which are: 'founder characteristics', 'opportunity orientation', 'opportunity exploitation', and 'managing growth'. Founders' characteristics are 'joint complementary founders', 'prior experience and education', and 'external advisers and directorships'. Opportunity orientation in these high-growth firms is characterized by 'opportunity identification', leveraged emphasis on innovation, and 'flexible response to opportunities'. Opportunity exploitation is about 'pioneering in existing markets by providing significant differentiation through creative promotion and/or by changing the focus of the service', 'minimal competition', 'few customers/intensive relationship marketing'. Managing growth is the fourth theme and characterized by 'hiring, developing, and rewarding the very best people', 'building the processes and systems in line with the culture', and 'internal financing with low-debt'.	Joint complementary founders, prior experience and education, external advisers and directorships, opportunity identification, leveraged emphasis on innovation, flexible response to opportunities, pioneering follower/emerged markets, minimal competition, few customers/intensive relationship marketing, hiring, developing and rewarding people, building systems and culture, internal financing with low debt
Segarra and Teruel (2014)	3,807 Spanish firms (of which 419 HGFs from the sales point of view and 198 from the employee point of view) obtained from PITEC ¹¹ database	Enterprises with average annualised growth in employees (or sales) greater than 20% a year, over a 3-year period, and with 10 employees at the beginning of the observation period	R&D and innovation are generally considered to be key drivers of firm performance (Hözl, 2009; Coad and Rao, 2010)	Quantitative	Small and new Spanish firms most likely become a HGF. With respect to innovation performance, firms that invest in R&D demonstrate a greater probability of becoming an HGF. Firm growth is negatively affected by firm size, but positively affected by belonging to a group and by investment per employee, especially internal and external R&D per employee in manufacturing firms	Be part of a group (made up of a parent and subsidiary firm), internal R&D investments (researchers and technicians' wages, equipment, software, licensing)
Lee (2014)	4,858 firms in the UK, from surveys of small and medium-sized enterprises (>10 employees, but <250 employees) conducted by the UK Department for Business, Innovation and Skills (BIS)	Actual high-growth firms, as well as potential high-growth firms taken into account. Actual high-growth firms: firms that are experiencing average annual growth of over 20% over a 2-year period. Potential high-growth firm: firms with observable characteristics of achieving rapid growth, but have not done so. The assumption is that they face obstacles that prevent them from doing	High-growth firms face(d) barriers in their growth process, with no specific dominant barrier, but a range of six barriers is cited (market conditions, recruitment, regulation, access to financial resources, managerial challenges, and availability of appropriate premises (Mason and Brown, 2013)	Quantitative	There are six main problems perceived by rapidly growing firms, which are: 'recruitment', 'skills shortages', 'obtaining finance', 'cash flow', 'management skills', and 'finding suitable premises'. Each of these problems seems to become increasingly acute as firms grow more rapidly, providing explanations for why high growth can be 'fragile'. Potential high-growth firms feel held back by the economy, their managerial skills, finance and cash flow, but are less likely to perceive regulation as a problem than other firms. These are not necessarily the reasons for the failure of these firms to grow rapidly, but they illuminate the perceptions of entrepreneurs	The probability of becoming a (or continue as) high-growth firm will increase when the firm successfully takes care of: 'recruitment', 'skills shortages', 'obtaining finance', 'cash flow', 'management skills', 'finding suitable premises'

¹⁰ Deloitte has been associated with an award scheme in New Zealand since 2001, referred to as the 'Fast 50'. The basis for the award is the percentage increase in sales between year t and year $t+2$. Those gaining a Fast 50 award in 2007 will be the 50 businesses with the largest increase in their revenue between their 2004/05 and 2006/07 financial years.

¹¹ The Spanish Technological Innovation Panel.

		<p>this. To identify potential high-growth firms, propensity score¹² matching is used</p>				
Gabrielsson <i>et al.</i> (2014)	<p>205 high-growth firms operating in the Scania region between 2001 and 2007. Data retrieved from a list of high-growth firms as recognized by the leading Swedish business newspaper <i>Dagens Industri</i></p>	<p>High-growth firm when meeting the following five conditions: 1) at least four full years of operations with a positive net result every year, 2) total sales of more than SEK 10 million, 3) a doubling in sales in the past three years, 4) 'healthy finances', 5) have grown organically</p>	<p>Literature gap. Very few empirical studies of firms with sustainable high-growth. A contribution to the knowledge of what characterizes Swedish firms with a pattern of sustainable high growth is desired</p>	Quantitative	<p>Rapidly growing firms are highly committed to the regions where they operate, with a large share of sales coming from local markets. Within the firm, it is development activities aimed at improving production processes which contribute to high-growth. In short, it is mainly the 'D' in 'R&D' that matters</p>	<p>Large share of sales from local markets, improvements in production processes (the 'D' in 'R&D')</p>
Chandler <i>et al.</i> (2014)	<p>166 firms, operating in declining industries, from the Inc. 5000</p>	<p>High-growth firm when listed in the Inc. 5000</p>	<p>In declining industries, the value propositions of high-growth firms will include elements that are viewed to be valuable by customers, but not currently addressed in the value propositions of incumbents (Navis and Glynn, 2011; Zimmerman and Zeitz, 2002). High-growth oriented entrepreneurs are more concerned with reputation and quality than low-growth entrepreneurs (Gundry and Welsch, 2001). Web site updatedness is a common criterion to evaluate top Web sites (Ghose and Dou, 1998). Perceived usability of a Web site influences user satisfaction and degree of Web site loyalty (Flavián <i>et al.</i>, 2006). Utilizing social media is argued to benefit companies through facilitating the monitoring of customers (Berinato, 2010)</p>	Quantitative and qualitative	<p>High-growth firms develop value propositions that provide customer value beyond that which is provided by incumbents. High-growth firms in declining industries create unique value propositions by: 1) focusing on meeting the specific needs of an underserved market segment, 2) identifying a new market segment by focusing on product or service characteristics that appeal to customers who prefer the product innovation to the mainstream product, or, 3) providing a total customer solution instead of focusing just on the product. High-growth firms have products and/or services that differ substantially from the industry representatives, and high-growth firms communicate their value added more aggressive, succinct, and timely</p>	<p>Pursue a differentiation strategies (or beyond that) by creating a unique value proposition by: 1) focusing on meeting the specific needs of an underserved market segment, 2) identifying a new market segment by focusing on product or service characteristics that appeal to customers who prefer the product innovation to the mainstream product, or, 3) providing a total customer solution instead of focusing just on the product. Communicate this value proposition in an aggressive, succinct, and timely way</p>
Bamiatzi and Kirchmaier (2014)	<p>The 30 first responding high-growth firms, from a group of 308 high-growth firms across 43 declining 4-digit Standard Industrial Classification (SIC4) sectors. 20 high-growth firms were used to offer the best comparison within the sample;</p>	<p>High-growth firms are those long-established firms which, despite operating in declining industries, present both consistent and outstanding growth during the</p>	<p>To sustain growth, a growth strategy must be present that is linked to firm resources, capabilities and the external environment. Such a strategy can augment growth potential by strengthening core competences and establishing competitive advantages (Barbero <i>et</i></p>	Qualitative	<p>Four strategies were identified in the data analysis: focus on cost, differentiation, customisation, and internationalisation. Where a single strategy appears to be insufficient to beat competition in a declining market. High-growth firms in declining industries achieve high-growth by concurrently pursuing multiple strategic combinations. Despite these strategic choices are highly influenced by the sector and the size of the firm, certain</p>	<p>Focus on product, process, or service innovation, pursue a product or service customisation strategy, no cost-leadership (preference for building a reputation for providing better quality), target the entire market quite</p>

¹² A regression approach to estimate the similarity of one group to another.

	firms were excluded which, despite being categorised as SMEs in terms of turnover, were micro in terms of employees	examined four-year period: <i>Y1 to Y4</i>	<i>al.</i> , 2002; Westhead and Wright, 2011)		patterns are revealed clearly: the prevailing strategic combination among the high-growth firms is the simultaneous pursuit of differentiation via innovation with some form of product customisation strategy. Meanwhile, almost all firms maintain costs at the lowest possible level	aggressively and utilise the turbulence of the market to their benefit, minor international exposure
Du and Temouri (2015)	183,024 firm-year observations for 26,313 firms, covering the time period of 2001-2010. Data drawn from FAME (Forecasting Analysis and Modeling Environment) dataset	Annual average growth in sales of at least 20% over a 3-year period and at least 10 employees at the start of the growth period	High-growth status may not necessarily imply high productivity (UK Department for Business, Enterprise and Regulatory Reform, 2008)	Quantitative	Firms which experience a higher total factor productivity (TFP) growth are more likely to achieve high-growth status. Firms' past experiences helps firms to achieve higher TFP growth in future (two-way relationship). There is considerable firm heterogeneity in what determines high-growth firm incidence and how high-growth firms' experiences affects future TFP	Productivity growth
Mason <i>et al.</i> (2015)	53 UK-owned HGFs obtained from the FAME database	Enterprises with average annualised growth in employees or turnover greater than 20% per annum, over a three-year period, and with more than 10 employees in the beginning of the observation period	High-growth firms have been deemed 'vital' to the UK's economic recovery (Hutton and Lee, 2012). Moreover, high-growth firms have continued to be an important source of jobs during the recession (Anyadike-Danes <i>et al.</i> , 2013; Hart and Anyadike-Danes, 2014)	Qualitative	Location is no barrier to business growth, Scottish high-growth firms have a significant overseas presence, with the consequence that much of their job creation doesn't occur locally. High-growth firms experience varied origins and complex growth dynamics (majority are not high-tech firms) and highlight a high level of acquisitions	Acquisitions, overseas job creation, physical location or industry is not a barrier
Mazzucato and Parris (2015)	303 firms operating in the pharmaceutical industry in the United States. Data obtained from COMPUSTAT, which covers the entry and exit of pharma firms trading on North American stock exchanges since 1950	HGFs are those firms achieving growth at or above the 90% quantile of growth	Growth generating by R&D investments is questioned (Paul <i>et al.</i> , 2010; Scannel <i>et al.</i> , 2012 and literature gap (particular attention to whether the relationship between R&D investments and high-growth depends on the particular period in the industry's life cycle	Quantitative	HGFs have the most gain from increasing R&D intensity. However, the benefits of investing in R&D are conditional on the competitive environment, even for firms in the top growth quantiles. When the competitive environment is weak, firms gain little from increasing R&D intensity, and in fact, HGF may damage their growth by doing so. When competitive environment is strong, then firms gain advantage from increasing R&D intensity, with the fastest-growing firms benefiting the most	When competitive environment is weak: stagnate (or decrease) R&D intensity. When competitive environment is strong: increase R&D intensity
Goedhuys and Sleuwaegen (2016)	21,372 firms located in the Flemish and Brussels-Capital Regions of Belgium. 3% high-growth firms and 7% strongly declining firms	Average annual growth rate of at least 20% over the period 2008-2011 and at least 10 employees in 2008	Human capital raises the chances of high-growth (Lopez-Garcia and Puente, 2012; Arrighetti and Lasagni, 2013). A positive relationship between R&D (or innovation) and high-growth is also found (Coad and Rao, 2008; Hölzl and Friesenbichler, 2010; Czarnitzki and Delanote, 2013)	Quantitative	Human capital is an important overall driver of firm growth and reduces the chances of low growth or failure of firms. Innovation efforts by contrast increase the chances of being a high-growth firm, but also those of strong decline or failure. This shows that the technological competition (R&D investments) generates clear winners and losers in the industry	Human capital, innovation efforts (R&D intensity)
Mthimkhulu and Aziakpono (2016)	749 firms (of which 249 high-growth firms) in South Africa (Cape Town, Durban,	High-growth firms are referred to as 'outperformers', which are	Additional to Goedhuys and Sleuwaegen (2010), this paper seeks to stimulate discussions on high-	Quantitative	High-growth firms can be associated more with managers with up to 10 years' experience than above 10 years (stronger association with managers with between 6 and	Managerial experience (strongest association with managers with between 6 and

	Johannesburg and Port Elizabeth) with 5 to 250 employees. Data used from Enterprise Surveys in 2007	identified as firms with an above average growth rate for the Birch Index	growth firms in Africa. Enterprise development is an important policy in South Africa to address unemployment and integrate preciously disadvantaged groups into the economy by supporting their entrepreneurial efforts (NPC, 2001; DTL, 1995)		10 years). African-owned firms are more likely to be high-growth firms (in relation to Asian- or European-owned firms). Enterprise performance is also improved by in-house training programmes for workers. Transport as an obstacle has positive effects on growth.	10 years' experience), African-owned firm, in-house training programmes, and opportunistic behaviour due to transportation obstacles
Savarese <i>et al.</i> (2016)	382 firms (10 high-growth firms (in terms of employment growth rate, over 100% of growth), 318 low- and medium-growth firms and 54 firms with a negative growth rate). The study examines characteristics of start-up firms in the period of 2000-2006, all companies were located in Northern Italy and are operating in high-tech manufacturing sectors and services	High-growth firm when employment growth rate is over 100% in the second year after start-up	The following elements regarding growth factors were considered: founder characteristics (Sapienza and Grimm, 1997); the existence of firm-specific characteristics by analysing a) whether a company was founded in a scientific park or within a private/public incubator, b) access to financial resources by using venture capital or bank loan, and c) export propensity (Bamford <i>et al.</i> , 2000); the growth strategy adopted, assessing the presence of dynamic capabilities (Colombelli <i>et al.</i> , 2014; Hagen and Zucchella, 2014), and firm investment in technological, managerial and marketing competencies; the presence of internal innovation and the access to external sources (Rasmussen, 2014; Segarra and Teruel, 2014); the location of the companies	Quantitative	Only about 2% of the North Italian firms turned out to be high-growth firms. The drivers that lead to growth according this paper are the following: exporting firms (sales in foreign countries), 'de alia' founded (firm founded by other firms) instead of by only one entrepreneur, younger entrepreneurs tend to impart a more positive drift to their newly created ventures, postgraduate education (especially for high-tech environments) provided founders with the necessary skills to start a new venture, firm's ability to obtain financial resources from banks more than from venture capital, firm's attributes in exploring dynamic capabilities and investing in different new competencies (the existence of a formalized continuous improvement and revision of organizational routines), and the inclination of the firms towards innovation supported by the use of external sources	High amount of sales in foreign countries, firm founded by other firms, younger entrepreneur, postgraduate education, obtain financial resources from banks, firm's attributes in exploring dynamic capabilities and investing in different new competencies, use of external resources in innovation (participation in exhibitions; use of databases; universities and public research institutes, suppliers, consultant and sectoral firm associations)
Ng and Hamilton (2016)	16 high-growth firms from the ICT sector, obtained from the Deloitte Technology Fast 500 Asia Pacific Ranking (8 from Malaysia and 8 from New Zealand)	An enterprise with average annualised growth in turnover greater than 20% per annum, over a three-year period and with more than 10 employees in the beginning of the observation period	The growth of technology-based firms is critical for many countries (Hobday, 2002; Lee <i>et al.</i> , 2010). Technology firms create jobs, generate export earnings and raise productivity Birch <i>et al.</i> , 1997; OECD, 2013a), but high-growth is rare and often transient	Qualitative	For these technology-based firms competing in dynamic markets, innovation is the critical capability. There are three concomitants to innovation-led high-growth: customer focused flexibility (1) offer innovative products/services that are highly differentiated, and 2) need for customisation, but needs to be backed up with an ability to respond quickly to customer needs); commitment to R&D (high R&D investments, in which companies invite partners and their external network to collaborate in the R&D process to augment their innovation capability and maintain growth. Innovation capability is not easily to imitate by competitors, which provides competitive advantage); employee engagement (support employee engagement and value their suggestions for improvement. Open, relaxed and unstructured environments were cultivated to encourage staff to share ideas). Growing technology-based firms must also strive to create new market potential for product development and technology advances and by offering	Innovation (R&D intensity), customer-focused flexibility, employee engagement, creating market potential, new technology/product development

					more value-added products/services, these firms enjoyed better long-term customer relationships, which results in referral sales or word-of-mouth endorsements	
Li <i>et al.</i> (2016)	<i>Inc.</i> Magazine's published list of the 5,000 fastest-growing firms in the United States (<i>INC5000</i>) in terms of revenue.	HGF when included in the <i>INC</i> . 5000 list. Inclusion criteria are that the firms have to be located in the USA, privately owned and not be subsidiaries or divisions of other companies (<i>INC Magazine</i> 2010)	New firms' location is based on knowledge spillover theory of entrepreneurship that is in turn derived from a knowledge production function (Acs and Armington, 2006)	Quantitative	HGFs are also hosted in non-metro areas, although their number is declining over time, in line with increasing population concentration in metropolitan areas. HGFs are also found in traditional sectors, so policy-makers should not overlook the potential opportunities of fostering innovation and growth in rural areas and in traditional sectors. A college educated workforce is essential to the presence of HGFs. Another finding is that mixed industries and natural amenities in an area promote high-growth.	HGFs experience no barriers regarding physical location or industry. A college-educated workforce, mix of industries, and natural amenities in a certain area promote the probability of become a HGF
Román <i>et al.</i> (2017)	6 wine companies founded in Chile between 1990 and 2006, divided into two groups. With 3 companies demonstrating rapid-growth from their beginning, as referred to as gazelle companies, and 3 companies that do not show accelerated growth	Companies showing a growth rate in sales equal to or above 20% per year. Important to emphasize that sales did not occur until 3-5 years after beginning operations, due to the varied processes and stages involved in the wine industry	Dynamic firms can be identified by typical characteristics (Barringer <i>et al.</i> , 2005)	Qualitative	Parameters that differentiate rapid-growth from their peers with gradual growth include: founding of the organization by a team of people, and not by an individual, prior experience of the founders in large-scale businesses, generating a growth-focused strategy and investment of resources in innovation, strategic planning focused on growth, company commitment toward growth (reflected through both mission and vision), higher price per bottle (customer-loyalty), and the use of new technologies	Team founded, prior experience in large-scale businesses, growth-focused strategies, investment of resources in innovation, customer loyalty, innovative entrepreneurship (use of new technologies)
Giner <i>et al.</i> (2017)	126,330 (2003-2006 period) and 84,861 (2007-2010 period) Spanish firms. Data obtained from SABI (Iberian Balance Sheet System)	Average annualised growth in employment, or turnover, exceeding 20% in a 3-year period. Firms also must have 10 or more employees at the beginning of the period	Locational factors influence the development of high-growth firms as this process can depend on the characteristics of the geographical environment (Bogas and Barbosa, 2013). Several studies showed the importance of environmental factors, such as intense interactions and cooperative links within industrial districts and clusters (Boix and Trullén, 2011), the location in high-tech areas (Molina-Morales <i>et al.</i> , 2014), and large urban areas (Rosenthal and Strange, 2004; Espitia-Escuer <i>et al.</i> , 2014)	Quantitative	High-growth firms are mainly associated with high-tech activities, especially high-tech services. Location also matter, where large urban areas and technological districts are preferred	High-tech (service) firm, technological district, large urban area
Satterthwaite and Hamilton (2017)	1,125 and 1,067 high-growth firms in the 2005 and 2008 cohorts, retrieved by customizing data from the government of New Zealand	Meet the follow conditions: 1) an annual average growth rate of 20% in the preceding three years; 2) 10 or more employees at the initial year ($t - 3$); 3) alive in the	Recently, there has been an upsurge in attention upon high-growth firms, with calls for more selective approaches to their public policy support (OECD, 2010; Brown and Mason, 2012; Mason and Brown, 2013; Brown and Mason, 2015)	Quantitative	High-growth firms are smaller, more likely to emerge in service industries and grow through the creation of multiple separate establishments (the number of establishments per HGF is on average more than ten times the number of establishments by non-HGF). The ability to sustain high-growth is independent of pre-growth age and employment size. High-growth firms have death rates up	High-growth firms achieve growth by creating significantly more establishments, particularly in service sectors such as retail, financial services and real estate

business demography
population at every year
between $(t-3)$ and t ; 4) not
subjected to any merger or
split of their ownership
structure during the
preceding three years; 5)
not an employer enterprise
birth in the initial year $(t-3)$

to four times greater than other contemporary firms, but
the survivors do retain their employment size, continuing
to contribute disproportional to employment for some
years beyond their initial high-growth phase

Appendix B: Framework balanced scorecard for HGFs

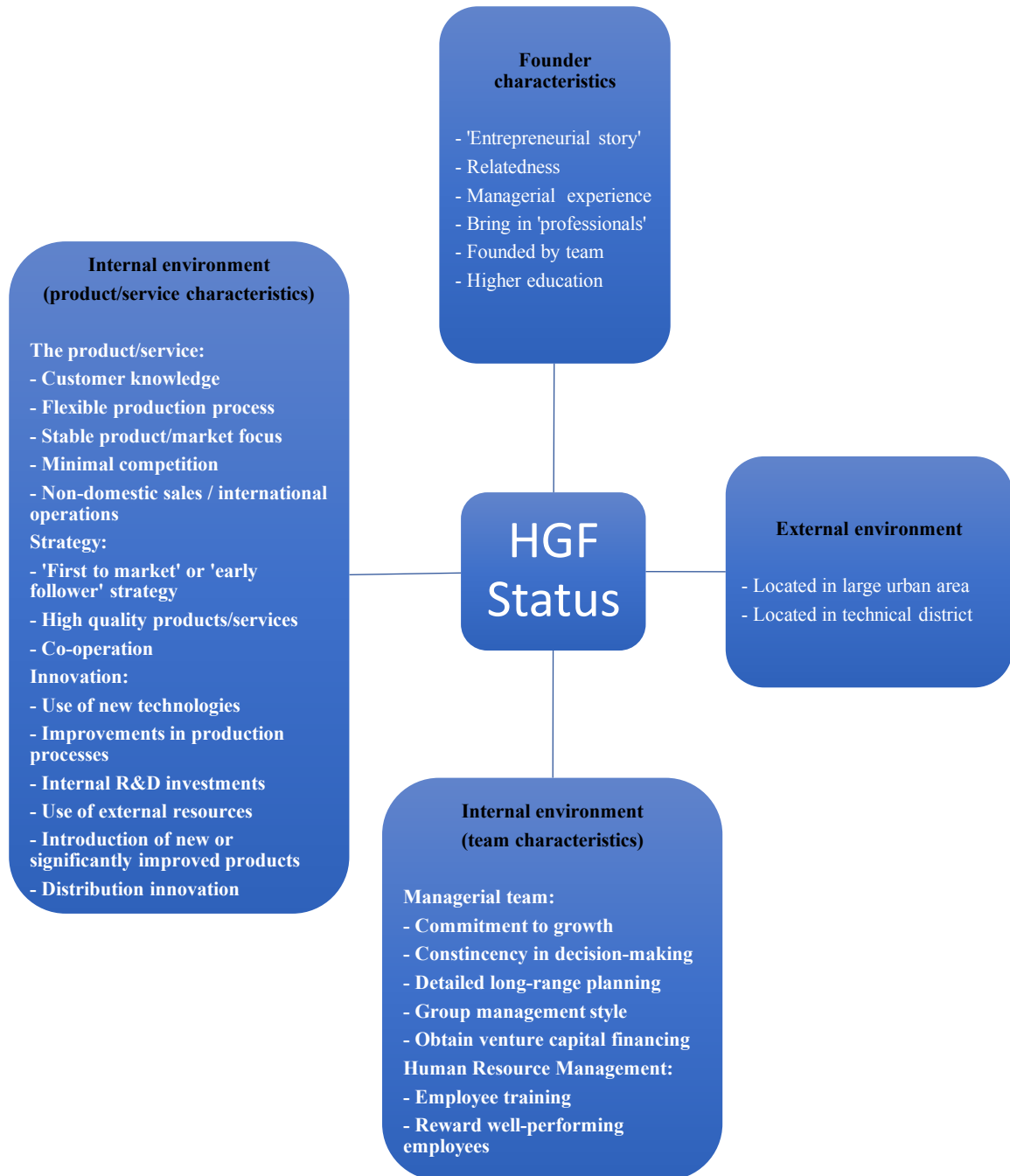


Figure 4. Framework of balanced scorecard for HGFs

Appendix C: Balanced scorecard for HGFs

According to this systematic literature review, there are twenty-nine factors positively affecting company growth. Because these determinants of growth are obtained from research conducted in various countries and industries, it is interesting to what extent these findings are generalizable. Therefore, this checklist can be used to compare between growth-factors observed by the HGFs individually and as identified in the literature. So, when the statements in this checklist are completely recognized by a HGF, the findings in the literature are quite accurate. It could also be possible that HGFs observed growth-factors that differ from those drawn from the literature. In that case, the collection of growth-factors has to be adjusted by adding (or removing) certain growth-factors.

The statements regarding the growth-factors will be categorized in three categories, which are the founder characteristics, internal environment, and external environment. Please note that answers are not ‘right’ or ‘wrong’, and just indicate to what extent the statements are relevant to the growth in your company.

Example:

The example below indicates that the statement is applicable for the company, and thus that professional managers were needed at a certain point in time because the company was growing too fast or big.

Statement	Strongly agree (2)	Agree (1)	Neutral (0)	Disagree (-1)	Strongly disagree (-2)
The founders’ managerial capacity was at a certain point in time outgrown, and therefore the company needed to hire ‘professional’ managers to keep on growing	X				

So, when founders or managers from HGFs (the respondents) for example don’t agree with many of the statements, the literature regarding HGFs differs substantial from practice. When HGFs observed growth-factors in their growth process, which aren’t mentioned in this checklist, there might be a literature gap relating that specific growth-factor. When HGFs recognize themselves in the statements of this checklist, the HGF literature and practice are in line.

The statements are presented at the next page.

- **Statements related to the founder characteristics**

Founder characteristics	Strongly agree (2)	Agree (1)	Neutral (0)	Disagree (-1)	Strongly disagree (-2)
I started the company because I saw commercial opportunities					
It took me a lot of effort (time and money) to start the company					
I became an entrepreneur because I got in touch with various inspiring people					
My industrial experience is closely related to the products/markets/technologies central in the current company					
The products/markets/technologies related to the company are in line with my interests					
I have obtained managerial experience in prior jobs					
I obtained experience in a large-scale business					
The firm rapidly outgrew my managerial capability, and therefore I hired professional management					
The company is founded by a team of at least two people					
The founder(s) of the company are 'higher educated'					

- **Statements related to the internal environment of the company (team characteristics and product/service characteristics)**

Team characteristics (managerial team and Human Resource Management)	Strongly agree (2)	Agree (1)	Neutral (0)	Disagree (-1)	Strongly disagree (-2)
The companies' vision is growth-oriented					
Part of the companies' core is a strong commitment for growth					
Despite the growth processes, the culture cultivated by the founders retained					
The company is divided in well-defined functions					
Our vision and plans are expressed in written form					
We prepared formal and detailed business plans with a long-time horizon (>3 years)					
The board of directors were involved in developing these business plans					
Companies' current performance is shared regularly with all employees					
Decision-making processes involve a group of employees (instead of the entrepreneur solely)					
Stakeholders are approached to obtain ideas for managing the business					
Employees are 'trained on the job' (in-house training programs)					
Our workforce is well-trained in comparison with our competitors					
We reward employees for the performances with financial incentives or stock options					

Product/service characteristics (the product/service, strategy, innovation)	Strongly agree (2)	Agree (1)	Neutral (0)	Disagree (-1)	Strongly disagree (-2)
We remain a keen sense of customer needs and desires					
We organize meetings with our customers on a regularly basis (conversations/surveys)					
Future strategies are directed by customer relationships					
Our production process is able to adopt quick and smooth to changed customer needs or technological improvements					
The company has the same product/market focus as when the company started					
We provide our customers with a 'total customer solution' (provide more than only the product/service)					
We experience competition of no more than three competitors (unique market position)					
We derive a significant percentage of non-domestic sales					
We adopt a global perspective and compete across a broad range of markets and competitors					
While introducing new products, we adopt rapid market timing strategies ('first to market' or 'early follower' strategy)					
Our reputation is based on high-quality products/services					
Our customers are willing to pay more, since we're adding unique value					
Our products are characterized by a 'differentiation strategy'					
The company experienced merger and/or acquisition activity					
We have close relationships with universities (or other public research institutes)					
We cooperate with other companies on resources (complementary resources)					
We experience competitive advantage thanks to the use of new technologies in the production processes					
We are aware of the newest technologies, to advise our customers best					
We devote a substantial percentage of annual revenues to constantly improve production processes					
We are heavily focused on product, process, and service innovations					
We intensively invest in R&D activities					
We invite partners and other stakeholders from our external network to collaborate in R&D activities					
We benefit from the use of several external resources (participation in exhibitions, use of databases, universities and other public research institutes, suppliers, etc.)					
We introduce new (or significantly improved) products to the world on a regular basis					
Our products differ systematically from the products offered by other firms					

- **Statements regarding the external environment**

External environment	Strongly agree (2)	Agree (1)	Neutral (0)	Disagree (-1)	Strongly disagree (-2)
The company is located in a large urban area (>50.000 inhabitants)					
The company is located in a highly technological area					

- **Growth factors missing:**

Missing growth factors:
•
•
•
•
•
•

