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GERMANY – A FERTILE GROUND FOR THE DEVELOPMENT OF HIDDEN CHAMPIONS

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INTRODUCTION

Analyzing the reasons which could explain why Germany was the world leader in exports, Hermann Simon (1996) discovers that it was not the case of large firms such as Siemens, Bosch or BASF but that of a category of companies small and medium-sized, leaders in their global markets and unknown to the public, the Hidden Champions. He demonstrated their global competitive strength, holding 90% of market shares in global niches.

These companies owe their name to the secrecy that surrounds them because they are unknown to the public while being world leaders in their niche segment. They have aroused international interest because of their economic performance and the fact that they have a stabilizing effect after economic crises.

Out of the 2674 Hidden Champions listed, 46% of them are localized in Germany (Simon 2014). Since Simon's first publications in the 1990s, most studies have focused on German examples (Simon 1996, 2007, 2012; Rasche 2003; Vernohr and Meyer, 2007, McKiernan and Purg 2013; Rammer and Spielkamp 2015; Schlepphorst *et al.* 2016). Regarding the literature on the subject in the world and without claim to exhaustiveness, we can also mention the work on China (Deng and Wan 2006; QH Li and Li 2008; Yu and Chen 2009), Great Britain (Witt 2015), Canada (Blackburn *et al.* 2000), Greece (Voudouris *et al.* 2000), in 15 European countries (CEEMAN 2011), Russia (Purg *et al.* 2016) or the work on Spain (Perea Muñoz *et al.* 2016) or Japan (Schaede 2011). These different studies converge towards the fact that these companies have a significant impact on the studied economies. That is especially true given that the "Hidden Champions" form the pool of companies from which will emerge the new "Global Champions" (Rammer C. and Frietsch R. 2015).

Analyzing the geographical dispersion of Hidden Champions around the world, it is surprising that almost half of the population of these highly performant companies is geographically concentrated in Germany. How can it be explained that these global performers, the Hidden Champions, are more numerous when they are based in specific nations such as Germany? If one has to admit that these companies are global performers and leaders of their “niche” market, what makes the difference seems to be precisely their home base, sustaining the competitiveness of the industry and firms and influencing entrepreneurship behavior.

Hidden Champions are outstanding international performing innovating companies, presenting the same characteristics and internal success factors. According to Porter’s diamond approach (1990), the institutional context and the concept of clusters where interconnected firms, suppliers, related firms and specialised institutions in particular locations can provide competitive advantages to firms. In our view, Porter’s findings can partly support our hypothesis that the German national Ecosystem seems to be more efficient to sustain the development of these companies than that of other countries.

Around the world, leading companies achieve their global leadership employing particular strategies conducting to competitive advantage, especially when they introduce new technologies or propose new proceeds or methods to do things. National differences in values, culture, economic structures, institutions, and historical development contribute to the competitive success of firms and strike "the differences in the patterns of competitiveness in every country" (Porter 1990, p.73). According to Acs *et al.* (2016, p.532), “entrepreneurship is an embedded action: Both the individual and the context matter. What is needed, therefore, is a systemic understanding of the entrepreneurial process”.

Germany's competitiveness is based on the performance of its industrial companies and for the outstanding performance in the production of quality goods and services expressed by the quality label “Made in Germany”. German firms are known worldwide to provide their consumers with outstanding quality in goods and services.

These firms are embedded in a specific environment, the German ecosystem. This ecosystem is made up of a multitude of spheres (institutional, normative, economic, financial, political, societal, cultural and different economic agents) interacting with each other and condition the opportunities for performance and competitiveness of firms (Bleuel 2018). It has been historically formed on theoretical economic approaches favorable to entrepreneurship and supporting the competitiveness and growth of companies, especially that of the small and medium firms belonging to the so called “Mittelstand”¹.

To this purpose, our research first focuses on, to what extent the national home base or ecosystem influences the entrepreneurial behaviour of German Hidden Champions and. And second, it aims to determine to what extent a country contributes to enhancing the competitiveness of its small firms to become these extremely high performing companies, the Hidden Champions. To this end, we will analyze the German case.

¹ The Institut für Mittelstandsforschung (IfM) notes that the term Mittelstand is a specificity of the German-speaking territory, characterized by the union between ownership and management and the independence of the company. To be part of Mittelstand firms, IFM distinguishes companies employing less than 500 employees, (turnover of less than 50 million euros), to be owned and managed by family members. Companies with more than 500 employees are counted as members of the Mittelstand category, if the criteria of independence and union between the property and the management of the company are verified.

Verifying our hypothesis that the German ecosystem favours the emergence of Hidden Champions more than that of other countries, requires first a closer look at the general concept, distinguishing the outlining characteristics of Hidden Champions in general (section 1) and German Hidden Champions in particular (section 2). Second, we will analyze the influence of German entrepreneurial culture on the entrepreneurial competitiveness of these firms. For this, we will highlight their organisation, strategy and the governance they share with Mittelstand² companies since they form part of them (section 3). At least, to understand the way the German ecosystem is sustaining entrepreneurial activities of small business firms, it is necessary to emphasize how the federal government tries to sustain the small and medium firms in their development (section 4).

1 HIDDEN CHAMPIONS, SMALL AND MEDIUM SIZED” NICHE MARKET” LEADERS

Contrary to the traditional assumption that finds its perfect expression in the words of Chandler (1990) "to be competitive on a global scale one must be big", there are small and medium-sized companies well defending their dominant positions on global markets. Since the 1990s, researchers have been challenged by a growing proportion of SMEs with rapid international development, while traditional SMEs are supposed to operate in local or national markets.

Hidden Champions aroused the interest of researchers because they perform better than traditional SMEs of equivalent size. These companies are unknown to the final consumer and thrive because their development strategies remain secret. The lack of fame forms part of the business model, notwithstanding we have noted in recent years a greater openness towards the public because of the visibility of their activities on the internet (Simon 2012).

1.1 GENERAL CONCEPT

Hidden Champions operate primarily in niche markets, occupying a dominant position in their global markets, in which they offer specific goods and/or services. They are owned by family capital, produce quality goods or services, and value their customers with whom they have long-term relationships. One of their competitive advantages is that they have a high degree of reliability (Simon 1996). Hidden Champions take advantage of opportunities for innovation and growth in their niche markets, abandoned by large Firms because of their lower sales volume and the specific requirements of customers (often industrial).

² German Small and Medium-sized firms

The first definition of the Hidden Champions was published in a German review in 1990 (Simon 1990). This definition has since been updated around the company's position in the global market, as well as its turnover and the secrecy that surrounds it (Simon 2012³):

- The company must be the leader on a continent or be among the top three companies in the global market.
- It generates a turnover of less than 5 billion euros.
- The company is little known to the final consumer (households).

Simon (2012 p.84) emphasizes that to form part of the Hidden Champions category, "more important than a demarcation by size, is for us the fact that they have kept during their rapid growth their typical traits, strategies and style of leadership ". There are thus small, medium and "large" medium-sized companies that can claim membership in the Hidden Champions group.

For these companies, having a large share of the global market means a strategy of refocusing on markets with lower demand. The products sold on these niche markets offer few opportunities for standardisation and thus little scope for achieving economies of scale. Therefore, the flexibility of small and medium-sized enterprises is more suited to supply these markets than that of the large firms.

In his various articles on Hidden Champions, Simon (1996, 2007, 2012, 2014, 2017) underlines several stylized facts, characterizing the success of these companies which he attributes to internal and external factors. This means a strong leadership that sets simple and ambitious goals, internal skills standing out for highly motivated and highly qualified employees, which is conveyed by confidence in their skills and an ability to innovate. The innovation strategy serves to improve production but also to maintain the dominant position in the market. In addition to this, Hidden Champions are characterised by very close proximity to their customers, with whom they establish a relationship of trust resulting in a partnership to produce goods and services adapted closely to the supply request.

The success of these companies is primarily based on their leadership and strategy (Simon 2017). They are distinguished by the longevity of their leadership which is on average 20 years while the average leadership longevity of the 2500 largest companies is only about 7 years (study realized by Strategy&⁴ on the period from 2012 to 2016). Hidden Champions are also characterized by significant longevity, with a median age of 66. The leaders of these companies enter their directory functions at a young age and the rate of woman managers is higher than in large corporations (Simon 2012). The success formula of many of these Hidden Champions can be found "in the balance between resource-induced pragmatism ('What is feasible?') and the market-driven drive for change (what is desirable ') "(Rasche 2003, p.231). The contribution of Rasche (2003) led to a subdivision of these companies into three subcategories according to their activity: *Hidden Product Champions*, *Hidden Professional Champions* and *Multi-Arena Champions*.

³ Since the first publications of Simon in (1990, 1996) this definition has been revised in terms of turnover (the initial definition provided \$ 1billion) and the position of the firm on the global market (first or second on the global market).

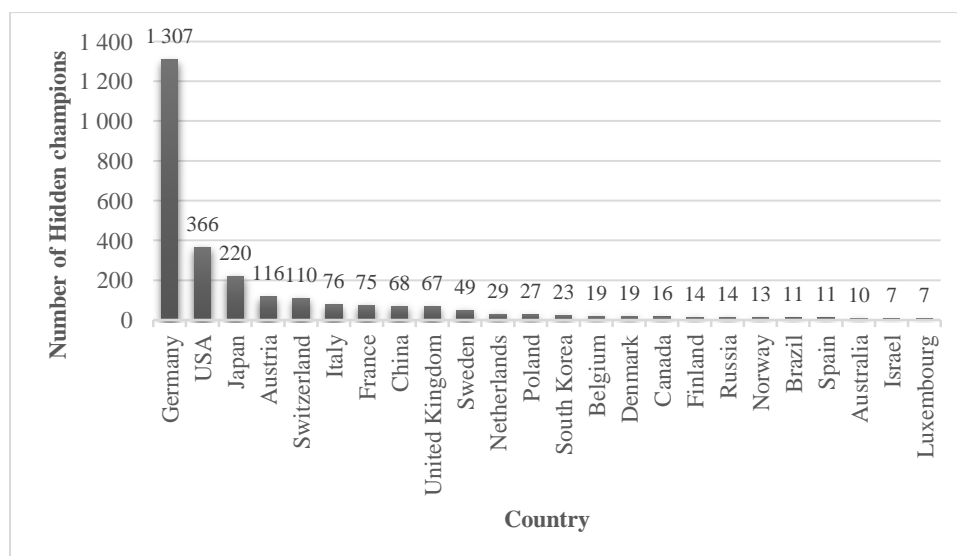
⁴ <https://www.strategyand.pwc.com/global/home/>

- The *Hidden Product Champions*, are companies specialized in the production of niche products. Such as the BROSE company, which has been a leader in the automotive industry for years⁵. Their innovation management focuses on innovations adapting their products to the needs of the main users and paying great attention to the quality of their products.
- The *Mutli-Arena Champions* stand out from other Hidden Champions by diversifying their activities in key industries. The various activities fit into each other, bringing diversification to the portfolio of activities while remaining in the heart of the core business.
- *Hidden Professional Champions* specialize in service activities. Like the DROEGE & Comp.⁶ Company, whose speciality is the consulting activities brought to professionals where it has forged a solid reputation.

1.2 THE HIDDEN CHAMPIONS A GLOBAL PHENOMENON, BUT MORE PRESENT ON THE GERMAN-SPEAKING TERRITORY

In the early 1990s, approximately 450 Hidden Champions were identified by Simon (1996). According to more recent research, up to 2,674 of these companies were identified worldwide (Simon 2014). Most of the Hidden Champions (*figure 1*) are localised in Germany where there are 1307 of these companies (Simon 2014). The United States is the second location with 366 companies, far behind Germany. In the third, fourth and fifth place, Japan (220), Austria (128) and Switzerland (110) respectively follow. The last group consists of Italy (76) and France (75), China (68) and the United Kingdom (67), Sweden (49), Netherlands (29), Poland (27), South Korea (23), Belgium (19), Denmark (19), Canada (16), Finland (14), Russia (14), Norway (13), Brazil (11), Spain (11), Australia (10), Israel (7) and Luxembourg (7).

Figure 1: International Comparison of the number of Hidden Champions



Source: Data retrieved from Simon (2014), own depiction

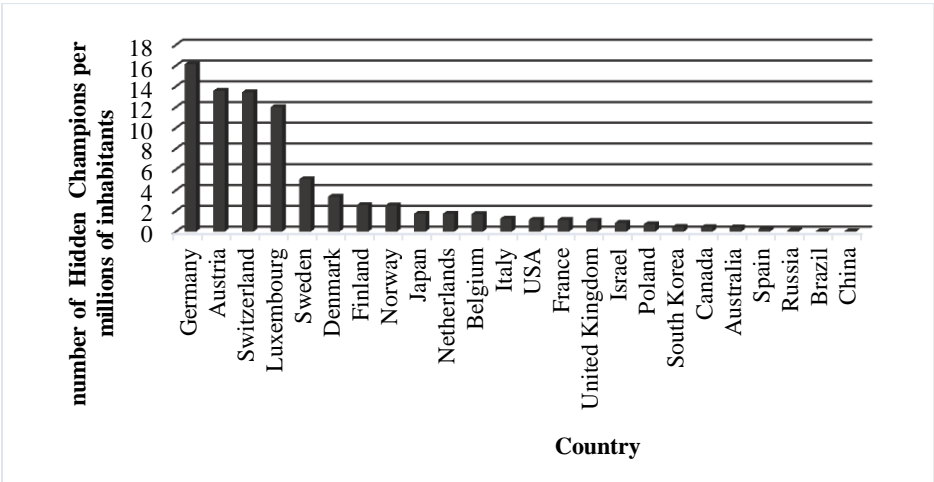
⁵ <https://www.brose.com/de-de/>

⁶ <https://www.droege-group.com>

According to the number of Hidden Champions, Germany and the USA are at the top of the countries presenting the highest number of these firms. Analyzing the number of Hidden Champions per million inhabitants (*figure 2*), the findings show that the German-speaking countries are the ones with the highest number of Hidden Champions, far ahead of all other nations (Germany 16, Switzerland 13.9 and Austria 13.8) closely followed by Luxembourg (12). The position of Luxembourg can be explained because it shows similarities with the other German-speaking countries regarding country-size behavior in respect of the need to export, qualified workforce, well-educated multi-lingual workforce coming from other countries (similarity with Switzerland) and an export-friendly location in Europe.

As an example, Germany wasn't a nation-state 100 years ago, but a conglomeration of small states. Due to the intense competition between the small German firms on their small home market, these small firms needed to internationalize to expand their sales. Competitive firms operating in niche markets in small countries must export their production of goods or services to new markets to increase their sales and therefore their market share. The German-speaking countries, as well as Luxembourg, present a well-educated multi-lingual workforce, and these countries are well located in Europe. Luxembourg also possesses some industrial and service competencies. For example, it has a long steel tradition and approved competencies in system financing and internationalizing which are exploited by firms like SES and Intelsat.

Figure 2: Hidden Champions by country - per million inhabitants



Source: Data retrieved from Simon; World Bank (2014), depiction and calculations: author

Comparing the ranking (*table 1*) of the German-speaking countries to those of the United States (1,1), Canada (0,4) or the United Kingdom (1) regarding their number of Hidden Champions per million inhabitants, they present a significantly fewer number of Hidden Champions than the German-speaking countries. This is also the case if one compares them to the Scandinavian countries which show the second most important number of Hidden Champions.

Table 1: Rank of countries by number of Hidden Champions and by number of Hidden Champions per million inhabitants

Rank of countries by number of Hidden champions					Rank of countries by number of Hidden Champions per million inhabitants						
1	Germany	1307	13	South Korea	23	1	Germany	16,1	13	USA	1,1
2	USA	366	14	Belgium	19	2	Austria	13,6	14	France	1,1
3	Japan	220	15	Denmark	19	3	Switzerland	13,4	15	United Kingdom	1,0
4	Austria	116	16	Canada	16	4	Luxembourg	12	16	Israel	0,8
5	Switzerland	110	17	Finland	14	5	Sweden	5,1	17	Poland	0,7
6	Italy	76	18	Russia	14	6	Denmark	3,4	18	South Korea	0,4
7	France	75	19	Norway	13	7	Finland	2,6	19	Canada	0,4
8	China	68	20	Brazil	11	8	Norway	2,5	20	Australia	0,4
9	United Kingdom	67	21	Spain	11	9	Japan	1,7	21	Spain	0,2
10	Sweden	49	22	Australia	10	10	Netherlands	1,7	22	Russia	0,1
11	Netherlands	29	23	Israel	7	11	Belgium	1,7	23	Brazil	0,05
12	Poland	27	24	Luxembourg	7	12	Italy	1,2	24	China	0,05

Source: Simon, 2014; World Bank,2014; depiction and calculations: author

Differences in the distribution of ranking positions of countries according to their global exporting performance of goods (table 2) appear comparing them with those of the number of Hidden Champions per country. Thus, the country distribution is very different in the five best economies. Regarding their global exporting performance of goods, China is in the first position, the United States in the second position, Germany and Japan respectively in third and fourth position whereas Holland is the fifth best global exporting economy. Hence, we find among the 4th leading countries nearly the similar countries having the highest number of Hidden Champions and being exporting leading countries like the USA, Germany and Japan, exception made for China, and we have to note that the ranking place isn't the same.

Table 2: The 10 Leading global exporting economies of goods in 2014

Rank	Country	Value	Share
1	Chine	2342	12,3
2	USA	1621	8,5
3	Germany	1508	7,9
4	Japan	684	3,6
5	Netherlands	672	3,5
6	France	583	3,1
7	Republic of Korea	573	3,0
8	Italy	529	2,8
9	Hong Kong	524	2,8
10	United Kingdom	506	2,7

Source: data OMC, 2015

If one examines the exporting performances of these economies respectively to their country size, one cannot avoid the questioning why 46% of the herd of Hidden Champions evolve in Germany, and the rest of the firms are distributed far behind. These elements lead to the

consideration that these companies must find more favorable conditions for their development in Germany than elsewhere as well as in the German-speaking economic models. Given these results, it can be hypothesized that German-speaking economic models are more conducive to the emergence of these types of firms, even the European economies, while the American and British models seem less suitable for producing this kind of businesses.

1.3 THE GERMAN HIDDEN CHAMPIONS

The internal strengths of all Hidden Champions are intimately tied to their key success factors: strong customer focus, strong service orientation and policy, relevant market demarcation and global market presence (Rammer and Spielkamp 2015). The comparative advantage of the Hidden Champions lies in the specialisation in specific production technologies, and perfect knowledge of product corralled to the management of customer-oriented innovation. These companies are perfectly able to bring radical innovations to the market (*ibid.*). The internationalisation strategy allows these companies operating in niche markets to realize economies of scale that they could not have achieved otherwise.

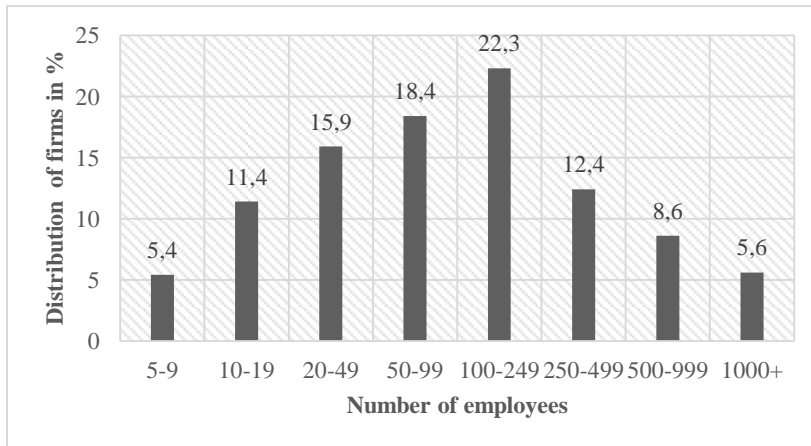
The product specialisation strategy, the internationalisation strategy, the continuous innovation of their products, coupled with in-house expertise and strong proximity with the customers allow them to put on the market the goods and services of high performance and quality. Their comparative advantage thus built gives them sustainable growth and leadership in their market. Vernohr and Meyer (2007) note that despite some failures among Simon's Hidden Champions, success is more commonplace. Some of these companies have had spectacular growth and belong now to the Global Champions, just like SAP (world leader in business software) and Fresenius (now a world leader in healthcare).

Companies in the Hidden Champions category in Germany are from and belong to the Mittelstand firms and have kept most of their distinctive characteristics. In particular, the governance structure, the organisational and entrepreneurial culture as well as the capital under private control, often family-owned. The feature distinguishing them from other Mittelstand's companies is their leading position in global markets and the ability to bring radical innovations to the market, while Mittelstand SMEs tend to prefer to bring extra value to their customers by incremental innovations.

1.3.1 Structural data

The study conducted by Christian Rammer and Alfred Spielkamp (2015), using data from the Mannheimer Innovationspanel, shows that the majority of German Hidden Champions (73%) are companies with fewer than 250 employees (*figure 3*). Companies from 250 to 499 make up only 12.4% of the total panel, firms from 500 to 999 only 8.6% of the total and companies with more than 1000 employees represent only 5.6% of total Hidden Champions. If we analyse the proportion of Hidden Champions in total German firms, the most Hidden champions in all businesses are in the medium-large group of companies with between 500 and 999 employees. According to the study conducted by Christian Rammer and Frietsch (2015), these companies employ on average around 330 employees and have a turnover of approximately 100 million euros. Out of these companies, 86% of Hidden Champions are in the industry sector, 14% are in the services sector. Another interesting element is the median age of these firms which is about 66 years (Simon 2012).

Figure 3: Distribution of Hidden Champions in Germany according to the size (averages from 2006 to 2012)



Source: data retrieved from Rammer et Spielkamp (2015), own depiction

If the Hidden Champions are confronted with a similarly sized corporate control group (CG) based on economic indicators such as market share, employment, revenue growth (turnover), export rate, age and overall profitability (table 3), we can note superior performance on several points. They differ from the control group regarding market share (34%), which is 13% higher than the control group. Regarding sales growth, the Hidden Champions have a rate of 11.3% per year (evaluation over the last five years), a value which is 7.9% above the CG value. Also, with a 64% export rate, their export performance is almost twice as high (+34%) as that of the CG companies. As a result, the economic performance of Hidden Champions is much higher than that of the CG companies in respect to market share, growth turnover, export rate and overall profitability.

Table 3: Hidden Champions Economic Indicators Compared to Control Group (CG) Companies, Average from 2006 to 2012

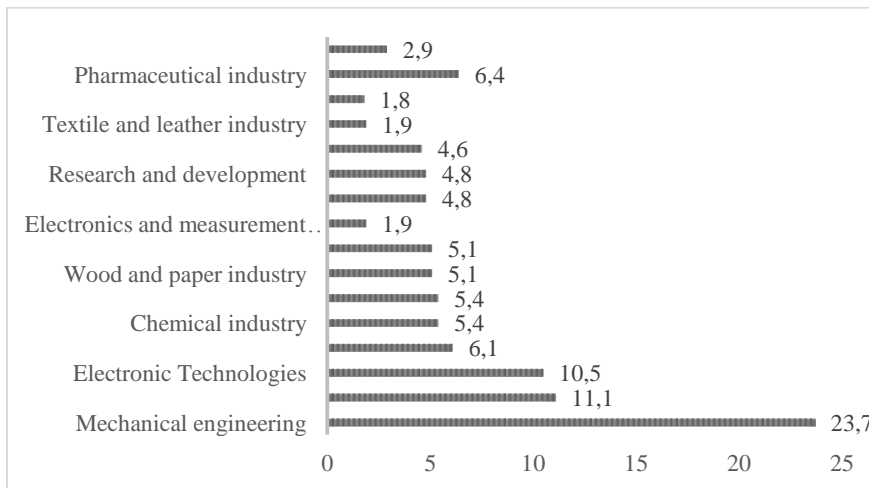
	Unit	Value Hidden Champions	Difference from CG in % - Pt.	Level of significance
Market share	%	33,7	+12,8	***
Employment	Number	731	+39	
Growth turnover / per year in the last five years	%	11,3	+ 7,9	***
Export rate	%	64	+34,1	***
The share of the main product in turnover	%	66,5	+2,6	
Age	Années	43,3	+1,6	
Overall profitability (profit/turnover)	Likert 1-9	5,4	+0,8	***

Source: data retrieved from Rammer et Spielkamp (2015), own depiction

1.3.2 Industrial distribution

Rammer and Frietsch (2015) identify about 1500 Hidden Champions in Germany. According to their estimates, about 85% of Hidden Champions evolve in the industry, and about a quarter are engaged in mechanical engineering (figure 4). The major part of Hidden Champions evolves in Mechanical engineering (23,7%), Metal industry (11,1%, particularly in the manufacture of special metal components for machinery, cars and industrial equipment) and Electronic Technologies (10,5%). They are present in the pharmaceutical industry (6,4%) and medical technologies (6,1) and in sectors like software/internet, chemical industry, wood and paper industry and plastics of which the Hidden Champions is around 5%).

Figure 4: Share of Hidden Champions by industry (Average of years 2009-2013)



* firms with 5 or more employees

** microelectronics, computer manufacturing, communication and consumer electronics technologies, control, control, measurement and optical technologies

Source : Mannheimer Innovationspanel, calculation ZEW, Rammer et Frietsch (2015), own depiction

The same study reveals analyzing that a large concentration of these companies can be found in the pharmaceutical industries (6.4%), R&D, electronic technologies, chemical industry (about 5%) and in mechanical engineering and automotive manufacturing (about 3.5%). In advanced technologies (microelectronics, computer manufacturing, communication technologies and consumer electronic products, control, control, measurement and optical technologies) there are few Hidden Champions (1,9%).

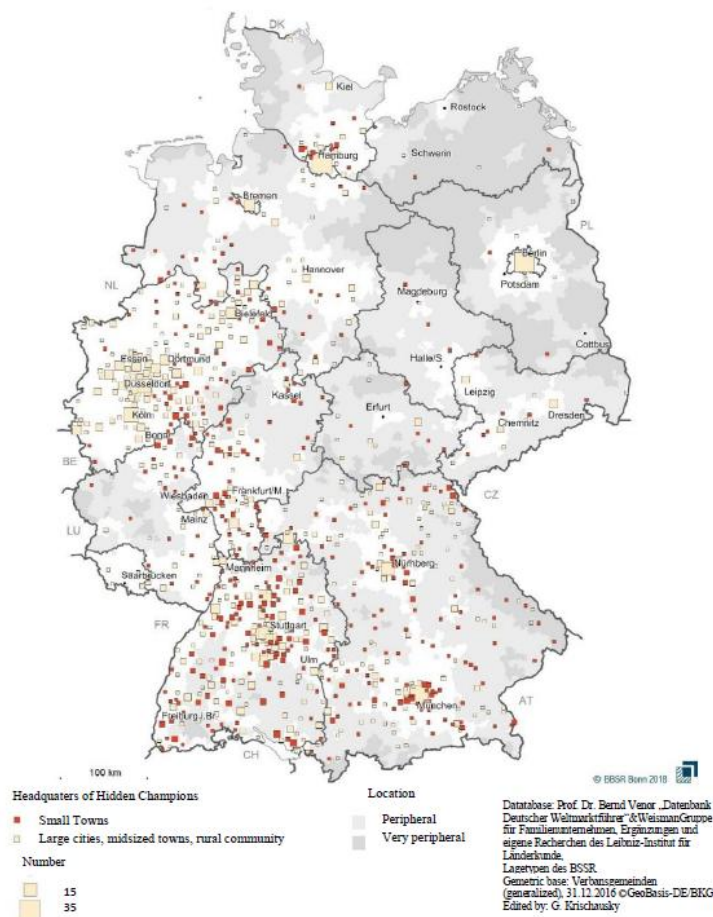
1.3.3 The geographical location

The geographical location of the Hidden Champions seems to contradict the teachings of the literature (Audretsch and Lehmann, 2016). To take advantage of localization, it seems to be more advantageous to be part of a cluster or located in a dense agglomeration to increase its performance, especially if it is small and medium-sized firms. The Hidden Champions seem to want to avoid big cities and densely populated areas and choose smaller towns or even villages to settle there (see figure 5). Although the population of the Hidden Champions has spread throughout Germany, some regions contain settlements of these companies chosen because of the innovative capacity of the region or the Land (federal state). But what matters, is the original layout of the company and the traditional competencies from which were built new industries. For example, in the past, the localization of the Black Forest (Schwarzwald) was specialized in clock manufacturing which declined. Now there are over 400 firms at Tuttingen (at the border of the Black forest), active in the medical technics where

these fine precision mechanics play a key role. There are firms like Aesculap or KLS Marin Group, respectively world leader of surgical instruments and endoscopes (Simon 2012).

The region's innovative capacity is built around the leading companies located there. The importance of location is the fact that the entire value chain of production is in this territory. As a result, companies can learn from each other, which is necessary to be globally competitive and innovative (ibid.). Many of the Hidden Champions are in relatively rural areas in south-west Germany, including Heilbronn, Wertheim, Reutlingen and Crailsheim. Some small towns where some Hidden Champions are located are important tourist sites, such as Lake Constance. These locations provide highly qualified staff with an attractive quality of life with low rental costs, low crime rates and low living costs. These environmental factors may become priorities in the face of the disadvantages of relative geographic isolation, easily surmounted by Germany's highly efficient transport infrastructure.

Figure 5: Headquarters of Hidden Champions in Small Towns in Germany



Source: BBSR, Bonn 2018

2 STRATEGY, GOVERNANCE AND A SPECIFIC CULTURE OF BUSINESS MANAGEMENT

According to the conclusions of Maurice *et al.* (1982), the national culture and the organization of the educational and productive system have an impact on the functioning of the firm. Work on international comparisons identifies national peculiarities in the way of directing and organizing activities (Bollinger and Hofstede 1987, Hall 1984) and the management of the production workforce (D'Iribane 1989). As a result, the corporate culture is influenced both by its history and by the culture of its home country. Education plays a key role in transmitting a model of learning behavior, training in knowledge, methods of acquiring it, social attitudes and skills. It gives to each a "hidden curriculum" (Jackson, 1975, Maighan, 1981). This "hidden curriculum" transmitted by the education system will permeate the behavior of people outside of school into their professional relationships, transmitting values and skills from the "hidden curriculum" to all entrepreneurial transactions.

In this respect, the national culture and the organization of the educational and productive system have an impact on the functioning and performance of the company. We can then assume that the German entrepreneurial culture combined to the German economic ecosystem, seem to be more favorable to the advent and durability of Hidden Champions. German Mittelstand and the Hidden Champions which form a part of it share their independent family structure and the "German" entrepreneurial culture. They shaped their competitive advantage on this base to shape their overall strategy, their leadership position in their niche segment, their high-quality production and above all, they intend to remain so. The company's strategy for personnel management, innovation and cooperation are geared to maintaining global leadership. The culture of export, rooted in these companies, comes from a historical legacy of state decentralization and non-existent protectionism on the part of the latter, forcing small businesses to cross the borders of their territories to leave to conquer new markets and cooperate to get started in these new markets.

2.1 GOVERNANCE AND MANAGEMENT

Most Hidden Champions are privately held, family-owned firms. This is an essential characteristic permitting long-term strategic development projections that are critical to the success of internationalisation, allowing them to create organizational cultures and practices that support long-term strategies and development. Strategic positioning on superior products, close relationships with their consumers, forging long-standing relationships with key external partners and ongoing attention is placed on the operational efficiency of the value chain form part of their strategic governance. These elements combined enable them to develop long-term strategies in niche market segments that they can control globally.

One of the most important success factors of the Hidden Champions is the leader (s) at their head playing a key role in the performance of these companies (Simon 2014), as well as the well-trained human resources (HR). If many of their leaders are founders, the next generation of leaders would often be just as well talented. The decision-making structure of the company, shared between the management and the property, offers the managers a decision-making power that is wide enough and leaves enough flexibility to run the company according to their vision taking in mind the growth of the firm. The style of management changes and adapts according to the situation of the company and can vary from an authoritarian style to a participative style. Nearly 50% of these companies are run by engineers (Wettman 2012). Hidden Champions promote motivation and team spirit through their management style that results in improved discipline and employee confidence. This strengthens the motivation and commitment of HR, which means that Hidden Champions employees generally identify

strongly with the goals and values of their employers (Schlepphorst *et al.*, 2016). The staff turnover of Hidden Champions is very low, like that of the German Mittelstand (Audretsch *et al.* 2016).

Objectives and strategies are determined by senior management. These serve as a guideline for middle management and other employees. Voudouris *et al.* (2000) note that managers in these companies encourage an open communication policy between the different hierarchical layers and foster mutual trust that stimulates innovation. Their leadership is due to a higher use of professional management than it is usual in other companies of the same size, to export activities to mitigate risk, systematic development of industrial brands, technological advance and product proposal accompanied by a full range of associated services (Wettmann 2012).

Their long-term orientation and investment in training allow them to build lasting relationships with their employees. The operational transposition is entrusted to the highly qualified human resources perfectly trained and loyal to the company. Highly qualified employees are considered by management as major assets for the company and benefit from ongoing training and a certain autonomy in decisions to bring creative ideas and suggest improvements, due to the recognition of their skills. Contrary to other global performing industrial countries, in Germany, highly qualified experts can be found outside of big cities in small unknown towns.

The German entrepreneurial culture running Mittelstand Companies is characterized by a high degree of mutual trust and loyalty between management and employees, resulting in a corporate culture that is more like an "extended family". It is distinguished by a few hierarchical levels, informal communication channels responding to the owner's leadership style. The simple organisational structure, taking a functional structure, is characterised by a flat hierarchy (Venohr and Meyer 2007), continually adapted according to the company's strategy, the requirements of the different markets and target groups. Firms ensure that the benefits derived from the specialisation provided by the niche product, with high added value, are not compromised by the change in organisational structure.

Specific Strategy to be kept hidden

These Hidden Champions are unknown to the general public for several reasons: the most important is that their products are invisible to the end consumer "because many of their products are in the" back office "of the value chain where they provide machines, components, software or processes that are not detectable in the finished product or service rendered "(Simon 2012, p.97). Another reason lies in their own discretion that they cultivate carefully. Hidden Champions thrive because their development strategies remain secret.

This is symptomatic for many of the leaders of these firms who fear the advertising which is in complete opposition to their market shares position, which are in the order of 70% to 90% for a large part of them. The explanation for this discretion is, that companies prefer to concentrate all their strength on their relationship with their customers. On the other hand, in their markets, the Hidden Champions have recognized brands, an excellent reputation and a great reputation with their customers. Nevertheless, in the last years, the Hidden Champions have even become more open to the final consumer because of the visibility on the Internet and specialized websites accessible to the public.

Table 4: Characteristics of Hidden Champions

CATEGORY	CHARACTERISTICS
Property / status	Family, independent
Market	Have a dominant position in their market and can be considered the most important supplier Control over global market segments Evolve on niche markets
Leadership	Figure among the top three in the global market Or No. 1 on a continent Superior longevity to GE in global leadership
Turnover	Generates a turnover below 5 billion euros Their turnover comes for the most part from international markets
Visibility	The company is not known to the general public Their products are invisible to the end consumer, they are in the "Back Office of the value chain"
Direction	Union between management and property Leadership: strong who sets simple and ambitious goals, promotes motivation and team spirit
Management	Informal channels of communication, open communication policy between the different hierarchical layers fostering mutual trust and stimulating innovation, granting decision autonomy to employees
Strategy	International Strategy Customer-oriented innovation strategy Specialization strategy in specific production technologies
Innovation	Significant investment in innovation Market introduction of radical and incremental innovations
Cooperation	With customers, suppliers to improve supply, research institutions
Structure	Simple organizational structure in line with the company's strategy Functional, flat hierarchy
Employees	Highly qualified, benefiting from adapted training, loyal to management
Sectors	Most of them evolve in the industry, especially in the pharmaceutical or the chemical industry, mechanical engineering and automotive manufacturing
Localization	In small towns, villages

Source: Author

2.2 INNOVATION AND INNOVATION MANAGEMENT

Innovation is a principal factor of success for companies wanting to maintain leadership in their market segments. According to the findings of Rammer and Frietsch (2015), Companies belonging to the category of Hidden Champions participate about over 5.7% of the R&D expenditure of the German economy and 5% of the turnover of new products in Germany. The study found significant differences between Hidden Champions compared to the CG of companies of the same size. Particularly, the proportion of innovators among the Hidden Champions is significantly higher compared to that of the CG. In the last three years, about 81% of Hidden Champions have introduced the investigation of product or process innovations, while for the CG this proportion is around 71%. Product innovations (60%) are mostly developed by the Hidden Champions themselves, demonstrating the innovative capabilities and mastery of the key skills of these firms.

The development of innovations with third parties is about 34.4%. It is undertaken in cooperation with customers, some suppliers, but above all with research institutions. Furthermore, Hidden Champions obtain on average with 20.4% a much higher share of turnover than the CG (13.7%) with innovations put on the market and contribute about 15% of the total turnover of new products on the market. An important innovation activity is essential to maintain leadership strategy in their market. The strategic importance of innovations and especially radical innovations also underline their economic success (measured by the relation to turnover shares of these categories of innovations).

3 THE GERMAN MODEL FAVORABLE TO THE DEVELOPMENT OF HIDDEN CHAMPIONS

The success factors of business are embedded in the national ecosystem (national economic, legal and political environment) favoring or not the entrepreneurial activity of small and medium-sized enterprises. The comparative advantage of the German ecosystem, besides a specific entrepreneurial culture influenced strongly by the national culture, lies in the dual apprenticeship system, the decentralized support and the legal and financial system. These elements provide the firm with an entrepreneurial and growth-friendly environment.

3.1 DUAL APPRENTICESHIP TRAINING

The dual German apprenticeship system, combining practical and theoretical learning to train qualified HR, is another pillar of Hidden Champion competitiveness. These invest 50% more than the average German firms in professional learning. The dominant way of acquiring knowledge and professional qualifications in Germany is the apprenticeship. Apprenticeship-based vocational training provides companies with highly qualified workers who ensure the high-level quality of German products. Besides, there are alternating high schools (Duale Hochschulen), allowing students to follow courses up to the level of Master 2, providing students with an interdependence of the contents of their university education and practice.

3.2 THE LEGAL ENVIRONMENT

In addition, the legal environment is conducive to activity and favors family transmission. It is composed of the special social form a) of the limited partnership (Kommanditgesellschaft - KG) coupled with the limited liability company (Gesellschaft mit beschränkter Haftung - GmbH,) and b) of the system of family foundations. KG - GmbH provides the advantages of both forms: income tax, flexibility in the choice of the manager, less overhaul of accounts and

no application of codetermination by KG and limitation of liability by the GmbH. It is widely distributed to larger SMEs and especially to larger companies (Kohler and Weisz, 2012).

Under the foundation system, inheritance taxes are reduced, and the company can benefit from tax advantages depending on the form of foundation chosen. Family control over the company is thus maintained, missions of general interest can be carried out (model of the double foundation) redemption can be avoided, and long term strategies can be developed.

3.2.1 The benefits of the economic and political model

The [ordo-liberal] economic system, accepted by almost all political forces in Germany, sees SMEs as the foundation of a prosperous economy (Bass, 2006). German SMEs benefit from a real bottom-up industrial and national innovation policy, called the "Mittelstandspolitik". It is composed of national and European elements that fit into the support of the Länder which support their SME's in the fields of exportation and management. The German Basic Law and the law instituting the joint mission for the improvement of the regional economic structure (Gemeinschaftsaufgabe "Verbesserung der Regionalen Wirtschaftsstruktur - GRW" 1969) entrusts the Länder with the implementation of the structural economic policy. These can then financially support companies "close to the economy" infrastructure if this is necessary for regional economic development, as well as any non-financial measures that serve to increase the competitiveness of companies, evaluated continuously about their effectiveness.

The "ZIM" program centralizes all government policy measures concerning the Mittelstand implemented by the BMWi (Ministry of the Economy and Energy) and the BMBF (Ministry of Education and Research). These measures concern the fields of innovation, export, digitization and cooperation.

The cooperation between universities and scientific institutions (Frauenhofer institutions⁷) is favored to make the transmission link between science and its practical application. Schleppehorst *et al.* (2016) underline the preference of these companies for cooperation with institutions (universities, research institutes) or participation in successful clusters to increase their capacity for innovation compared to financial aid from the public authorities. This can be explained by their financial solidity. These co-operations are strongly supported by national policies, earmarking specific funds for this cooperation.

Table 5: The ZIM Program - The German National SME Support Program

⁷ Research institutions for applied research.

Initiative	Area of support
The "KMU - Innovativ" initiative	Simplified and accelerated access to subsidies for companies engaged in cutting-edge research
ERP- Innovation programm	Long-term funding for applied research
CORNET (Collective Research Network)	Support for transnational collaborative projects
Mittelstand-Digital	Support for the digitization of Mittelstand and crafts
Mittelstand 4.0	SME Awareness for Industry Theme 4.0. <ul style="list-style-type: none"> ▪ eStandards: standardization of business processes ▪ Einfach intuitiv ▪ Projects testing assistance for SMEs using software ▪ E-Business Lotsen, interlocutors providing information
Business start-ups – EXIST	Business start-up support to support the application of ICT Innovations. Subprograms used to support the transfer of research
go-Digital	Internet Marketing Support, Digital Management Processes, It-Security
go-Inno	Financing of an external consultant in the field of the professionalization of innovation management
IKT Innovativ	Business start-up support or startups in the ICT sector
High- Tech Gründerfonds (HTGF)	Venture Capital Contribution to Promising, Newly Developed Companies in the Technology Sector

3.2.2 The financing system

Hidden Champions have more resilience to exogenous shocks (Audretsch and Lehmann, 2016). This is due to different modes and sources of financing and greater profitability thanks to their specialization in high quality, high added value productions. Their significant financial strength is based firstly on exceptional profitability, above double the German average (Simon 2012). Capital is on average 42%, having a positive influence on capital costs and solvency valuations. Strategic and operational independence is very important to the owners and leaders of the Hidden Champions. This is due to the need for continuity of ownership of the company as well as to avoid short-term financial pressures on the stock markets and permitting them to have a continuity in the company's strategy to deal with the banks.

The Hidden Champions, like Mittelstand companies, are financed by local banks (Sparkassen etc.) or regional banks with which they have long-standing relationships. The particular organizational system of the Sparkassen as well as the relations which bind the company to this bank "house" make that the financing is granted more easily. This is for a big part because the latter is well informed about the firm's financial situation given the the close ties that bind them. Thus, self-financing and bank financing the "German way" allows companies to avoid opening their capital and through this to keep control and influence over the

company. Moreover, unlike their competitors located in the United States or in England, they also display a solid equity base of capital by large capital holders.

CONCLUSION

Germany is the territory that produces the largest number of Hidden Champions in the world. The explanations for this fact is due to the German entrepreneurial culture but also to the German ecosystem favoring entrepreneurship and the growth of SMEs. The German Hidden Champions are mostly companies with less than 250 employees, 80% of whom perform in the industrial sector, which represents two-thirds of the German added value. The secret of their performance lies in a specific German entrepreneurial culture going on hand in hand with a German ecosystem favoring the development and growth of these companies.

Hidden Champions are leaders on their niche market, known for their high value production of goods and services that they constantly improve in cooperation with their customers with whom they have very close relations. They are highly internationalized, innovative and profitable and have a duration of their global leadership that far exceeds that of GEs. The median longevity of these companies is in the order of 66 years, demonstrating the effectiveness of the long-term family strategy and the business model. Relations between management and staff correspond to "German way" of management: few hierarchical levels, reserving areas of autonomy to employees and distinguished by mutual trust between management and staff.

Germany produces a larger number of Hidden Champions due to pre-existing traditional skills, decentralization of the state, its dual apprenticeship training system, business cooperation with the research institutions and the international openness of the country. In addition to this, Hidden Champions can count on an efficient banking system and an economic and political environment that sees SMEs as an essential element of the success of the German economy. These companies are effectively supported by substantial pragmatic support from German government and the Länder in the areas of innovation, internationalization, administrative support and business creation.

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