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**THE PHENOMENON OF HIGH GROWTH SMEs (Gazelles): A
SYSTEMATIC REVIEW OF LITERATURE AND IMPLICATIONS FOR
FURTHER RESEARCH (Part I)**

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Abstract:

Purpose: It is widely recognized that gazelles are principal engines of the economy and of growth but only few of them maintain their high growth. The primary objective of this paper is to report a systematic review of the literature on gazelles, more specifically on their common characteristics and the factors behind the discontinuity of their high growth rates. .

Methodology: Based on the protocol proposed by Tranfield et al. (2003) and on guidelines for reviewing, the paper adopts a systematic review to examine 87 recent primary researches addressing the phenomenon of gazelle.

Findings: Studies on High Growth Firms privileged different methodologies, employed different research methods, relied on different types of data, posed different questions, studied firms from different contexts and sectors and ended up with different results.

Originality/value: The study is among the first literature review articles that adopt systematic reviews to examine the existing literature on High Growth Firms.

Future research: A development of unifying conceptual model based on the empirical findings on gazelles characteristics and persistence of their growth rate is highly needed.

Keywords: High Growth SMEs, Gazelles, Rapidly growing firms, systematic literature review

Paper type: Literature review

1. INTRODUCTION

It is widely recognized that High Growth SMEs are principal engines of the economy and of growth (Acs et al., 2008; OECD, 2002; Julien, 2000; Deschryvere, 2008; Almus, 2002) but only few of them achieve and sustain their high growth for long periods of time (Daunfeldt et al., 2015; Daunfeldt & Halvarsson, 2015; Holzl, 2014; José et al., 2011; Gabrielsson et al., 2014.). HGF or Gazelles, a term coined by Birch (1981), are found in all industries (Gabrielsson et al 2011; Daunfeldt et al., 2015; Sargent and Matthews, 2015), represent in any country a small portion (2-4%) of the totality of all firms (OECD, 2010) and contribute disproportionately to social and economic wealth through the creation of (all) new jobs (Acs et al., 2008; Julien, 2000; OECD, 2002). This outstanding performance of these firms makes one understand why they recently become the major focus of many researchers and policy makers.

There is no general agreement among researchers on how a gazelle is defined (Henrekson, & Johansson, 2009; Rainer & al., 2009; Perez et al., 2010; Janczak, 2010; Mitusch & Schimke, 2011; Huot and Carrington, 2006) and the consideration of a particular definition is dependent on the objectives pursued by the researchers and on the available data (Huot and Carrington, 2006). There are two ways for defining a High Growth Firm (Coad et al, 2014): Defining them as the top x% of firms in a population in terms of chosen growth indicators or as firms growing at or above a particular rate between a start and end year. For example OECD defines high growth firms as follows: “All enterprises with average annualized growth greater than 20% per annum, over a three year period, and with ten or more employees at the beginning of the observation period” (OECD, 2010 p. 18). This definition, recently criticized by Daunfeldt et al., (2015), remains the standard approach for operationalizing the concept of HGF (Coad et al., 2014) and it is even expected, for some reasons that many future studies on HGF will apply it (Daunfeldt, 2015).

Several studies from different contexts about gazelles were conducted trying to identify the characteristics that distinguish them from other firms (slow growth firms) (Julien, 2000 ; Janssen, 2002; OECD, 2002; Julien, 2002; Barringer et Al., 2005; Boston etl., 2007; Zhang, 2008; Rainer et al., 2009; Janczak, 2010; Almus, 2000...) and the factors that are behind their high-growth slowdown and challenges that should be managed for a sustainable high growth (Julien, 2008; Hambrick, 1985; Nicholls-nixon, 2005; Chan et al, 2006...). However, despite the very importance of the literature reviews in advancing our knowledge in a particular field

(Tranfield et al., 2003; Ted and Nittaya, 2006; Torraco, 2005; Webster and Watson, 2002) very little attempts to review the studies about gazelles have been made (see for example reviews conducted by Audretsch, 2012; Fabiana, 2015; Maria, 2015; Wennberg, K., 2013; Henrekson and Johansson, 2010). The primary objective of this paper is to fill this gap and, therefore getting a clear understanding of the phenomenon of the gazelles by identifying their key success factors and the reasons behind their unsustainable high growth. To this end, unlike other previous reviews, this paper adopts a systematic review (SR) of more than 50 relevant studies addressing the two following questions: “What are the common characteristics of HGSMEs that enable them to achieve the high growth?” and “What are the main factors behind the growth slowdown of these firms?” This review method initially developed and applied in medical sciences, has many advantages (Tranfield et al., 2003, Kitchenham, 2004; Gough et al., 2012) and it can also be adopted by management researchers whose objectives are generating collective insights from extensive primary research papers and identifying directions for future research (Tranfield et al., 2003).

The paper is organized as follows. It is divided into four sections, including the introduction and the summary and discussion sections. It begins with introducing the need and importance of conducting systematic reviews in management research. The Second section describes the methodology used in searching, selecting, evaluating and synthesizing the primary research. The third section reports the main findings of the review. The findings include description of the field and of the primary research orientations. The fourth and last section, summary and discussion, identifies several gaps within extant research and gives directions for further research to fill these gaps.

1.1. The need for Systematic reviews

(Social) science is cumulative in nature, so rigorous and trustworthy reviews of past research are necessary needed to better build and organize the knowledge (Harris, 1997). However, little attention has been made by the social methodologists to how reviews and solid research synthesis can be conducted (Harris, 1997). Tranfield et al., (2003) in their article titled “Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review” made an attempt to propose a methodology for reviewing past research in management. They compared the nature of reviews in medical science and management research (see the comparison made regarding the literature reviews) and studied the possibility of applying systematic review process, initially developed and applied in

medical science, to the management field. The objective is to enable management researchers to increase methodological rigor and managers and policymakers to make sensitive and good judgements based on reliable knowledge bases built from a range of relevant studies (Tranfield et al., 2003; Gough et al., 2011). A systematic review of the literature can be defined as a method enabling to identify, select, organise, assess and interpret relevant primary research dealing with a particular research problem or a phenomenon of interest in order to draw general conclusions and identify possibilities for future research (Kitchenham, 2004).

It is critical to note that reviews of management research are dominated by traditional/narrative methods which are largely criticized for many reasons, especially for lacking of critical appraisal (Tranfield et al., 2003; Armitage et al., 2008). Systematic reviews are distinguished from traditional ones as they adopt “a replicable, scientific and transparent process that aims to minimize bias through exhaustive literature searches of published and unpublished studies and by providing an audit trail of the reviewers’ decisions, procedures and conclusions”. (Tranfield et al., 2003 p.209). Despite the importance of SRL and the great criticism of narrative reviews, few studies in the high growth literature have applied the methodology/process of the systematic reviews (see for example work of Wennberg (2013)). The present paper attempts to fill this gap. The next section presents the methodology employed to achieve this objective.

2. REVIEW METHODOLOGY: Review protocol

Figure 02 highlights the methodology used in this paper in order to undertake a systematic review of the recent research about the phenomenon of gazelles. It is developed based mainly on the protocols proposed by Tranfield et al. (2003) and on guidelines for reviewing provided by some researchers (e.g. Kitchenham, 2004; Gough et al., 2012; Armitage et al., 2008; Harris, 1998; Ted and Nittaya, 2006; Torraco, 2005; Webster and Watson, 2002). The review process involves 5 main steps. Descriptions of each of these steps are provided in the next points.

It is important to note that literature reviews can focus on one or more than one element (Harris, 1997). For this systematic review, it focuses importantly on findings about characteristics of gazelles and methodologies used by researchers. It also attempts to integrate what has been found and to identify theoretical and methodological gaps that should be the focus of future research.

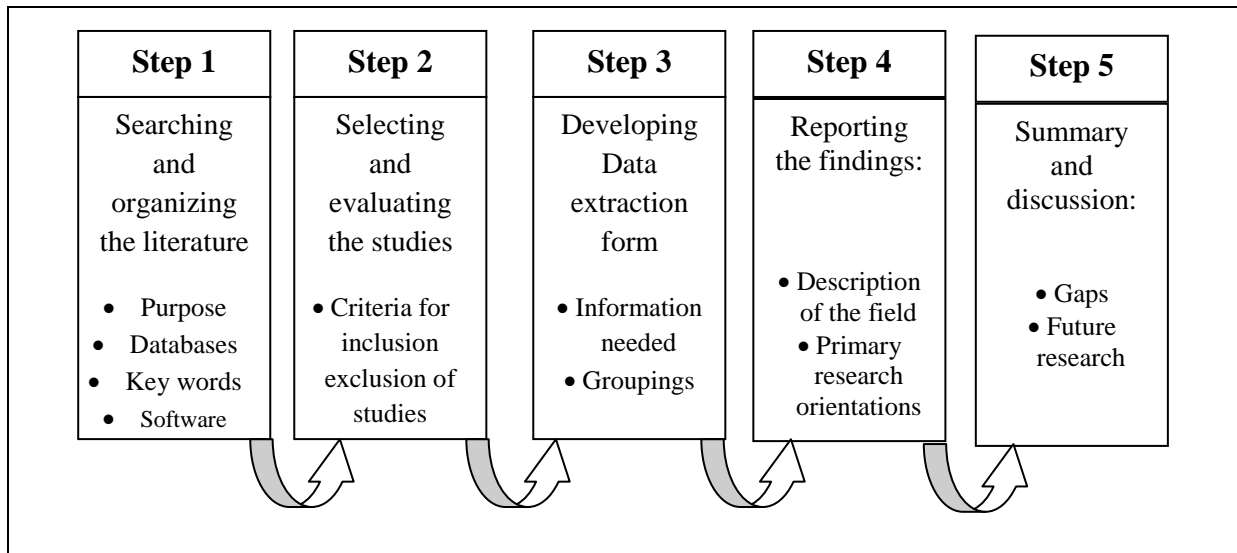


Figure 1: Review process followed

2.1. Searching

The strategy employed to search for primary studies was concentrated mainly on the gazelles, and more specifically on their characteristics and the factors behind their high growth slowdown. Two techniques of searching were used: (1) an electronic database search using the following key terms: “high-growth SMS”, “Gazelles”, “fast growing firms”, “rapidly growing companies”, “PME à forte croissance” and similar words and (2) snowballing technique. The electronic databases searched were: Google Scholar, Emerald Management, SAGE and Science Direct. Snowballing technique consisted in looking for references of some already undertaken literature reviews and studies on gazelles found in those databases (e.g. Fabiana, 2015; Daunfeldt and Halvarsson, 2015; Wennberg, 2013; Moreno and Casillas, 2013).

To avoid being with references that we do not master neither the content nor the citation, we used the MENDELEY Desktop and Excel. These programs helped also in keeping trace of the reviewed literature, organizing it and building bibliographies from the beginning.

2.2. Selection and evaluation of primary studies

After searching and organizing the primary studies, their titles, abstracts and contents were analyzed based on the exclusion and inclusion criteria. It was difficult to determine the population of studies/articles that should be included or excluded from the systematic review. This is the major challenge in applying this review methodology in management field (Tranfield et al., 2003). In this study, the inclusion criteria that should be met by a primary research and the exclusion ones that it should not manifest are shown in the table 2 below:

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • The study focus: on gazelles • Relevance to the 2 review questions • Written in English or French 	<ul style="list-style-type: none"> • Pre-1985 articles: focus on new published research
<ul style="list-style-type: none"> • Gazelles from all sectors and all countries 	<ul style="list-style-type: none"> • Duplicate/Translated articles/
<ul style="list-style-type: none"> • All methodologies: Quantitative and qualitative empirical and conceptual studies with internal validity 	<ul style="list-style-type: none"> • Press articles
<ul style="list-style-type: none"> • Studies that appeared in published Peer-reviewed, non-peer reviewed journals • Studies unpublished in journals. 	<ul style="list-style-type: none"> • Any other foreign language

Table 1: Inclusion and exclusion criteria applied to primary research

In order to collect a wide range of primary research dealing with the research questions of this paper and, therefore, get a clear understanding of the phenomenon of gazelles, many inclusion criteria were set as shown in table 2. The Appendix shows the total population of references collected and analysed. The objective is to let researchers evaluate the transparency of the review process followed during this research and its outcomes.

2.3. Classification framework

The third step of the review process followed in this paper is developing a data extraction sheets. The reviewers, according to Tranfield et al. (2003), have flexibility with regards to the development of these sheets as they may be dependent on the nature of the study. The importance is to consider all the information needed to establish the summary tables and to make a solid synthesis based on the data generated from primary research. In this paper, each study about high-growth firms was analyzed using 12 elements which are classified into 3 groupings (general information about the study, Methodology and findings). Table 3 summarizes these dimensions and shows the reasons behind the three groupings.

To better assist the systematic review of the literature on gazelles, the primary research orientations are divided into 4 categories (see table 8) and findings of studies about key success factors of high growth into four aspects: (1) entrepreneurial aspect (2) organizational aspect (3) technological aspect and (4) environmental one.

Classification	Elements	Reasons	
Groupings	1	<ul style="list-style-type: none"> • Authors • Year of Publication • Journal name • Country • Sector 	Description of the population of primary research on gazelles: collect information about the distribution of studies according to context, country, journal and year of publication.
	2	<ul style="list-style-type: none"> • Research methodology • Technique to access to real • Nature of data collected • Sample Size 	Description of the methodology employed and research methods and techniques used to explore the phenomenon of gazelle.
	3	<ul style="list-style-type: none"> • Title • Purpose of the study • Main empirical findings 	Classify primary research orientations. Help making sub-groupings based on titles, purposes and findings of the study.

Table 2: grouping the data generated from primary research

3. FINDINGS

Reporting the findings within management research involves two things: describing the field based on the data extraction forms already developed and reporting the empirical findings of primary research analyzed by conducting thematic analysis (Tranfield et al., 2003). This is the focus of this section.

3.1. Description of the field

87 studies were the final population of relevant studies on high growth firms retrieved using the inclusion and exclusion criteria (see table 1). 57 studies among 87 deal with the research questions of this paper. The full references reviewed are included in the reference part (57 studies) and in the appendix (30 studies). The relatively recent interest of academics and policy-makers in gazelles (Coad et al., 2014; Delmar, 2011) may perfectly explain the paucity of the primary research about these firms.

It what follows, the paper gives a statistic description of the studies retrieved based on the data extraction forms previously developed (see table 2).

Description of the population of primary research on gazelles

Country and main authors: The focus of the primary research on high growth firms came majorly from 4 countries: Sweden 17%, the United States 16%, United Kingdom (13%) and Canada (8%). Studies conducted in the European Union region (excluding UK) account for more than 24%. They came mainly from Spain, Finland, France, Germany and Netherlands (See table 4). No study on the fast-growing companies in the Arab world meeting the inclusion criteria set for this review was found. Moreover, only one study was undertaken in African countries and exactly in ten Sub-Saharan African countries (See Goedhuys and Sleuwaegen, 2009). Table 3 presents the distribution of the total of primary research retrieved and shows the main authors who interest in the phenomenon of high-growth firms.

Country	Frequency		Main authors
• Sweden	15	17%	DAUNFELDT; HENREKSON; DAVIDSSON; COAD, DELMAR; GABRIELSSON...
• US	14	16%	ACS; BOSTON; FEESER; BARRINGER...
• UK	11	13%	BAMIATZI; BROWN; MASON; OKE; PARKER...
• Canada	7	8%	JULIEN; ST-JEAN...
• Finland	6	7%	LITTUNEN; AUTIO....
• Spain	6	7%	MORENO; JOSÉ; CASILLAS
• France, Netherlands, Germany	9	10%	PICART; WIT; ALMUS;
• Other countries	19	22%	OECD; ZHANG; HOLZL...
Total	87	100%	

Table 3: distribution of studies according to the location

Sector: with regards to the distribution of studies across the industry sectors and according to the descriptive analysis performed in this paper, it is found that the largest percentage (76%) of studies are mixed sector. A small portion (10%) of these mixed sector studies focused on high growth firms operating in manufacturing and service sectors. Note also that empirical findings of previous studies are mainly generated from manufacturing industry and that only three studies conducted on service and high-tech sectors each.

Sectors	Frequency		Dealing with our research questions	
• Different sectors	52	66%	33	67%
• Manufacturing sector	10	13%	6	12%
• Manufacturing and service sectors	8	10%	6	12%
• Service sector	3	4%	1	2%
• High-technology sector	3	4%	1	2%
• E-commerce/Information processing and health care / Pharmaceutical sectors	3	4%	2	4%
Total	79*	100%	49*	100%

*8 Literature reviews articles are excluded here.

Table 4: Distribution of studies across the industry sectors

Year of publication: The analysis of the published works about gazelles highlights that more than 70% of the studies retrieved were published between 2005 and 2016 (see table 5). This evidence supports the view that the interest of academics and policymakers in high growth firms has grown considerably in recent years. In other words, the distribution of the primary research on high growth firms according to the publication year shows that it is a new field of investigation and that publications about this topic are very limited.

Period	Frequency		Dealing with RQ	
• [2005-2016]	66	76%	42	74%
• [1995-2005[15	17%	12	21%
• [1985-1995[6	7%	3	5%
Total	87	100%	57	100%

Table 5: Distribution of the primary studies on gazelles according to the publication year

Studies' location: The studies on gazelles were published in diverse locations (see table 6). The majority of studies were published in journals with entrepreneurship and small business development perspective: More than 50% of studies dealing with the research question of this review are published in the journals with that perspective. The analysis performed shows also that Small Business Economics with 10 studies, OECD studies on SMEs with 6 studies, Journal of Business Venturing with 6 studies, International Small Business Journal with 6 studies and Journal Of Small Business And Enterprise Development with 4 studies, have clearly impacted the field of published high growth firms' studies. Other locations include

other journals, workshops and conferences which account for more than 35% of the population of primary studies collected.

Sources	Frequency		Dealing with RQ	
OECD Studies On SMEs, Journal Of Business Venturing, Small Business Economics, , Journal Of Small Business And Enterprise Development, Journal Of Small Business Management, Journal of Enterprising Culture, Entrepreneurial Growth: Individual, Firm, And Region, Entrepreneurship & Regional Development: An International Journal, Journal Of Entrepreneurship And Public Policy, Journal Of Small Business And Entrepreneurship, International Small Business Journal, Entrepreneurship Theory And Practice, Small Business Administration, Entrepreneurship And Innovation, Technovation,	42	48%	34	60%
Other journals and sources	39	45%	19	33%
Conferences/Workshops	6	7%	4	7%
Total	87	100%	57	100%

Table 6: Distribution of the primary studies on gazelles according to their location

Methodology: With regards to the methodological approach used in previous primary studies, quantitative research was used in more than 55% of the studies (see table 7). They are survey research in nature (Creswell, 2009) and they vary mainly from correlational (variate analysis and regression) to descriptive statistics. Qualitative research was used in 19% of the studies. The major technique of this research (Creswell, 1998; Creswell, 2009) used was case study (including single and multiple case studies). A very small portion of the studies (5%) employed mixed method approach. The vast majority of the studies used samples of firms collected from already constructed databases (secondary data) to undertake their research on high growth firms. The table 7 also shows that only 10% (8) of the studies are conceptual/review in nature. Among these studies, it is found that only one used a systematic review technic (Wennberg, 2013) and only one meta-analysis of the empirical findings (Henrekson and Johansson, 2010). Note that the study of Wennberg (2013), unlike the one conducted in this paper, attempted to review systematically 30 empirical researches on the

leaders of high growth firms, based mainly on the protocols proposed by MacPherson and Holt (2007).

Methodology	Frequency	Dealing with our research questions		
<ul style="list-style-type: none"> Quantitative DS/CS/IS PD 8, SD 13, P&SD 35	56	67%	32	59%
<ul style="list-style-type: none"> Qualitative CS 14/ GT 2 PD 7, SD 2, P&SD 7	16	19%	14	26%
<ul style="list-style-type: none"> Mixed Methods PD 1, P&SD 3	4	5%	1	2%
<ul style="list-style-type: none"> Review/conceptual TR 7, SR 1, MA 1	8	10%	7	13%
Total	84	100%	54	100%
<ul style="list-style-type: none"> DS= Descriptive statistics, CS= Correlational statistics, IS= Inferential statistics PD= Primary data, SD= Secondary data, CS= case study, GT= Grounded theory, TR= traditional review, SR= Systematic review, MA= Meta-analysis. 				

Table 7: Methodology employed in previous research on HGFs

3.2. Primary research orientations

The systematic review of the literature on gazelles reported in this paper reveals that it is possible to classify primary researches into 3 major categories (see table 8): (1) studies centering on revealing the importance of gazelles for economy, (2) studies focusing on getting an understanding of these firms by studying their common characteristic(s) and (3) Studies centering on high growth's persistence and on outcomes, challenges and complexities it may generate. By classifying studies in this way, the analysis of the literature would be easy for the researchers interested in this field. Next point reports the key findings about the factors of gazelles' success and the factors that cause the slow-down of their growth.

	1	2	3
Orientations/topics	STUDIES ABOUT IMPORTANCE OF HGF FOR ECONOMY	STUDIES SEEKING TO UNDERSTAND HGFS	STUDIES ABOUT HG'S PERSISTENCE AND HG'S OUTCOMES
		Conceptualisation and Development of frameworks	The role/ impact of one factor on high growth

Sub-topics	Definition of HG and HGF Growth dynamics of HGFs	Conceptual frameworks and explanatory models of HGF	Entrepreneur Innovation Industry sector Region	Discontinuity factors Productivity Profitability Performance
Ex. of research question(s)	What is a gazelle/HGF? How much is it important for economy (job creation) compared to mice and elephants?...etc.	What are the key success factors of HGFs? What distinguish HGFs from SGFs? ...etc.	What is the role of business founder in achieving high growth? ...etc.	What does high growth generate? What's relationship between high growth and profitability?
e.g. of Authors	ACS, 2008; DAUNFELDT, ET AL., 2015; DESCHRYVERE, 2008; MASON, 2015; ALMUS, 2000; OECD, 2010, 2002 ... ETC.	OECD, 2010, 2002; BARRINGER ET AL., 2005; JULIEN, 2000; JULIEN, 2002; LITTUNEN, 2010; MORENO AND CASILLAS, 2007; DAUNFELDT ET AL., 2016. NYLUND ET AL., 2016; SIEGEL, ET AL, 1993; SIMS AND O'REGAN, 2006; ZHANG, 2008; PICART, 2006, BOSTON,2007; KEEN,2012; HOLZL, 2009; DIRK AND OTTO, 2008... ETC.	GABRIELSSON ET AL., 2014; JULIEN ET AL., 2008; NICHOLLS-NIXON, 2005; DAUNFELDT AND DANIEL, 2015; FEESER et al, 1990, TEMOURI, 2014...ETC.	

Table 8: Classification of primary research on HGFs

Characteristics of gazelles: As shown earlier, researchers interested in studying High Growth Firms privileged different methodologies, employed different research methods, relied on different types of data, posed different questions, used different measurements of the phenomenon and studied firms from different contexts and sectors. Moreover, they mobilized different frameworks, based on different references and, therefore ended up with different results. So, it sounds difficult to draw strong conclusions regarding the factors behind the high growth of gazelles. However, despite the outlined differences among studies, the review carried out in this paper concludes that gazelles do have some characteristics in common. These can be combined in 4 aspects: (1) entrepreneurial aspect (2) organizational aspect (3) technological aspect and (4) environmental one. Table 9 presents briefly these common characteristics. Other classifications were made regarding this topic. For example, Audretsch (2012) in his review article classified the determinants of these firms into two categories: determinants related to the location and the determinants which are specific to the firm.

Aspect	Drivers of growth	Dimensions	Authors/Study
ENTREPRENEURIAL	The HGSME's Owner-manager	Vision and mission	(OCDE, 2010; ZHANG, 2008; JANCZAK, 2010 ; BOSTON, 2007; ANDERSSON, 2003; JOSE ET AL., 2011)
		Risk-taking	(JULIEN, 2000, 2008; BOSTON, 2007; LUCIO AND TOMMASO, 2012)
		Education and experience	(OCDE, 2010, JULIEN, 2000; BARRINGER ET AL., 2005; GOEDHUYS AND SLEUWAEGEN, 2009; LITTUNEN AND NIITTYKANGAS, 2010; SIEGEL, 1993)
		Motivation	(OCDE, 2010; BARRINGER AND AL., 2005; LITTUNEN AND NIITTYKANGAS, 2010).
		Innovation	(OCDE, 2010, JULIEN, 2000; BARRINGER AND AL., 2005; GOEDHUYS AND SLEUWAEGEN, 2009; JOSÉ ET AL., 2011)
		Innovation	Technological innovation, organizational and marketing innovations.
Invest in R&D more than other SMEs	(OCDE, 2002; INDUSTRY CANADA, 2006)		
ORGANIZATIONAL	HGSME's age and size HRM, Organization form	Young age and small size	(MUELLER, 2008; RAINER ET AL., 2009 OCDE, 2002 BIRCH, 1981 CITED IN ACS, 2008).
		Market oriented and flexible organization	(LITTUNEN & TOHMO; 2003, JULIEN, 2000; OCDE, 2002; JOSE ET AL., 2011; BARRINGER ET AL., 2005; JANCZAK, 2010; GHOSH ET AL., 2001 ; HOLM ET AL., 2002)

		Training Employee development Motivation Team-working	(OCDE, 2002; JULIEN 2000; BARRINGER, JONES & NEUBAUM, 2005; JANCZAK, 2010; JOSE ET AL., 2011; GHOSH ET AL., 2001)
ENVIRONMENTAL	Networking /cooperation internationalisation	With: customers, suppliers, competitors, other firms . . . For: Advertising/marketing R&D/technologies Transportation Distribution Purchase of raw materials....	(OCDE, 2002; JULIEN 2000; LITTUNEN AND TOHMO 2003; ANDERSSON, 2003; PARKER ET AL., 2010; NICHOLLS- NIXON, 2005; SIMS AND O'REGAN, 2006; LITTUNEN AND NIITTYKANGAS, 2010; HOLM ET AL.,2002)
TECHNOLOGICAL	Technology linkage	Use of: CAD technologies computer-controlled management systems Internet/ Extranet To: Adapt their products Manage the complexity of the organization....	(OCDE, 2002; JULIEN 2000; MULHOLLAND, 2008; PARKER ET AL., 2010 ; SIEGEL, 1993 ; JOSE ET AL., 2011 ; HOLM ET AL.2002)

Table 9: Common characteristics of gazelles

Factors behind growth slow-down: The literature showed that very few gazelles can achieve and maintain their high growth for a long time (Daunfeldt and Halvarsson, 2015; Gabrielsson et al., 2014; José et al., 2011). Therefore, Daunfeldt and Halvarsson (2015) used the phrase ‘one-hit wonders’ to describe the high growth firms that are not capable to maintain their high-growth rates across the time. A relevant question could arise when considering this fact of “unsustainable high-growth”: What are the factors behind the discontinuity of gazelles’ high growth? According to the analysis of the literature performed here, the evidence about the challenges and discontinuity factors of gazelles’ high growth is very limited. This is due more importantly to the small number of primary research addressing clearly this new topic (e.g. Julien, 2008; Gabrielsson et al., 2014; José et al., 2011; Nicholls-Nixon, 2005; Daunfeldt et al., 2015; Hambrick, D.C. & Crozier, L.M., 1985). This little and current literature recognized that high growth, although desirable for entrepreneurial firms, generates many

potential problems and challenges which, if they are not well managed, could reverse the company growth trend (Julien, 2008; Nicholls-Nixon, 2005; Hambrick and Crozier, 1985). These problems and challenges include importantly the disaffection and disorientation of employees and inadequateness and difficulty of coordinating and integrating new resources (new executives, new employees, new skills and new systems) that are required for meeting the demands and, therefore maintaining the high growth (Hambrick and Crozier, 1985; Julien et al., 2008). Beside the non-preparation for being big (Hambrick and Crozier, 1985), lack of proximity to customers and of resources, absence of motivation for growth (Julien et al., 2008) and low profitability and weak financial position of high growth firms (Daunfeldt et al., 2015) could also explain why high growth of gazelles do not persist across the time. Another relevant question arises here, what a gazelle would do to maintain its high-growth? Unfortunately, the current literature on HGFs provided few propositions to address this issue. These consist mainly in making innovations based on customer's needs and constant organizational changes over the time (see summary table 09).

The issue	Factors	Solutions proposed
The unsustainability of gazelle's high growth across the time.	<ul style="list-style-type: none"> • Inadequateness of new resources and skills. • Non-preparation for being big • Lack of proximity to customers • Lack of resources, • Absence of motivation for growth • Low profitability and weak financial position 	<ul style="list-style-type: none"> • Maintain and develop client proximity ahead of time. • Making innovations and constant organizational changes. • Adopting self-organizing behavior • Acquiring crucial information about the environment for changes
(JULIEN ET AL., 2008; NICHOLLS-NIXON, 2005; HAMBRICK AND CROZIER, 1985; GABRIELSSON ET AL., 2014 ; DAUNFELDT ET AL., 2015)		

Table 10: Explanatory factors of high growth discontinuity and solutions proposed

4. SUMMARY AND DISCUSSION

Two main purposes were pursued in this paper. The first one was to report a systematic review of the literature on gazelles, more specifically on their common characteristics and the factors behind the discontinuity of their high growth rates. It is among the first literature review articles that adopt a systematic review to examine the existing literature on high

growth firms. It was based on 87 recent primary researches addressing the phenomenon of gazelle, the review has shown that studies on High Growth Firms privileged different methodologies, employed different research methods, relied on different types of data, posed different questions, used different measurements of the phenomenon and studied firms from different contexts and sectors. Moreover, they mobilized different frameworks, based on different references and, therefore ended up with different results. These results are in line with previous literature review studies (Wennberg, 2013; Henrekson and Johansson, 2010). 57 among the 87 primary research collected deal clearly with the research questions of this review. The vast majority of these studies, similarly to other studies, is quantitative research; relies mostly on secondary data from already constructed databases and studied firms from selective industries like manufacturing and service sectors. Many key characteristics of HGFs were revealed and they are classified here into four aspects: entrepreneurial, organizational, environmental and technological aspects. Regarding the challenges and discontinuity factors of gazelles' high growth, the review reveals that the evidences are very limited due more importantly to the small number of primary research addressing clearly this issue.

Note that the results of the present study should be considered and interpreted with caution as it presents some limitations which have to be appropriately acknowledged here. These are related mainly to the review method used, A systematic one. The paper dealt with a complex literature and with numerous studies, so many subjective judgements regarding the selection and evaluation of the primary studies were involved. A synthesis of a study addressing the same questions advanced here but applying other inclusion/exclusion criteria and developing other data extraction forms might generate different findings. This is, as noted earlier, the biggest challenges of applying systematic reviews in management research.

The second main purpose of the paper is to identify theoretical and methodological gaps and challenges within extant research which should be the source of motivation for future studies. Table 11 summaries several challenges that emerged from this review. It shows more specifically that there is a great need for further research to address (1) the lack qualitative studies, (2) the lack of studies considering the contextual and contingent dimensions, (3) the lack of studies examining the importance of innovation, proximity to customers and organisational changes, and (4) the lack of research integrating and putting together the findings of the two topics. The later can be considered as the most obvious gap in the high growth firms' recent literature.

If not much is unknown about the gazelles (Audretsch, 2012; Coad et al., 2014) that is perhaps the result of lack of using qualitative methodology in previous studies. Qualitative research can help to build theories (Eisenhard; 1989) and, thus provides a better understanding of complex phenomena (Peshkin, 1988) such as the phenomenon of gazelles. Far more qualitative research needs to be undertaken in this field.

	Main findings	Future challenges
METHODOLOGY <ul style="list-style-type: none"> • Type of research • Context of research • Industry sectors 	TABLES 3, 4 & 7	<ul style="list-style-type: none"> • Lack of qualitative research • Specificities of industry sectors • Lack of studies considering the contextual and contingent dimensions. • Lack of research in developing and under-developing countries
EMPIRICAL FINDINGS <ul style="list-style-type: none"> • Characteristics of gazelles • Factors behind gazelles high growth discontinuity 	TABLES 9 & 10	<ul style="list-style-type: none"> • Lack of research specifying the type of innovation (organizational, representational, technological and service innovation) and the situation of the firm (B2B or B2C). • Lack of research on how innovation and proximity to customers could enable gazelles to sustain the high-growth. • Lack of studies focusing on interactions between the four aspects. • Lack of studies précising direct antecedents factors of high growth. • Lack of research integrating and putting together the findings of the two topics.

Table 11: Challenges within current research

Most of recent studies generated their findings from different type of firms from different sectors and different countries. The second challenge is therefore to take into account contextual and contingent features (B2B or B2C situation; industry sector, competition and other characteristics of the environment) and examine their impacts on the drivers of gazelles' high growth, combined in this paper in four aspects. For example, future studies that will

make samples of homogenous features (firms operating in the same industry, engaged in b2b OR b2c ...etc.) would derive useful conclusions and contribute meaningfully to understanding the HGFs.

The third gap is related to the exploration of the role and contribution of continuous innovations, constant organisational changes and proximity to customers in achieving and maintaining the high growth across the time. Only few studies addressed the importance of these factors to sustain the high growth, but failed to identify the direct antecedents of high growth and how these factors should be combined. Future research will also contribute to the literature of gazelles if they draw on the resource-based view theory (RBVT) and organizational learning theory (OLT) to answer the following questions: Which resources matter the most to the performance of high growth firms? What resources considered as direct antecedents of high growth? And what is the importance of acquiring, saving and diffusing critical information about the firm' environment when it comes to make organizational changes?

The final and the most obvious challenge in the gazelles' recent literature is perhaps related to the lack of research integrating and putting together the findings of the two topics. A development of unifying conceptual model based on the empirical findings on gazelles characteristics and persistence of their growth rate is highly needed. This will be the main focus of future research (Part II).

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REFERENCES

- Acs, Z., 2008. Foundations of High Impact Entrepreneurship. *Jena Economic Research Papers*, pp.1–100.
- Acs, Z.J. et al., 2008. High-Impact Firms□: by High-Impact Firms□: Gazelles Revisited. *U.S. Small Business Administration*, (328).
- Almus, M., 2000. *What Characterizes a Fast Growing Firm?*,
- Andersson, S., 2003. High-growth firms in the Swedish ERP industry. *Journal of Small Business and Enterprise Development*, 10(2), pp.180–193.

- Armitage, A. & Keeble-allen, D., 2008. Undertaking a Structured Literature Review or Structuring a Literature Review□: Tales from the Field. *The Electronic Journal of Business Research Methods*, 6(2), pp.103–114.
- Audretsch, D.B., 2012. Determinants of High-Growth Entrepreneurship. *International Workshop on “High-growth firms: local policies and local determinants,”* (March).
- Bamiatzi, V.C. & Kirchmaier, T., 2014. Strategies for superior performance under adverse conditions: A focus on small and medium-sized high-growth firms. *International Small Business Journal*, 32(3), pp.259–284.
- Barringer, B.R., Jones, F.F. & Neubaum, D.O., 2005. A quantitative content analysis of the characteristics of rapid-growth firms and their founders. *Journal of Business Venturing*, 20, pp.663–687.
- Boston, T.D. & Boston, L.R., 2007. Secrets of Gazelles□: The Differences between High-Growth and Low-Growth Business Owned by African American Entrepreneurs. *Annals of the American Academy of Political and Social Science*, 613, pp.108–130.
- Brown, R. & Mawson, S., 2015. Targeted support for high growth firms□: Theoretical constraints , unintended consequences and future policy challenges. *Environment and Planning C Government and Policy*, XX(1), pp.1–21.
- Brown, R. & Mawson, S., 2013. Trigger points and high-growth firms A conceptualisation and review of public policy implications. *Journal of Small Business and Enterprise Development*, 20(2), pp.279–295.
- Cassia, L. & Minola, T., 2012. Hyper-growth of SMEs Toward a reconciliation of entrepreneurial orientation and strategic resources. *International Journal of Entrepreneurial Behaviour & Research*, 18(2), pp.179–197.
- Chan, Y.E., Bhargava, N. & Street, C.T., 2006. Having Arrived□: The Homogeneity of High-Growth Small Firms. *Journal of Small Business Management*, 44(3), pp.426–440.
- Coad, A. et al., 2014. High-growth firms□: introduction to the special section. *Industrial and Corporate Change*, 23(1), pp.91–112.
- Daunfeldt, S., Elert, N. & Johansson, D., 2014. Are High-Growth Firms Overrepresented in High-tech Industries□? , pp.1–27.
- Daunfeldt, S.-O. & Daniel, H., 2015. Are high-growth firms one-hit wonders□? Evidence from Sweden. *Small Business Economics*, 44, pp.361–383.
- Davidsson, P., Gartner, W.B. & Delmar, F., 2003. Arriving at the high-growth firm. *Journal of Business Venturing*, 18, pp.189–216.
- Davidsson, P. & Henrekson, M., 2002. Determinants of the Prevalence of Start-ups and High-Growth Firms. *Small Business Economics*, 19, pp.81–104.

- Delmar, F., 1997. HIGH-GROWTH FIRMS □: CHARACTERISTICS , JOB. In *RENT XI Conference*, 27 - 28 November 1997, (November), pp.27–28.
- Eisenhardt, K.M., 1989. Building Theories from Case Study Research. *The Academy of Management Review*, 14(4), pp.532–550.
- Fabiana, M. & Alex, C., 2015. High-Growth Firms: Stylized Facts and Conflicting Results. *Entrepreneurial Growth: Individual, Firm, and Region*, 17, pp.187–230.
- Feindt, S., Jeffcoate, J. & Chappell, C., 2002. Identifying Success Factors for Rapid Growth in SME E-commerce. *Small Business Economics*, 19, pp.51–62.
- Fischer, E. & Reuber, A.R., 2003. Support for Rapid-Growth Firms □: A Comparison of the Views of Founders , Government Policymakers , and Private Sector Resource Providers. *Journal of Small Business Management*, 41(4), pp.346–365.
- Fombrun, C.J. & Wally, S., 1989. Structuring small firms for rapid growth. *Journal of Business Venturing*, 4, pp.107–122.
- Gabrielsson, B.J., Politis, D. & Galan, N., 2011. Does Rapid Growth Coincide with Innovation □? An Examination of Gazelles in Sweden. , pp.1–23.
- Gabrielsson, J., Dahlstrand, Å.L. & Politis, D., 2014. Sustainable high-growth entrepreneurship A study of rapidly growing firms in the Scania region. *ENTREPRENEURSHIP AND INNOVATION*, 15(1), pp.29–40.
- Ghosh, B.C. et al., 2001. The key success factors , distinctive capabilities , and strategic thrusts of top SMEs in Singapore. *Journal of Business Research*, 51, pp.209–221.
- Gilman, M.W. & Edwards, P.K., 2008. Testing a Framework of the Organization of Small Firms: Fast-growth, High-tech SMEs. *International Small Business Journal*, 26(5), pp.531–558.
- Goedhuys, M. & Sleuwaegen, L., 2009. High-Growth Entrepreneurial Firms in Africa A Quantile Regression Approach. *Institute for Development Economics Research*, 1.
- Gough, D., Oliver, S. & Thomas, J., 2012. Introducing systematic reviews,
- Hambrick, D.C. & Crozier, L.M., 1985. Stumblers and stars in the management of rapid growth. *Journal of Business Venturing*, 45(1985), pp.31–45.
- Harms, R., 2009. A multivariate analysis of the characteristics of rapid growth firms, their leaders and their market. *Journal of Small business and Entrepreneurship*, 22(4), pp.429–454.
- Harris, M., 1998. *Synthesizing Research □: A Guide for Literature Reviews Applied Social Research Methods* Third Edit., Sage Publications, Inc.
- Henrekson, M. & Johansson, Æ.D., 2010. Gazelles as job creators □: a survey and interpretation of the evidence. *Small Business Economics*, 35(1), pp.227–244.

- Janczak, S. & Bares, F., 2010. *High Growth SMEs: The Evolution of the Gazelles and Some Evidence from the Field*,
- Jeserich, N. et al., 2012. Drivers of High-growth Businesses across U . S . States: Policy Implications.
- José L. Barbero, Casillas, J.C. & Feldman, H.D., 2011. Managerial capabilities and paths to growth as determinants of high-growth small and medium-sized enterprises. *International Small Business Journal*, 29(6), pp.671–694.
- Julien, P.A., 2000. HIGH GROWTH SMES: EXPLANATORY FACTORS. *Investigaciones Europeas*, 6(2), pp.39–56.
- Julien, P.-A. (2002). LES PME À FORTE CROISSANCE L'exemple de 17 gazelles dans 8 régions du Québec.
- Julien, P.-A. & St-Jean, E., 2008. FACTORS ASSOCIATED WITH GROWTH CHANGES IN “GAZELLES.” *Journal of Enterprising Culture*, 16(2), pp.161–188.
- Kitchenham, B., 2004. Procedures for Performing Systematic Reviews. , pp.1–33.
- Littunen, H. & Niittykangas, H., 2010. The rapid growth of young firms during various stages of entrepreneurship. *Journal of Small Business and Enterprise Development*, 17(1), pp.8–31.
- Littunen, H. & Tohmo, T., 2003. The High Growth in New Metal-Based Manufacturing and Business Service Firms in Finland. *Small Business Economics*, 21, pp.187–200.
- Maria, A., 2015. An analysis of the rapid growth factors presented in the literature of the field. *Annals of the Constantin Brâncuși*, I(1), pp.257–263.
- Moreno, A.M. & Casillas, J.C., 2013. High-growth enterprises (gazelles): an conceptual framework. , pp.1–14.
- Moreno, A.M. & Casillas, J.C., 2007. High-growth SMEs versus non-high-growth SMEs: a discriminant analysis. *Entrepreneurship & Regional Development: An International Journal*, 19(1), pp.69–88.
- Mulholland, R., 2008. Fast growth SMEs in the northern Ontario economy. , pp.33–38.
- Nicholls-nixon, C.L., 2005. Rapid growth and high performance: The entrepreneur ’ s “ impossible dream?” *Academy of Management Executive*, 19(1), pp.77–89.
- Notta, O. & Vlachvei, A., 2009. Rapid-Growth Firms in Greece: An Empirical Investigation. *528 International Conference on Applied Economics*, pp.527–534.
- Nylund, P.A., Hernandez, X.F. & Nuria A. Serrat, 2016. High-Growth Firms in low-growth regions: internationalization as a predictor of growth. *International Business Management*, 10(4), pp.320–323.

- OECD, 2010. High-Growth Enterprises WHAT GOVERNMENTS CAN DO TO MAKE A DIFFERENCE. *OECD Studies on SMEs and Entrepreneurship*, p.238.
- OECD, 2002. High-growth SMEs and Employment. *OECD Studies*, p.149.
- Parker, S.C., Storey, D.J. & Witteloostuijn, A. van, 2010. What happens to gazelles? The importance of dynamic management strategy. *Small Business Economics*, 35(1), pp.203–226.
- Parsley, C. (2008). Profile of Growth Firms: A summary of Industry Canada Research. *Industry Canada*.
- Peshkin, A., 1988. Understanding Complexity: A Gift of Qualitative Inquiry. *Anthropology & Education Quarterly*, 19(4), pp.416–424.
- Picart, C., 2006. Les gazelles en France. *Institut national de la statistique et des études économiques*.
- Sargent, J. & Matthews, L., 2015. High-Growth Entrepreneurship in Mexico. *Latin American Business Review*, 16(2), pp.143–163.
- Siegel, R., Siegel, E. & Lan, M., 1993. Characteristics distinguishing High-Growth ventures. *Journal of Business Venturing*, (8), pp.169–180.
- Sims, M.A. & O'Regan, N., 2006. In search of gazelles using a research DNA model. *Technovation*, 26, pp.943–954.
- Smallbone, D., Leigh, R. & North, D., 1995. The characteristics and strategies of high growth SMEs. *International Journal of Entrepreneurial Behaviour & Research*, 1(3), pp.44–62.
- Ted, Z. & Nittaya, C., 2006. Improving the writing of literature reviews through a literature integration exercise. *Business Communication Quarterly*, 69(2), pp.172–183.
- Tranfield, D., Denyer, D. & Smart, P., 2003. Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management*, 14(3), pp.207–222.
- Torraco, R.J., 2005. Writing Integrative Literature Reviews: Guidelines and Examples. *Human Resource Development Review*, 4(3), pp.356–367.
- Webster, J. & Watson, R.T., 2002. Analyzing the past to prepare for the future: writing a review. *MIS Quarterly*, 26(2), pp.13–23.
- Wennberg, K., 2013. Managing High-Growth Firms: A literature review. *International Workshop on "Management and Leadership Skills in High-Growth Firms,"* (May), pp.1–27.
- Wit, G. De & Timmermans, N.G.L., 2008. High-Growth SMEs Evidence from the Netherlands. *SCientific Analysis of Entrepreneurship and SMEs*.

Zhang, Y., Yang, X. & Ma, F., 2008. A quantitative analysis of the characteristics of rapid-growth firms and their entrepreneurs in China. *Journal of Small Business and Enterprise Development*, 15(4), pp.675–688.

APPENDIX

Acs, Z.J. & Mueller, P., 2008. Employment effects of business dynamics: Mice, Gazelles and Elephants. *Small Business Economics*, 30(1), pp.85–100.

Bos, J. & Stam, E., 2011. Gazelles , Industry Growth and Structural Change.

Brown, R. & Mawson, S., 2015. The geography of job creation in high growth firms□: The implications of “growing abroad.” *Environment and Planning C: Government and Policy*, XX, pp.1–21.

Choi, T., Robertson, J.C. & Rupasingha, A., 2013. *High-Growth Firms in Georgia*,

Daunfeldt, S., Elert, N. & Johansson, D., 2016. Are high-growth firms overrepresented in high-tech industries□? *Industrial and Corporate Change*, 25(1), pp.1–21.

Daunfeldt, S.-O., Anders, B. & Niklas, R., 2015. Sleeping Gazelles: The Unseen Job Creators? *Entrepreneurial Growth: Individual, Firm, and Region*, 17, pp.161–185.

Daunfeldt, S.-O., Johansson, D. & Daniel, H., 2015. Using the eurostat-OECD definition of high-growth firms: a cautionary note. *Journal of Entrepreneurship and Public Policy*, 4(1), pp.50–56.

Deschryvere, M., 2008. *High growth firms and job creation in Finland*,

Dirk, F. & Otto, A., 2008. Between Snails and Gazelles□? Analysing the Effects of Regional Specialisation on Firm Growth□: a Quantile Regression Approach. *25th Celebration Conference*, pp.1–28.

Du, J. & Temouri, Y., 2014. High-growth firms and productivity□: evidence from the United Kingdom. *Small Business Economics*, pp.1–21.

Feeser, H.R. & Willard, E., 1989. Incubators and performance: a comparison of high- and low-growth high-tech firms. *Journal of Business Venturing*, 4, pp.429–442.

Feeser, H.R. & Willard, G.E., 1990. Founding strategy and performance: a comparison of high and low growth high tech firms. *Strategic Management Journal*, 11, pp.87–98.

Heimonen, T., 2012. What are the factors that affect innovation in growing SMEs□? *European Journal of Innovation Management*, 15(1), pp.122–144.

Henrekson, M. & Johansson, Æ.D., 2010. Gazelles as job creators□: a survey and interpretation of the evidence. *Small Business Economics*, 35(1), pp.227–244.

Holm, M.J. & Poulfelt, F., 2002. Strategy in High-Growth SMEs - a qualitative study of six companies. , (December), pp.1–16.

- Hölzl, W., 2009. Is the R&D behaviour of fast growing SMEs different? Evidence from CIS III data for 16 countries. *Small Business Economics*, 33(1), pp.59–75.
- José L. Barbero, Casillas, J.C. & Feldman, H.D., 2011. Managerial capabilities and paths to growth as determinants of high-growth small and medium-sized enterprises. *International Small Business Journal*, 29(6), pp.671–694.
- Keen, C. & Etemad, H., 2012. Rapid growth and rapid internationalization□: the case of smaller enterprises from Canada. *Management Decision*, 50(4), pp.569–590.
- Markman, G.D. & Gartner, W.B., 2002. Is Extraordinary Growth Profitable? A Study of Inc. 500 High-Growth Companies. *Entrepreneurship Theory and Practice*, pp.65–75.
- Mason, C. et al., 2015. High growth firms , jobs and peripheral regions□: the case of Scotland. *Cambridge Journal of Regions, Economy and Society*, pp.1–16.
- Mazzucato, M. & Parris, S., 2014. High-growth firms in changing competitive environments□: the US pharmaceutical industry (1963 to 2002). *Small Business Economics*.
- Nola, H.-D., Berendan, M. & Stepahen, R., 1994. Competitors knowledge among small firms: A pilot examination of fast growing northern Ireland companies. *International Small Business Journal*, 15(2), pp.76–82.
- Nylund, P.A., Hernandez, X.F. & Nuria A. Serrat, 2016. High-Growth Firms in low-growth regions: internationalization as a predictor of growth. *International Business Management*, 10(4), pp.320–323.
- Oke, A., Burke, G. & Myers, A., 2007. Innovation types and performance in growing UK SMEs. *International Journal of Operations & Production Management*, 27(7), pp.735–753.
- Sarmiento, E. de M., Figueira, C. & Nunes, A., 2013. High-growth entrepreneurship and policy support in Portugal. In *9th Iberian International Business Conference*.
- Senderovitz, M., Klyver, K. & Steffens, P., 2015. Four years on: Are the gazelles still running? A longitudinal study of firm performance after a period of rapid growth. *International Small Business Journal*, pp.1–21.