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The Agility Advantage: Redefining Portuguese SME's Competitiveness

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The Agility Advantage: Redefining Portuguese SME's Competitiveness

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by

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under the guidance of
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Abstract

Portugal ranks eighth in the European Union (EU) for the number of SMEs in its economy. Yet, its value-added per SME is the sixth lowest, reflecting serious problems in generating value and competitiveness, which makes a study on this topic relevant.

Globalization, digital transformation, and demographic shifts are contributing to a more VUCA world, and the development of organisational agility has become one of the most solid strategies to cope with these challenges. Nevertheless, the impact of agility development on the competitive position of companies, especially SMEs, remains unclear. Therefore, this study seeks to explore how the competitive position of Portuguese SMEs can be impacted by the development of agile capabilities.

To do so, a literature review on agility was conducted, and a framework of agility was developed. The framework encompasses the influence of agility drivers in the development of agile capabilities and links them with the variables of competitive position. Subsequently, nine in-depth interviews were conducted with different Portuguese SMEs with more than 10 years of existence.

Findings demonstrate that companies reacted to both external and internal changes by developing different agile capabilities. The development of these agile capabilities and their maturity level varies between companies and is influenced by their size and industry. Furthermore, it was concluded that, in general, the development of those capabilities positively impacted the company's competitive position, however registering a higher impact on consumer variables than on financial ones.

Key Words: Agility, Organisation Agility, Agile Capabilities, Competitiveness, Portuguese SMEs

Words: 9999

Resumo

Portugal é o oitavo país na União Europeia (UE) com o maior número de PMEs na sua economia, no entanto, o valor acrescentado por essas empresas, apresenta-se como o sexto mais baixo, o que reflete graves problemas na geração de valor e competitividade, tornando assim relevante um estudo sobre o tema.

A globalização, a transformação digital e as mudanças demográficas estão a contribuir para um mundo mais VUCA, e o desenvolvimento da agilidade organizacional é uma das estratégias mais sólidas para lidar com estes desafios. Porém, ainda não é claro como é que o desenvolvimento de agilidade pode impactar a posição competitiva das empresas, particularmente nas PMEs. Por conseguinte, este estudo procura explorar como é que a posição competitiva destas empresas pode ser afetada pelo desenvolvimento de competências ágeis.

Para o efeito, foi realizada uma revisão da literatura sobre agilidade e foi desenvolvido um modelo que relaciona agilidade e posição competitiva. O modelo engloba a influência dos fatores de mudança no desenvolvimento de competências ágeis e relaciona-as com as variáveis de posição competitiva. Posteriormente, foram entrevistadas nove PMEs portuguesas com mais de 10 anos de existência.

Os resultados demonstraram que as empresas reagiram às mudanças externas e internas através do desenvolvimento de competências ágeis. O desenvolvimento das competências, bem como o seu nível de maturidade, varia entre empresas e é influenciado pela sua dimensão e setor de atividade. Além disso, concluiu-se que, o desenvolvimento dessas competências teve um impacto positivo na posição competitiva das empresas, sendo esse impacto mais sentido nas variáveis relacionadas com o cliente do que as variáveis financeiras.

Palavras-chave: Agilidade, Empresa Ágil, Competências Ágeis, Competitividade, PMEs Portuguesas

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EU – European Union

RBV – Resource Based View

SMEs – Small and Medium Enterprises

VUCA – Volatile, Uncertain, Complex, Ambiguity

Introduction

Globalization, digital transformation and demographic shifts have contributed to a more volatile, uncertain, complex, and ambiguous (VUCA) business environment (Troise et al., 2022).To cope with those challenges, literature views the development of agility as one of the most solid strategies (Susanty et al., 2022) and underlines that an increasing number of enterprises around the world are introducing agility to handle the VUCA environment (Eilers et al., 2022).

The ascent of "agility" led scholars and industry professionals to formulate alternative definitions of the concept, partly related to the capacity of a company to adjust its strategic direction by rapidly reacting to changes and seizing opportunities (Cegarra-Navarro & Martelo-Landroguez, 2020; Liu & Yang, 2020), which led us to understand "agility" as the capability that empowers an organisation to respond to opportunities and threats promptly and cleverly, enhancing its competitive position.

Early literature focused on agility as a "manufacturing paradigm", however as the knowledge increased, the concept began to be related to an organisation, where researchers stated that organisational agility represents the experience of a company to identify market opportunities and act based on the conditions determined by both external surroundings and internal resources and capabilities (Žitkienė & Deksnys, 2018). The evaluation of the level of organisational agility must consider four agile domains: drivers, enablers, capabilities, and actions.

Achieving higher levels of organisational agility can lead a company to reach higher quality in their products/services (Crocitto & Youssef, 2003), and enhance its ability to deal with unpredictable environments (Bernardes & Hanna, 2009), making organisational agility fundamental to determining a company's competitive position in an uncertain market (De Smet & Wouter, 2015). The relationship between agility and competitiveness can be challenging (Zastempowski & Cyfert, 2023) and imprecise (Walter, 2021), nevertheless agile capabilities (competence, flexibility, responsiveness, and speed) are seen as the reason for increased organisational performance and competitive position Almahamid et al. (2010), which makes the exploration between agile capabilities and competitive position more precise.

Considering the Portuguese business environment, which is the eighth country in the EU with the greatest number of Small and Medium Enterprises (SMEs), yet the sixth worst when evaluating the value added per SME to the national economy (Statista, 2024), it is evident that Portuguese SMEs face significant challenges in enhancing their competitive standing and effectively leveraging their activities to generate economic value. Thus, making clear the importance of developing new capabilities to be able to generate more value for the economy.

With a large portion of studies focusing on studying agility in research areas, like IT, manufacturing, healthcare, and supply chain, mainly associated with large enterprises, and in countries like the USA, Indonesia, Malaysia or India, it is evident a lack of research related to agility development in Portuguese SMEs and their importance in enhancing competitive position.

This study aims to address the research gap by investigating if Portuguese SMEs can enhance their competitive position by adopting agility. To do so, a research question was developed: "Can organisational agility enhance the competitive position of Portuguese SMEs?", then divided into two sub-questions: "How do Portuguese SMEs perceive the need to build agility?" and "Which agile capabilities were developed to respond to those changes?".

To steer the research, a framework with different hypotheses linking agility and competitive position was developed. The framework relates to the moment when companies recognize the need to develop agility and agile capabilities, and the influence of the adoption of those capabilities in the competitive position of the organisation.

To sustain the analysis, a qualitative study was conducted as it better suited the specifications and objectives of the research objectives.

Data collection was held through semi-structured interviews that enabled us to gather more detailed information, providing a deeper understanding of a specific subject (Gill et al., 2008). An aggregate of 9 Portuguese SMEs with more than ten years of existence operating in the manufacturing and wholesale industries, were interviewed.

The dissertation is organised into 4 chapters. The first portrays a comprehensive understanding of previous literature on the topics of agility, agile organisations, organisation competitiveness and its relationship with agile capabilities development, and finally an overview of the role that SMEs have in impacting the EU economy.

The second chapter reveals the methodology of the study: firstly, by presenting the research questions, objectives and the framework developed to guide the research, followed by the data collection technique used, as well as the definition of the sample.

The last two chapters feature the results of the investigation and the discussion of those results, where conclusions are drawn and limitations and suggestions for further investigations are indicated.

1. Literature Review

1.1. Defining Agility

1.1.1. Tracing the Roots of Agility: A Historical Perspective

In the 1980s, organisations mainly focused on delivering products/services at low cost, with the highest quality they could get and with great reliability (Fliedner & Vokurka, 1990). Later, Stalk (1988) stated that the most relevant competitive edge for a company was its ability to effectively manage time during the development and launch of a product and throughout its sales and distribution process. From that perspective and realizing the increase in the speed of environmental transformations that were surpassing organisations' capabilities, the term "Agility" was first linked to business in 1991 (Dove, 1999).

With the intensification of globalization, digital transformation, and demographic shifts, since the early 2000 the business environment has become more volatile, uncertain, complex, and ambiguous, known in the literature as "VUCA"(Minciu et al., 2020; Troise et al., 2022) forcing companies to adapt.

In the field of capabilities, the classic theory of Resource-Based View (RBV) defined in 1984 by Wernerfelt, argues that a company's competitive advantage is grounded in its internal resources and capabilities, being the last one the enabler to sustain a business's competitive advantage for the long term. Moreover, it is consensual that companies must work on developing new capabilities to adapt to the changes in the business environment and outperform the competition (Tanushree et al., 2023).

Susanty et al. (2022) state that, one of the most solid strategies to deal with the uncertain in the business environment is to develop agile capabilities across the entire organisation. Eilers et al. (2022) argue that to handle the VUCA world an increasing number of enterprises across the globe are introducing agility in their ways of working, with Roberts & Grover (2012) highlighting their importance in the context of SMEs.

1.1.2. Agility and Flexibility

As the world became more complex, customers' needs and preferences shifted, making them consider the cost, quality, speed of delivery and the degree of personalization of products/services when making buying decisions, forcing companies to be flexible and agile (Abdelilah et al., 2018).

In the literature, the terms “flexibility” and “agility” are often used as synonyms, however, there are some differences between them that are important to distinguish. While flexibility makes a firm available to handle known situations using set established procedures, agility goes a step further, empowering the company to adapt to unforeseen market shifts and evolving customer needs (Wadhwa Rao, 2003).

1.1.3. Agility Interpretations

Since its appearance, agility captivated both scholars and industry professionals, leading to the formation of diverse views and interpretations of the term. In one of the most important works on this subject, Goldman et al. (1995) characterize agility as "dynamic, context-specific, aggressively change-embracing, and growth-oriented capability". Later, Rigby et al. (2000) argue that agility can be understood as the capability of one organisation to succeed in a changing and unpredictable business environment. In the same year, Meredith & Francis (2000) introduced one of the first definitions that linked agility with competitive advantage, claiming that agility is the "organisation's capacity to gain competitive advantage by intelligently, rapidly and proactively seizing opportunities and reacting to threats". In recent years Cegarra-Navarro & Martelo-Landroguez (2020) proposed that agility is "the capability of firms to adjust their strategic direction or redeploy their resources to create value, both reacting rapidly to changes and anticipating and seizing opportunities". From another perspective, Liu & Yang (2020) believe that agility can be seen as "the critical capability to sense opportunities, threats, and changes embedded in its business environment and rapidly respond to market changes", with Sarmiento Falla & Karwowski (2024) acknowledging that agility is the ability to react to changes rapidly and effectively.

In the context of the present work, we will consider that "agility" is the capability that empowers an organisation to respond/react to opportunities and threats promptly and cleverly, enhancing its competitive position.

1.2. Agile Organisations: What Sets Them Apart

1.2.1. Organisation Agility Framework

The research conducted on organisational agility has been widely spread in multiple management research areas, leading to several different perspectives on the definition of the concept (Walter, 2021). Thus, it is relevant to clarify the different perceptions of the researchers and consent to a more holistic and integrated view of the concept.

From the literature, we can highlight that the essence of organisational agility is related to manufacturing (Tanushree et al., 2023), where early researchers, mainly focused on agility as a "manufacturing paradigm" (Goldman et al., 1995; Meade & Sarkis, 1999; Sharp et al., 1999; Vázquez-Bustelo et al., 2007). As the literature on agility scales by the influence of consistency market changes, the concept of organisational agility became broader (Tanushree et al., 2023).

The first agile organisation definition is believed to be presented by Goldman et al. (1995) who state that an agile organisation is capable of being productive as the market and customer demand changes. Doz & Kosonen (2008) argue that organisational agility is strongly linked to the strategy of the company, underlining that is a capability that enables a company to adapt the strategic direction for its business for value creation. From a different point of view, Lu et al. (2011) affirm that organisational agility is a capability that enables an organisation to respond to unexpected market shifts by adopting an innovative and fast posture in the market. Later Teece et al. (2016), sustaining is vision on the classic theory of RBV, defined organisation agility as "the capacity of an organisation to efficiently and effectively redeploy/redirect its resources to value-creating (…) as internal and external circumstances warrant". Based on the studies conducted by Rawashdeh et al. (2024) and Žitkienė & Deksnys (2018), we will define enterprise agility as the experience of a company to identify market opportunities and act based on the conditions determined by both external surroundings and internal resources and capabilities, knowing that the agility level of an organisation must adjust dynamically to match the speed of competition (Zastempowski & Cyfert, 2023).

By involving several different parts of the organisation, the construction of agility can be challenging and costly (Teece et al., 2016). Thus, if processes take an extended time to execute compared to the rapidly changing market conditions, organisational agility loses its efficacy and becomes impractical, as the organisation can't adapt swiftly enough (Žitkienė & Deksnys, 2018). Therefore, according to Dove (2006), agility measures such as cost, speed, quality and scope, must be considered in the development of an organisational agility framework.

In this sense, Žitkienė & Deksnys (2018) developed a holistic organisational agility framework for the evaluation of organisational agility that takes into consideration four agile domains that were defined in ninety’s by Shari & Zhang (1999):

1. **Agile drivers.**
2. **Agile enablers.**
3. **Agile capabilities.**
4. **Agile practices**.

The model is shown in Figure 1.

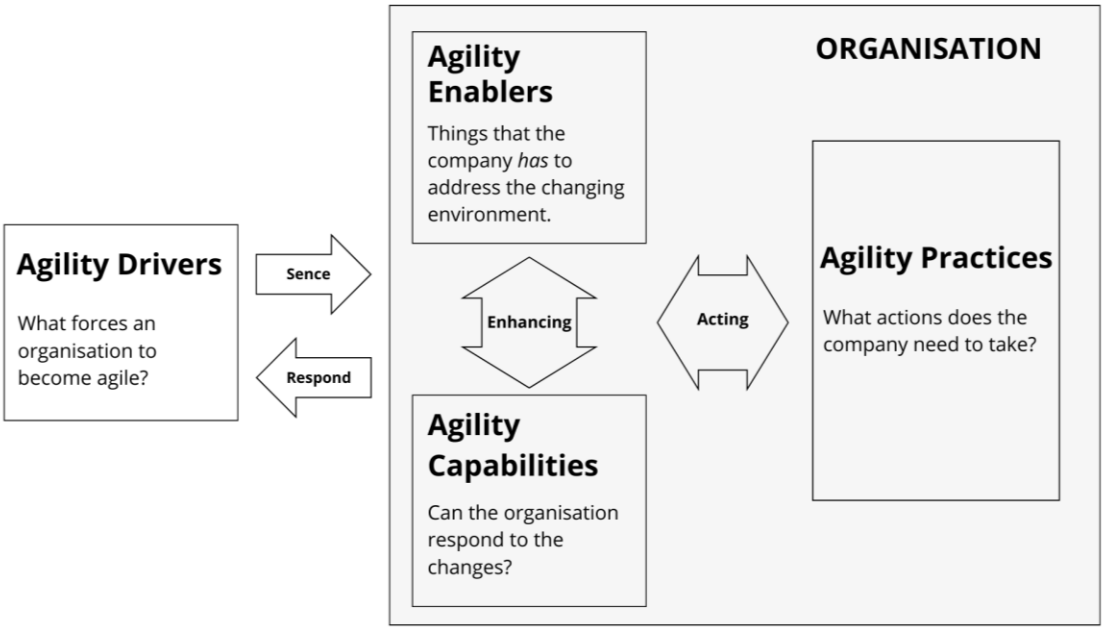

Figure 1 - Organisational Agility Basic Framework
Source: self-elaboration adapted from the model developed by Žitkienė & Deksnys (2018)

1.2.2. Agile Drivers

Agility drivers can be defined as the reasons that put a company in a weak position, making them search for new competitive advantages, such as becoming more agile (D. Z. Zhang, 2011).

First researchers on agility drivers, only focused on one type of driver, the external. However, with the intensification of studies on the subject, researchers also began to consider internal factors (Walter, 2021). This point of view was also shared by Eisenhardt & Martin (2000) who argued that in a fast-paced environment, a firm's competitive edge is affected by both factors.

Although every company has its different challenges and, for a specific company, what is considered a threat, for others can be seen as an opportunity, some external and internal characteristics bring general consequences that are important drivers for a company's desire to become more agile (Sharifi & Zhang, 1999).

In this sense, shifts in the market, technological changes, increased speed of innovations, globalization, social factors, and environmental pressures are some of the most cited external agility drivers in the literature that can be applied to every organisation (Calvo et al., 2008; Gunasekaran, 1998; Lin, Chiu, & Tseng, 2006; Mishra et al., 2013; Vázquez-Bustelo et al., 2007; Z. D. Zhang & Sharifi, 2007). On the other hand, competitive strategy, management style, and internal process changes are some of the internal factors that can force a company to achieve high levels of agility (Hallgren & Olhager, 2009; Lin, Chiu, & Tseng, 2006; Van Oosterhout et al., 2006; Vinodh et al., 2012).

1.2.3. Agile Enablers

The literature review on agility enablers is vast, however, in some cases, it lacks by not considering the organisation as a whole or by only focusing on one subject, usually IT (Walter, 2021). This scope was contested by Harbott (2021) who clarifies that "achieving true business agility has an impact on almost all parts of an organisation", highlighting that "Confining the changes to one department, often IT, will certainly not yield much benefit at all".

Following the perspective of the author, Table 1 presents the six areas in the organisation that are crucial to enable a higher level of business agility.

Enabler	Characteristics
Leadership and Management	• Leaders need to learn new cognitive and emotional capabilities and transform the way they lead enhancing new behaviours, structures, and policies. • Supportive leadership instead of directive. • Decentralized decision-making. • Create an environment for success.
Organisational Culture	• Understand the current and desired culture of the organisation and identify if there are aligned or in conflict with the achievement of high levels of agility. If not, the company must undergo into a process of changing behaviours, values, and beliefs.
Organisational Structure	• For achieving a better level of agility companies must re-design their structure to collaborative, cross-functional teams instead of functional areas (like finance, marketing, and sales), reducing the hierarchy levels and increasing networks between teams.
People and Engagement	• "Companies with engaged employees significantly outperform their competition". • Increase the level of employee engagement by manage their initiative, passion, and creativity, instead of compliance and conformity.
Governance and Funding	• Shifting the investments of the company to experimenting, adapting and feedback instead of predicting and planning is the least risky way to proceed.
Ways of Working	• The enabler that most of the companies focus when they want to achieve agility. • Focusing only on ways of working without addressing the other enablers will guide to failures in agility adoption. • The frameworks or practices stablished must be coherent with all the other 5 business agility enablers.

Table 1 - Business agility enablers and their characteristics
Source: self-elaboration with information from *The 6 Enablers of Business Agility* (Harbott, 2021)

1.2.4. Agile Capabilities

Given that agility capabilities are fundamental to an organisation's overall competencies (Zastempowski & Cyfert, 2023), we can define them as the set of skills that empower a company to respond in a more efficient way to turbulent changes and use those changes as opportunities (Sharifi & Zhang, 1999).

The core agile capabilities that a company must develop to achieve higher levels of agility are very similar across researchers' perspectives, and they are presented based on the conceptual model to implement agility developed by Sharifi & Zhang (1999), which identifies four core agile capabilities: competency, flexibility, responsiveness, and speed. Apart from being a model developed in 1999, Zastempowski & Cyfert (2023) emphasize its usability and importance in the development of recent studies (Abdelilah et al., 2023; Margherita et al., 2021; Melián-Alzola et al., 2020; Sarmiento Falla & Karwowski, 2024; Tseng & Lin, 2011), suggesting its adjustability in today's market.

For a better understanding of the four agile capabilities and their potential role within an organisation, the following table presents some different perspectives from the authors across the literature:

Capability	Perspectives
Competency	• Competencies shape organisational agility and performance (Chakravarty et al., 2013); • Requires the capacity to refresh skills to adapt a company to environmental changes or the capacity to meet business objectives efficiently and successfully (Akkaya & Tabak, 2020); • Indicate an organisation's ability to achieve goals efficiently and effectively (Attar & Abdul-Kareem, 2020).
Flexibility	• The ability to implement different processes and achieve different goals with the same facilities (Akkaya & Tabak, 2020); • Flexibility impacts firm performance (Kusa et al., 2022; Rundh, 2011); • Smaller firms present better profitability levels because of their flexibility (Pacheco, 2020).
Responsiveness	• Is the ability to quickly and accurately respond to changes and comprises reactivity, velocity, and visibility (Rasyidi & Kusumastuti, 2020); • Responsive enterprises can embrace and handle asymmetry in different forms of market demand (Gölgeci et al., 2020).
Speed	• Speed explains the temporal dynamics of firm behavior and enables enterprises to take advantage of opportunities quickly and accelerates organizational change (Gölgeci et al., 2020); • The ability to rapidly execute operational or strategic objectives (Baškarada & Koronios, 2018).

Table 2 - Researchers' perspectives on agile capabilities
Source: self-elaboration

Complementarily, Sharifi & Zhang (1999) highlight that to develop each agile capability, the organisation must mature other sub-capabilities. Table 3 shows the different sub-capabilities needed to construct each main capability.

Agile Capabilities	Sub-capabilities needed
Competence	• Appropriate technology and technology ability. • Products/services quality. • Cooperation (internal and external). • New product introduction/innovation.
Flexibility	• Organisational issues flexibility. • Teams' flexibility. • Product/Service flexibility.
Responsiveness	• Sensing, perceiving, and anticipating changes. • Immediate reaction to change. • Recovery from change.
Speed	• Time-to-market. • Fast operations. • Quick delivery of products and services.

Table 3 - Agile capabilities and sub-capabilities
Source: self-elaboration with information retrieved from (Sharifi & Zhang, 1999)

Therefore, for further guidance on the present work, we will consider competency, flexibility, responsiveness, and speed as the four core agile capabilities to be developed to thrive in a market as an agile organisation.

1.2.5. Agile Practices

Finally, to deal with the constant changes in the environment and the uncertainty levels imposed by them, organisations must act quickly and efficiently by empowering agile practices. This process can be fulfilled with the organisation's assets (enablers and capabilities), by combining them into significant and efficient activities and practices, thereby enhancing their level of organisational agility (Žitkienė & Deksnys, 2018).

Aiming for a better comprehension of agile practices, Charbonnier-Voirin (2011) suggests that they can be organised into four main categories: practices directed towards mastering change; practices promoting the value of human resources; cooperative practices and practices to create value for customers. Through that perspective and based on Žitkienė & Deksnys (2018) approach, we can organize agile practices into four core categories: the organisation itself, employees, partners, and customers.

The main goal of these practices must be increased flexibility and adaptability of organisation structure, processes, and technology (Žitkienė & Deksnys, 2018).

1.3. Organisation Competitiveness: The relation between agile capabilities and competitive position

1.3.1. Understanding Competitiveness

Due to multiple perspectives and confusion in the literature regarding the definition of competitiveness and competitive position (Abbott & Bredahl, 1994; Shivaani & Agarwal, 2020), we will assume, that they are the same terms. Because of the multi-dimensional character of competitiveness, understanding and defining the term can be complex (Bhawsar & Chattopadhyay, 2015; Feurer & Chaharbaghi, 1994; Voinescu & Moisoiu, 2015).

Barney (1996) highlights market position and financial position as the core two measures of competitive position where the measure of market position is market share and the measures of financial position are, among others, rate of return, liquidity ratio and debt ratio. Later, trying to simplify, Chikán (2008) defined competitiveness as the ability of the company to meet customer requirements while ensuring profitability. On another viewpoint, Szwajca (2016), highlights that, following the organisational behavioural changes imposed by the abundance of available information and technological advancements, two other measures of competitive position emerged: customer satisfaction and customer loyalty.

Following the different perspectives of the researchers on the measures of organisational competitiveness, in the context of the present work, we will guide our analysis in four variables: customer satisfaction; customer retention; revenue growth and profit.

1.3.2. Relation between Agility and Competitiveness

Crocitto & Youssef (2003), state that agility enables a company to reach a higher quality of products and services, therefore, being crucial to organisational competitiveness. Lin et al. (2006) emphasize that companies have already realized the importance of agility for survival and competitiveness. In the same line of thought (Bernardes & Hanna, 2009; Bottani, 2009; De Smet & Wouter, 2015; Troise et al., 2022)agree that agility is a fundamental characteristic of competitiveness, enhancing a company's ability to deal with market pressures and an unpredictable environment.

Apart from the natural relationship between agility and competitiveness, describing the direct influence between them can be challenging (Zastempowski & Cyfert, 2023) and imprecise(Walter, 2021). However, Almahamid et al. (2010)claim that agile capabilities are the main reason for increased organisational competitive position. Therefore, combining this perspective with the challenges that Walter (2021) faced to find a precise conceptual positive linkage between organisational agility and competitiveness, we can assume, based on the work developed by Zastempowski & Cyfert (2023), that is more precise to explore the relationship between agile capabilities and competitive position.

1.4. The Role of SMEs: Portuguese Perspective

1.4.1. SME characteristics

SMEs are a group of enterprises with no more than 250 employees and with a turnover below 50 million euros (or with a balance sheet under 43 million euros) (European Commission, 2020).

Besides the quantitative specifications, Ghobadian & Gallear (1997) highlight some important qualitative indicators that distinguish SMEs from Large enterprises, as follows:

Category	SME's	Large
Structure	• Flat with fewer layers of management. • Rapid response to environmental changes.	• Hierarchical with several layers of management. • Slow response to environmental changes.
Procedures	• Flexible processes. • Low degree of standardization.	• Rigid processes. • High degree of standardization.
Behaviour	• Mostly organic. • Fluid culture.	• Mostly bureaucratic. • Cultural inertia.
Processes	• Informal evaluation, control and reporting. • Simple planning and control.	• Formal evaluation, control and reporting. • Complex planning and control.
People	• Individuals normally can see the results of their endeavours. • Negligible resistance to change.	• Individuals normally cannot see the results of their endeavours. • High degree of resistance to change.

Table 4 - Comparison between SMEs and Large company's
Source: self-elaboration adapted from (Ghobadian & Gallear, 1997)

1.4.2. Overview of SMEs' impact on the economy

SMEs play a crucial role in the development of the EU economy as stated in the *Annual Report on European SMEs 2022/2023* (Bella & Katsinis, 2023), this group of enterprises, account for more than 99% of the EU's business entities, forming the foundation of the EU-27 economic structure. Portugal which will be the country focus of this study, was the eighth country with the highest number of SMEs in the EU-27 (distribution of the number of SMEs in EU-27 countries in Appendix 1).

Moreover, to understand the need to develop agility in Portuguese SMEs, it is essential to outline how much value these enterprises are creating and compare the values with the EU-27 countries, highlighting Portugal's overall performance.

In terms of the contribution of the total SMEs to the national economy[1], Portugal was the thirteenth country with the highest value created from this group of enterprises to the economy, however, it is important to highlight that, Belgium, Denmark, Austria, Sweden, and Ireland, countries that have fewer SMEs than Portugal, have created more value to the national economy than the Portuguese.

Country	SMEs	Value added from SMEs (in millions)
Belgium	716 998	174 715 €
Denmark	245 237	138 284 €
Austria	357 774	137 996 €
Sweden	682 040	136 086 €
Ireland	309 109	120 656 €
Portugal	**993 075**	**78 519 €**

Table 5 - Countries that added more value with fewer SMEs than Portugal in 2023
Source: self-elaboration with data retrieved from (Statista, 2024)

[1] View appendix II

Complementary, it is shown in Figure 2 how much value is added per SME by country, which is important to highlight the countries with the most competitive SMEs[2].

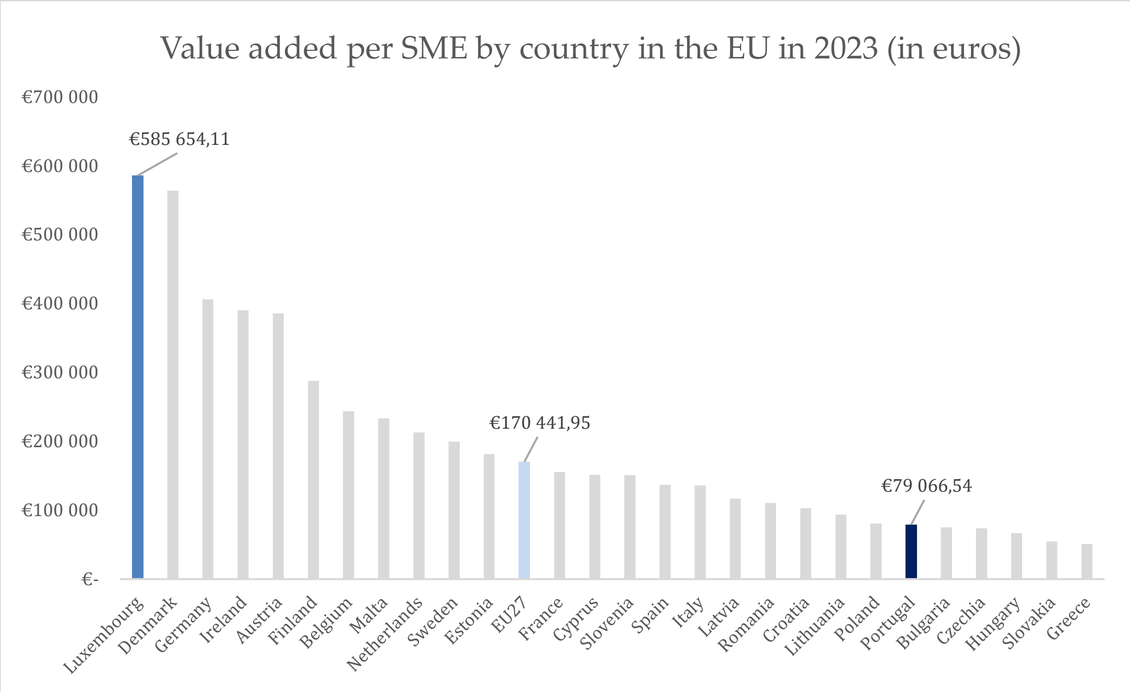

Figure 2 - Value added per SME by country in the EU in 2023 (in euros)
Source: self-elaboration with data retrieved from (Statista, 2024)

The average value added per SME in the EU27 was 170 441,95€ in 2023, Luxemburg SMEs were the ones that created more value (585 654,11€), followed by Denmark (563 879,02,08€) and Germany (405 979,23€). Portuguese SMEs occupied the sixth-worst performance with just 79 066,54€.

From the data shown, we conclude that Portuguese SMEs are not in a good competitive position compared to the overall performance of the SMEs in other countries in the EU, reflecting serious problems in generating value from their activities. To be able to achieve a better position in the market, Portuguese SMEs must work on developing new capabilities and generate value for the economy more efficiently.

[2] More details in appendices 3, 4, and 5.

2. Methodology

This section aims to provide a clarification about the methodology chosen for this work, as well as the reasons for its selection. Therefore, we will present the research questions, objectives, agility framework, and the adaptability of the research method selected. The data collection method and sample discussion are then presented, followed by the data analysis process.

2.1. Research Question and Objectives

The main objective of this study is to understand if Portuguese SMEs can enhance their competitive position by adopting agility. For this purpose, we formulate the following research question, which is broken down into two sub-research questions:

RQ: Can organisational agility enhance the competitive position of Portuguese SMEs?

- RQ1: How do Portuguese SMEs perceive the need to build agility?
- RQ2: Which agile capabilities were developed to respond to those changes?

To guide the research, a framework of agility and competitive position was developed. This framework aims to provide an overview of the agility development process of an organisation, starting from the recognition of the management team to build agility and agile capabilities (that are conditioned by the agility drivers), and the influence of the adoption of those capabilities in the competitive position of the organisation.

The framework was developed through hypothesis formulation and can be seen in Figure 3.

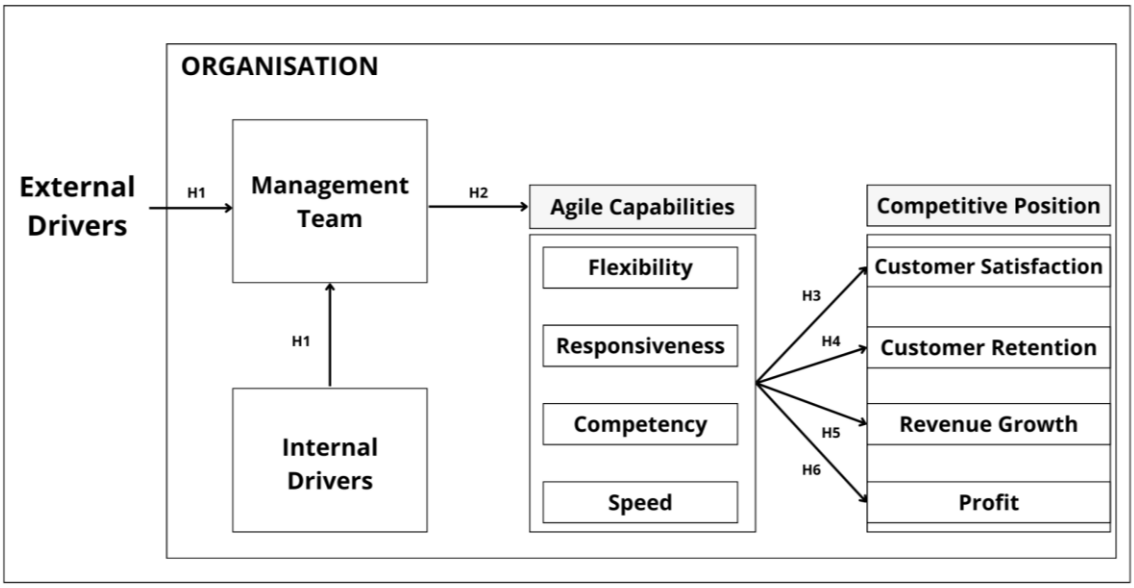

Figure 3 - Organisation agility and competitive position framework
Source: self-elaboration

The formulation of each hypothesis was carefully elaborated taking into consideration the literature review, and are as follows:

H1. External and Internal drivers influence the management team to change.

H2. Management team develop Agile capabilities to respond to the changes.

H3. The development of agile capabilities impacts customer satisfaction.

H4. The development of agile capabilities impacts customer retention.

H5. The development of agile capabilities impacts revenue growth.

H6. The development of agile capabilities impacts profit.

2.2. Research Strategy and Design

The research strategy can be handled through qualitative and quantitative studies. Qualitative research is an exploratory study and is commonly used to discover patterns in ideas or views (Abuhamda & Bsharat, 2021) and is characterized by the analysis of textual data (Borrego et al., 2009). The most common research questions that can be answered with this method are "what", "how" and "why" (Abuhamda & Bsharat, 2021; Borrego et al., 2009). On the other hand, quantitative research is used to test theories and measure issues (Abuhamda & Bsharat, 2021) and the data collection comes in the format of numbers and statistics.

Thus, being the objective of this work to understand if Portuguese SMEs can enhance their competitive position by adopting agility, and taking into consideration the research questions previously developed, we will conduct a qualitative study.

2.2.1. Data Collection Methods

Qualitative research encompasses a range of data collection techniques, such as observations, analysis of text or visual content (e.g. from books or videos), and conducting interviews, whether individually (structured, semi-structured, and unstructured) or in groups (focus group) (Gill et al., 2008). Focusing on collecting high-quality and detailed information from Portuguese SME's directors, we will use the semi-structured interviewing method, which is adequate to "explore the views, experiences, beliefs and/or motivations of individuals on specific matters" thus, providing a deeper understanding of a specific subject (Gill et al., 2008). Moreover, this method also allows the interviewer to diverge and focus on a certain question or topic, which is crucial to pursuing an idea in more detail (Kakilla, 2021).

However, this approach presents certain limitations that can compromise the quality of data collection. Kakilla (2021) highlights that when conducted online, semi-structured interviews are not feasible and can lead to data losses. The same researcher also states that if there is a limited understanding of the topic of the interviewee, the responses given can hurt data quality.

Considering the limitations mentioned and, to take the most advantage of the semi-structured method, attention must be given to the elaboration of the script. Gill et al. (2008) emphasize that good questions must be open-ended (guiding to more complex and detailed responses), neutral, and understandable, and must start with questions that participants can answer easily and then proceed to more specific ones. The interview script can be consulted in Appendix 6.

2.2.2. Sampling Method

As stated by Reid (1996), in contrast with quantitative studies that are meant to be representative, qualitative research must have a sampling that focuses on specific characteristics of a population that are of interest to the research question, what the researcher names a "purposeful sampling". On a complementary point of view, O'Reilly & Parker (2013) state that in qualitative research, the sample size must be measured by the "depth" of data, rather than its frequency, suggesting that it's preferred to have fewer participants who best represent the research topic than quantity. Considering that, our sample will be focused on Portuguese SMEs with more than ten years of existence, operating in the manufacturing and wholesale industries, the sample is presented in the following table.

Code	Company	Size	Activity	Interviewee's Position
A	Europneumaq	Small	Manufacture and Wholesale of machinery and equipment	Senior Manager
B	Groupe GM Cosmética Portugal	Small	Manufacture of perfumes and toilet preparations	Senior Manager
C	JNF	Medium	Wholesale of hardware, plumbing and heating equipment and supplies	Financial and Strategic Manager
D	KKInova	Small	Wholesale of textiles, perfumes and cosmetics	Senior Manager
E	Madeipoças	Micro	Wholesale of raw wood and wood-based products	CEO
F	Partner item	Small	Manufacture and Wholesale of machinery and equipment	CEO
G	N.I.	Small	Manufacture of non-domestic cooling and ventilation equipment	CEO
H	N.I.	Small	Manufacture and Wholesale of clothing and footwear	CEO
I	N.I.	Small	Wholesale of other machinery and equipment	CEO

Table 6 - Companies' characterization and interviewees' profile
Source: self-elaboration

2.3. Data Collection

The interviews were conducted to recognize what were the main difficulties faced by Portuguese SMEs in the last years, the capabilities developed to cope with those changes and to understand the impact of those capabilities on the company's competitive position.

All the interviewers have more than five years of experience in senior-level jobs and are currently in the management team of their respective organisations and have the will to make strategic decisions for the company. The interviews were conducted in January 2024, all online, and with an average duration of 45 minutes.

The semi-structured interviews incorporated nine main open-ended questions subdivided into sub-questions that were developed considering the main objectives of this work:

1. To understand how Portuguese SMEs perceive the need to build agility.
2. To understand what agile capabilities were developed.
3. To understand the impact of agile capabilities development in the SME's competitive position.

For a simpler understanding of the information collected in the interviews, we will organise the data into three core areas, as follows:

1. "Recognizing the importance of developing agility".
2. "Agile capabilities development".
3. "Impact on company's competitive position".

3. Results Analysis

This chapter presents the main results from the interviews. The result of this investigation reflects the reality of each company interviewed and the decisions that they made to respond to the changes faced.

3.1. Recognizing the importance of change

When asked about what were the main changes that the business faced in the past years, the opinions of the interviewees were very similar with few outliers and are present in the next sections.

3.1.1. Shifts in the market

All nine companies mentioned shifts in the market as a driver to change and adapt their business. Changes in the market related to COVID-19 were the main referenced topic, where constraints regarding the "gradual and exponential increase in the cost of raw materials", shifts in consumption and industry limitations, such as the close of fairs, emerged.

Consumption-related drivers were also important in enhancing change, with Company B (B), Company C (C) and Company D (D) stating that they adapted their business as a response to the market trends. Problems related to hiring new people to work were referred to by Company A (A) and Company F (F), highlighting that it "is more difficult to hire people nowadays" (A) and "companies hardly manage to retain people for 5 to 10 years" (F). Issues associated with "the war between Russia and Ukraine and in the Middle East" were also pointed out by A, F, and Company I (I), with Company E (E) and F, also emphasizing the "political crisis in Portugal" as a crucial driver to change.

3.1.2. Competitive strategy

In this field, concerns about the industry's dynamics arise, with A, B, C, and Company G (G), commenting on several opportunities that have emerged in other market segments to sell their solutions. From another point of view, D also underlined the problems arising from the saturation of their core business area (textile) with "more competition and small margins", which forced them to quickly adapt their position in the market. In the same way, C highlighted the issues linked with the competition, mentioning that they are "very strong" which forces the company to "change the approach in the market (…) to be very different from them".

From a different perspective, operating in the vending sector, I emphasized the antiquity of the products sold in the industry, outlining that they "have to be innovators to achieve new horizons". Moreover, they acknowledge that "buying something from a vending machine in Portugal is an act of faith", suggesting the poor quality of the products sold in the machines, which led them to "demystify this, and make the product more credible".

3.1.3. Technological changes

Continuous digitalization of the economy as well as the new and fast development of new technologies, were decisive in impacting the development of Portuguese SME activities, with D emphasizing that "technological changes (…) forced us to be more aware and prepared to implement new technological devices and teams". This perspective was also shared by E, C, and I who pointed out that, with these technological improvements, they are now paying more attention to the new machine developments aiming to improve their business processes. From a complementary point of view, G and Company H (H) outlined the importance of the continuous digitalization of the economy and its impact on the business processes, as a crucial driver that led both companies to change.

3.1.4. Internal process changes

Factors related to internal process changes were mentioned by five different companies, where B, C, and E, mentioned the desire to become more efficient with the production process to “reach higher levels of production” and “faster operations”.

From another point of view, A and F, highlighted key changes in the structure of the company, where regarding the problems already mentioned associated with the difficulty of hiring and retaining people, they underlined the need to develop a more flexible structure, less dependent on certain persons.

3.1.5. Environmental pressures

The companies also mentioned environmental pressures as a driver to adapt their business, where “policies and standards from the EU regarding sustainability production” appeared as a common challenge faced by C, E, H, and I. From a complementary point of view, I underlined that the EU “benefits companies that promote sustainable projects with lower interest rates”, concluding that “ecological practices will be mandatory for all companies”.

3.1.6. Management style

Management style drivers were mentioned by only two companies, with two distinctive cases. From one point of view, B felt the need to change the management team of the company in 2007-2008 which was promoting a culture where “each person managed their self”. Moreover, with the arrival of the new management team, there was a shift in the company culture, which brought “new ideas, and a lot of disruption”, guiding the company to “change and adapt their business”.

In another way, I, aiming to outperform its competitors in a traditional sector with a lack of new products and innovation, has a management team consistently focused on “innovations and everything that can add value and differentiation” to their products, which leads the company to be always in “the frontline of every new technology”.

3.1.7. Drivers for change

To sum up, Figure 4 presents the distribution of the drivers for change (external in blue and internal in grey) by the total number of mentions, where the most felt driver among the companies in the sample was “shifts in the market”.

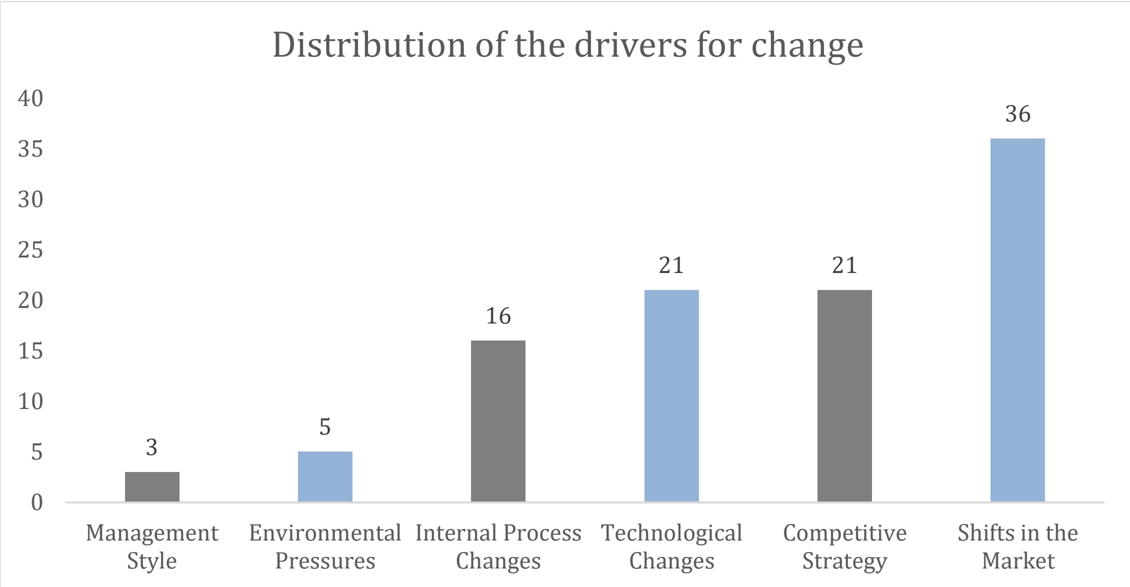

Figure 4 - Distribution of the drivers for change by the number of mentions and their importance
Source: self-elaboration

Figure 5 shows the number of mentions of external and internal change factors experienced by the companies, as well as the weight of each factor mentioned in the total sample.

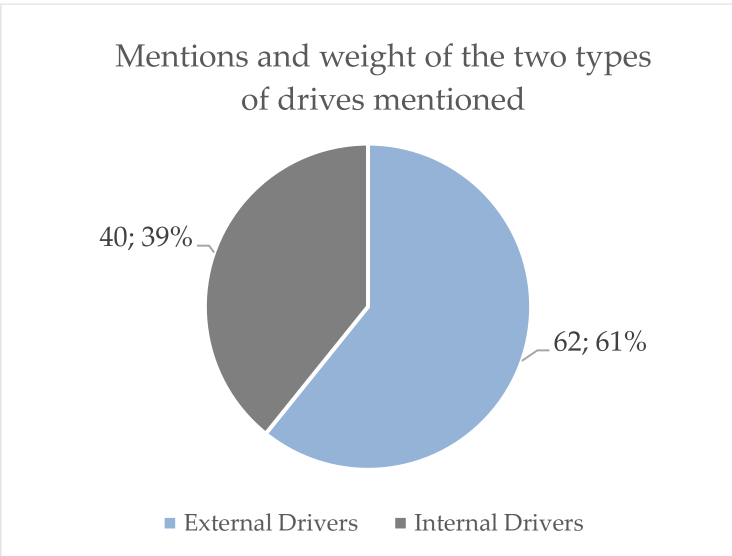

Figure 5 – Mentions and weight of external and internal drivers in total
Source: self-elaboration

3.2. Agility development

As a response to the changes faced, every company studied developed different agile capabilities. Most of the sample (5 companies), worked on every capability, the other four companies failed to develop one of the four agile capabilities.

3.2.1. Competence

The sub-capabilities, “appropriate technology and technology ability”, “new product or innovation”, “product/service quality”, and “cooperation” were all developed by the companies.

New technologies to improve back-office processes such as “new computer systems” (A, D, F, and G) or “consumption monitoring systems” (A and F) were the most mentioned investments. Also, aiming to improve the quality of the production lines, C reflects on the importance of investing in new machinery, outlining that they had “implemented two new laser cutting machines recently”, and they are expecting to implement “a new washing machine” later in 2024.

Moreover, to empower the use of these technologies, importance was given to **human resources** capable of using them, with C, D, and E underlining the need to “hire people with capabilities linked to e-commerce and software”.

B, C, G, and I, developed **new products** in the industry where they operate to address a wider market and take advantage of emerging trends, positioning themselves as distinctive players. From a complementary perspective, **incremental innovations** were applied by B, C, E, H, and I, mostly related to adjusts that helped the companies to achieve:

- “Plastic-free packaging” (B).
- Production process with “less waste” (E and H).
- “Faster and better monitoring” (I), of vending machines sales.
- Products with “unique colours” (C), that are valuable in the market.

Regarding **product/service quality**, four companies highlighted the importance **of increasing customer service quality along** their buying journey, which was crucial to:

1. "Win the market" (D).
2. "Guarantee the conversion to sales" (C).
3. "Personalised customer experience" (C and F).

From another viewpoint, two companies outline the effort in developing a higher standard product through higher levels of sustainability, in one case regarding their packaging: "The plastic we use is biodegradable and without colour because the painting process is not sustainable and its toxic" (C); and in another linked to the production: "investing in R&D and human resources to achieve a higher standard product, free from animal components, and more sustainable" (H).

In a particular case, I, developing their activity with vending machines, which is commonly associated with "selling poor quality products", is "making a process of credibility" by investing in advanced machines capable of elevating the experience of buying something from them, contributing to a "sentiment of higher quality".

Cooperation manifested to be a capability developed associated with the introduction of new products by the companies. From one point of view, developing innovative products forces companies to find partners with the capabilities needed to produce them, either with "software companies" (C and I), "R&D companies" (G) or, in the specific case of B, with a veterinary clinic, which was crucial to develop a new product to animal care. Complementary, working in an industry that needs a lot of research, new formulas, and distinctive raw materials, B highlight the importance of "constant communication and sharing information" when developing a new solution, where "spectacular product ideas can have impracticable prices" so, to avoid that "all areas are always in constant symbiosis and synergy" to find the most compelling products.

The following table specifies the relationship between the agility drivers felt by the companies and the number of "Competence" sub-capabilities developed to cope with those drivers.

	Appropriate tech. and tech. ability	**PS quality**	**Cooperation**	**New Product innovation**
shifts in the market	3	2	2	3
technological changes	3	0	2	3
environmental pressures	0	2	0	1
competitive strategy	0	2	2	3
management style	0	0	0	1
internal process changes	2	1	0	0
Total	**8**	**7**	**7**	**11**

Table 7 - Relationship between agility drivers and "Competence" sub-capabilities
Source: self-elaboration

Figure 6 represents the level of maturity and the number of sub-capabilities associated with "competence", developed by each company.

The level of maturity of a certain capability refers to the degree to which a company has developed it when compared to the others in the sample, and it was calculated based on the table presented in Appendix 8. The size of each circle (presented in percentage) represents the weight (calculated by dividing the number of "competence" sub-capabilities by the total of sub-capabilities developed) that "competence" has in the set of capabilities developed by each company. This approach was also used for the capabilities "flexibility" and "responsiveness", presented in Figure 7 and Figure 8.

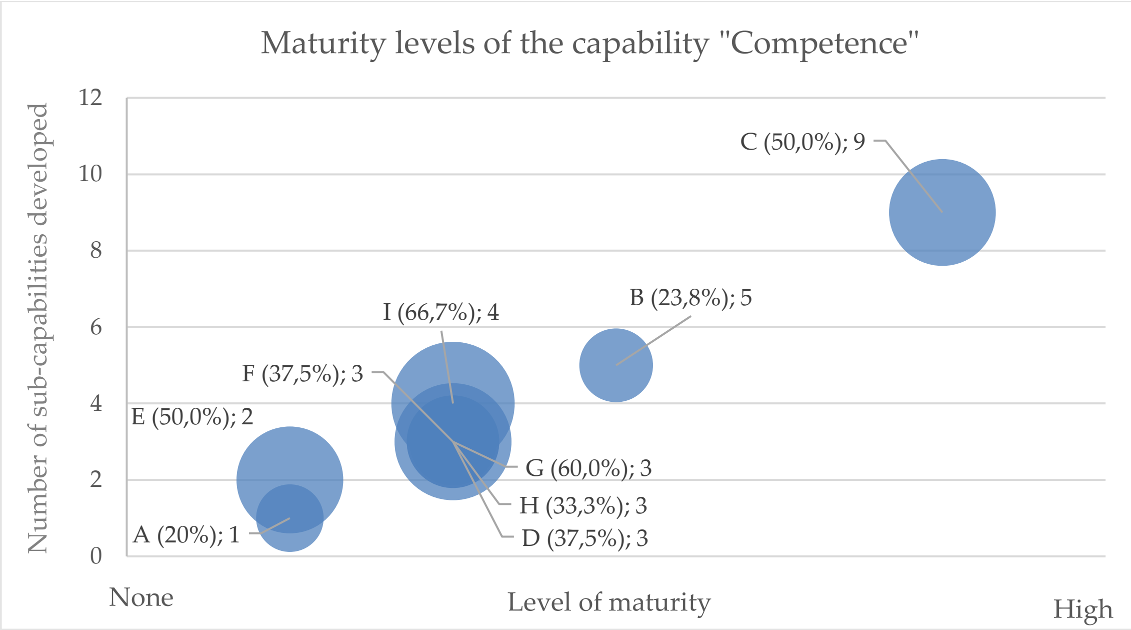

Figure 6 - Maturity levels related to the capability "Competence"
Source: self-elaboration

From the data shown, we can outline that C (the only mid-size company in the sample) was the one who developed more "competence" capabilities. However, it was I who had the highest representation of this capability in their agility development process.

3.2.2. Flexibility

"Product/service flexibility", "organisational issues flexibility", and "teams flexibility" sub-capabilities, were all developed by the sample. G was the only company where flexibility was not verified.

Product/Service flexibility was a crucial sub-capability developed by the companies, and some of the examples are related to the personalisation of the products to cope with customer preferences, where:

- B developed a Private Label solution to "create products according to all the specifications that any client requires".
- D stated that they need to adapt their approach to the market, aiming to offer "the possibility to the customer to personalize every product".
- E affirmed that are producing "new/more personalised wood pieces".

From another perspective, D indicates that they had to "adjust collections to meet customers' taste" regarding their perfume segment, and H, pointing out the rise of e-commerce business, reflected the need for "new ways to promote the product (…) with virtual showrooms.", for instance.

In another outlook, dependent on investments from the various industries in Portugal, A and F outlined that they need to constantly monitor the levels of those investments, and "adapt" their products in concordance with those investments, which led them to sell personalised solutions to non-traditional clients, such as companies in the medical (A), and the aeronautical sectors (F).

Moreover, **service flexibility** was also verified in C and I. Aiming to retain more customers, both companies worked on developing a more personalised service, in the case of I, with complementary services to "help with anything at any time related to the product", and in case of C, working with construction and architecture companies that contract large-scale projects, through a personalised accompaniment service before the project initiation, which is crucial to the entire work be awarded to the company and not just sporadic contracts.

Flexibility related to solving organisational problems was also a sub-capability that was mentioned where an increase in flexibility regarding the structure and organisation of the company was the main focal point, where two broader examples stand out:

1. "Building a more robust, solid team that looks to change and improvements" (B).
2. "Simplifying the company structure" (F).

A more specific example also emerged, with H emphasizing the need to "install cameras all over the company" to promote online meetings with the different teams.

Cost structure optimization was also observed by B with the “increased productivity within the current equipment” and in F with the reduction of some activities “simplifying processes that were way too long and not very effective”.

From a different perspective, to cope with the inefficiencies present in the production area, C implemented a monitor system that forecasts the times of production, which is crucial “to measure the time left to finish a certain batch, the number of orders in delay, and if something is going wrong”.

At last, **teams’ flexibility** sub-capability showed up with B’s facing crucial changes in their internal processes in the last years, where there was an important effort to “change the mindset of the people and their way of working”, something that was “difficult to change and where some people showed some resistance” but, through a process of continuous improvement and by showing them that “it works and it’s better for them” the company made important progress.

This capability was also important in H where, empowered by the development of an e-commerce business, as well as digitalization of their processes, “teams need to have higher technological abilities”, a process that was challenging but “with good results”.

Table 8 shows the relationship between the agility drivers and the number of “Flexibility” sub-capabilities developed to cope with those drivers.

	Organisational issues flexibility	People flexibility	Product/Service flexibility
shifts in the market	2	1	6
technological changes	1	2	4
environmental pressures	0	0	0
competitive strategy	1	0	4
management style	1	0	0
internal process changes	2	4	0
Total	**7**	**7**	**14**

Table 8 - Relationship between agility drivers and "Flexibility" sub-capabilities
Source: self-elaboration

The level of maturity and the number of sub-capabilities developed by the companies, associated with "flexibility" are shown in Figure 7.

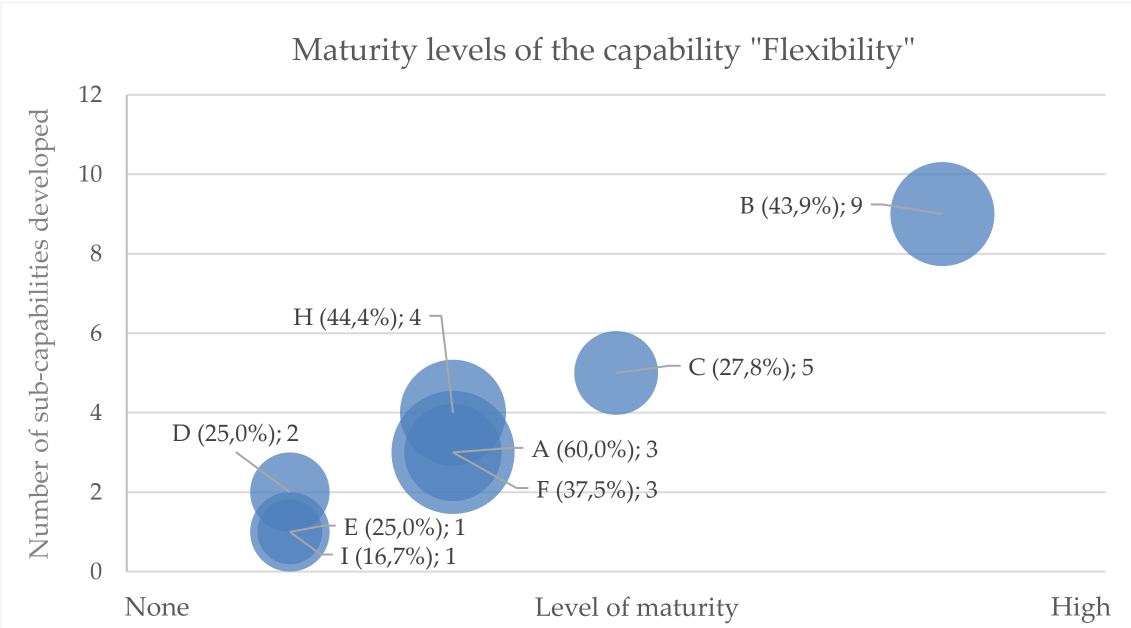

Figure 7 - Maturity levels related to the capability "Flexibility"
Source: self-elaboration

Inserted in a volatile industry in which product personalisation is valorised, B was the company with the most "flexibility" sub-capabilities developed, representing 43,9% of the total agile capabilities developed by the company. A was the company where "flexibility" appeared to be the most important capability.

3.2.3. Responsiveness

Regarding "Responsiveness" only the sub-capabilities "sensing, perceiving and anticipating changes" and "immediate reaction to changes" were mentioned. None of the companies referenced "Recovery from changes" and A and E didn't develop Responsiveness.

From a first look, B, D, and F demonstrate a solid level of **sensing, perceiving and anticipating changes** in their different realities by diversifying their business segments:

Company	Examples
B	• Realizing that the hospitality customer segment wouldn't be enough to thrive in the long-term, the company in 2016 invested in the development of a Private Label segment to reduce their exposure to the hospitality sector. This action led the company to "survive and be here today (B)".
D	• Comprehending that the textile sector was getting more saturated, the company started investing in the year of 2014 in the perfume sector to diversify their activity, where they realized that there was a clear opportunity to boost their activity.
F	• Realizing that the aeronautics industry is expected to invest heavily in Portugal in the coming years, the company has already started studying the needs of this industry and preparing products to provide an immediate response to this investment.

Table 9 - Examples of sensing, perceiving and anticipating changes
Source: self-elaboration

From a different perspective, by watching closely what was happening in China in the premature times of COVID-19, C felt that "a huge crisis was about to come" and, perceiving that, they "increased their levels of stock substantially", which contributed to the company being less impacted by the rise in raw-material prices.

Immediate reaction to change was verified in G and H. With the close of the fairs during the pandemic to expose and sell their products in different markets, the companies were quickly to notice that investing in e-commerce would be key to minimising the damage caused by the crisis, and "meet the increase in the demand for e-commerce purchases" (G). Other examples emerged in response to various agility drivers, and they are present in Table 10.

	Driver	Examples
B	Changes in internal processes associated with shifts in the demand.	• "We had to adapt quickly to the situation we were living in and allocate teams in a different way to be able to meet the demand" (B).
C	Rise of local accommodation in tourism	• "We felt that we needed to sell to that niche, it was an important opportunity for us" (C).
D	Technological advancements force the company to be more prepared	• "We had to hire people specialized in technological areas, mainly in e-commerce and social media" (D).
I	Benefits to companies that promote sustainable practices	• "We start to have a sustainability report where we report the progress we made regarding energy level savings, reduction in the carbon footprint …" (I).

Table 10 - Examples of immediate reaction to change.
Source: self-elaboration

Table 11 specifies the relationship between the agility drivers and the number of "Responsiveness" sub-capabilities developed to cope with those drivers.

	Sensing, perceiving and anticipating changes	Immediate reaction to changes
shifts in the market	4	0
technological changes	0	2
environmental pressures	0	1
competitive strategy	3	2
management style	1	0
internal process changes	0	1
Total	**8**	**6**

Table 11 - Relationship between agility drivers and "Responsiveness" sub-capabilities
Source: self-elaboration

Maturity levels and the number of sub-capabilities developed related to the capability “responsiveness”, are present in Figure 8.

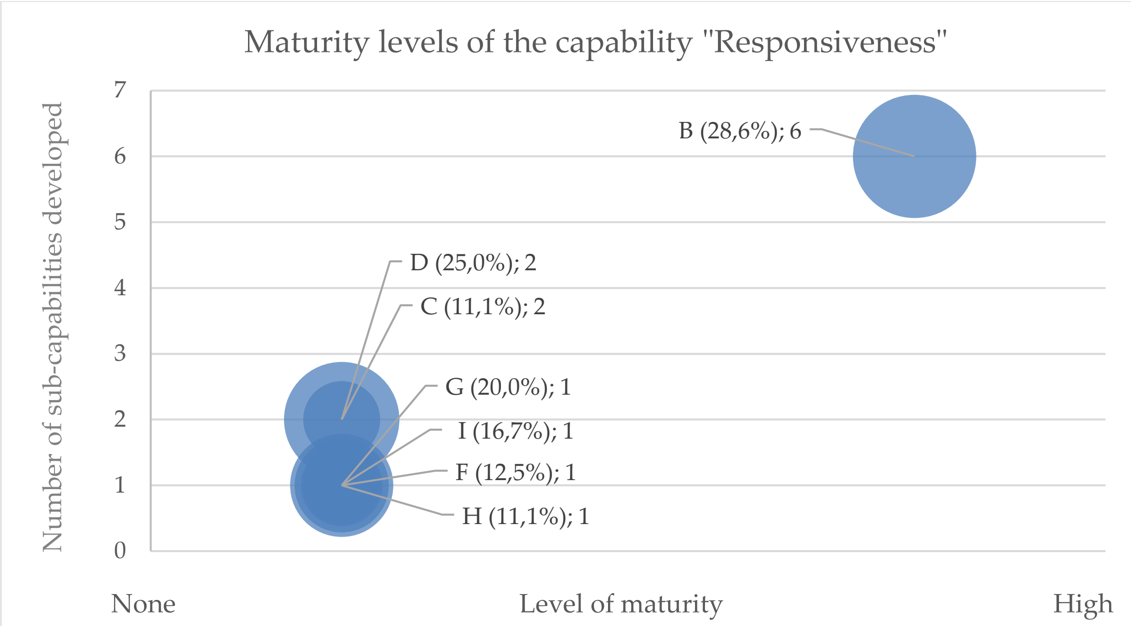

Figure 8 - Maturity levels related to the capability "Responsiveness"
Source: self-elaboration

In terms of “responsiveness” development, B was the company that developed the most sub-capabilities and where the representation of this capability was the highest when compared to the sample. The other companies presented a similar maturity level across them, with D having a 25% representation of “responsiveness”.

3.2.4. Speed

Regarding the ability to execute tasks and operations in the least time achievable, only "fast operations" and "quick delivery of products/services" were mentioned. I was the only one that didn't develop "Speed" as an agile capability.

The sub-capability **"fast operations"** was developed largely in response to the driver "internal process changes", aiming to improve and achieve higher levels of efficiency in the several companies' processes. Some practices to increase the speed of the operations are as follows:

Company	Examples of companies' practices
A	"Digitalization of processes, automation of internal processes, either in an office or in the factory."
B	"We start a project with Kaizen Institute, creating the times of movement, limits on the ground, where the cars must be, how the changes are made, what must be prepared, to have a frame in production with the monitoring of all indicators."
C	"We divided the production area in segments to increase the speed of the operation process, so everything is connected and with less probability to fail."
E	"Other important thing in our activity is the layout of the fabric (…) we had to reconfigure the disposition of the machines to have a more fluid process of production."
F	"We automate many processes, a lot of automatic configurations, that allow us to perform tasks in half the time."

Table 12 - Examples of fast operations practices
Source: self-elaboration

Faster operations were also registered associated with technological changes, where improvements in machinery, and new computer systems were crucial to "make operations faster" (D).

Regarding the **quick delivery of products/services,** only C developed this sub-capability that allowed the company to achieve a delivery rate of 98%.

The number of "Speed" sub-capabilities developed and their relation to the drivers, are shown in the following table:

	Fast operations	Quick delivery of products/services
shifts in the market	1	0
technological changes	2	0
environmental pressures	0	0
competitive strategy	0	1
management style	0	0
internal process changes	5	0
Total	**8**	**1**

Table 13 - Relationship between agility drivers and "Speed" sub-capabilities
Source: self-elaboration

Moreover, all the companies in the sample presented a very low level of maturity in terms of the capability "speed". The following table presents the number of sub-capabilities developed by the companies, as well as their weight[3] in the total of agile capabilities developed by each company.

	Number of sub-capabilities developed	Representation of "Speed"
A	1	20,0%
B	1	4,8%
C	2	11,1%
D	1	12,5%
E	1	25,0%
F	1	12,5%
G	1	20,0%
H	1	11,1%
I	0	0,0%

Table 14 - Maturity levels related to the capability "Speed"
Source: self-elaboration

[3] calculated by dividing the number of "speed" sub-capabilities by the total of sub-capabilities developed.

To sum up, Table 15 presents the level of maturity of each agile capability in every company in the study.

	Nº of sub capabilities developed	Competence	Flexibility	Responsiveness	Speed	Maturity (1-5)
A	5	Very Low	Low	None	Very Low	1,0
B	21	Medium	High	Good	Very Low	3,3
C	18	High	Medium	Very Low	Very Low	2,5
D	8	Low	Very Low	Very Low	Very Low	1,3
E	4	Very Low	Very Low	None	Very Low	0,8
F	8	Low	Low	Very Low	Very Low	1,5
G	5	Low	None	Very Low	Very Low	1,0
H	9	Low	Low	Very Low	Very Low	1,5
I	6	Low	Very Low	Very Low	None	1,0

Table 15 - Agile capabilities maturity levels
Source: self-elaboration

3.3. Impact on companies' competitive positions

As defined in Chapter 1.3.1., the competitive position of a company depends on their relationship with customers and its ability to generate revenue and profits, thus divided into four distinct variables: customer satisfaction, customer retention, revenue growth and profit. For a better visualization of the results, the following figures will present the impacts that the development of agile capabilities had on each of those variables.

Impact on Customer Satisfaction	
Company	**Statements**
A	“The proactive posture we take in the market along the adaptations we make to our products, is proving to be decisive to gradually increasing the number of customers year over year”
B	“With this diversification at the portfolio level which allowed us to go from just 2 references to 12, we started to have more customers.”
C	“Since the implementation of the titanium products, we never had a client that was unhappy with the product. The quality we put on the product is high so it's hard to don’t be happy with that.”
D	“We have already managed to be a brand, we are not a store, we are a brand, and the customers recognize the quality of our products.”
E	“The new solutions and products that we were able to develop with the new machines and designers, received positive feedback from our customers.”
F	“Adapting our products to an industry, as well as our personalized customer support that help the customers in every issue they have, is crucial in fomenting a better relationship with them.”
G	“With all the innovation that we had in the past years, with unique and pioneer products, our customer base is truly satisfied with our work.”
H	“The brand is positioned as a sustainable and pet friendly, so our products are made to meet the requirements of the customers.”
I	“When you have this much of innovation and technological machines and processes it is difficult for the client to not be satisfied with your products.

Table 16 - Impact of agile capabilities on customer satisfaction
Source: Self-elaboration

Impact on Customer Retention	
Company	**Statements**
A	No impact was recorded
B	"Of course, the more references we sell, more difficult it is for the customer to change supplier."
C	"The shift that we had in prioritizing the service we deliver to clients was key to keep them and to secure sales."
D	"Constructing a brand that customers trust and recognize its quality, of course, contributes to retaining them."
E	No impact was recorded
F	No impact was recorded
G	"With the customer support and follow-up that we have, we also increased our levels of retention."
H	"The quality of the products and continuous innovation that we bring to the market is key to the customer relationship that we have."
I	"Once we sell a vending machine to a customer it's hard for them to change supplier. The diversification of our portfolio, as well as the services that we offer, such as monitoring the machines, or implementing advanced technological vending systems, are important to keep the customer buying from us."

Table 17 - Impact of agile capabilities on customer retention
Source: Self-elaboration

Impact on Revenue Growth	
Company	**Statements**
A	No impact was recorded
B	"Between 2022 and 2018 our revenue increased by about 13%, in part because of the increase in the number of customers."
C	"The innovations that we exposed at the fair in Lisbon in October 2022, it was very well accepted, and we had an increase in our sales."
D	No impact was recorded
E	"Everything that we are implementing in the company have results, in 2022 we increased our revenue in about 30% from the previous year."
F	"Adapting our products to an industry, as well as our personalized customer support that help the customers in every issue they have, is crucial in fomenting a better relationship with them."
G	"We had a boom in sales with the introduction of the solar tube products and the new one that we introduce in 2022."
H	"We experienced an increase of about 69% in revenue with the introduction of our e-commerce channel in the pandemic period."
I	No impact was recorded

Table 18 - Impact of agile capabilities on revenue growth
Source: Self-elaboration

Impact on Profit	
Company	**Statements**
A	"The investments we made regarding internal processes optimization allowed us to achieve higher levels of profitability."
B	No impact was recorded
C	"The quality that we bring to the market allow us to charge a premium price for the products and the clients are satisfied with that."
D	No impact was recorded
E	"We reduced our production times and consequently our production costs."
F	"The automations that we made as well as the more flexible structure and organisation were key to control the cost levels and increase profitability."
G	No impact was recorded
H	"The change to digital channel allows us to cut some costs and fix higher margins that weren't possible with the traditional stores."
I	No impact was recorded

Table 19 - Impact of agile capabilities on profit
Source: Self-elaboration

Based on the information presented in the previous tables, we can conclude that all companies in the sample had at least one positive impact on both fields of their competitive position (customer relationship and ability to generate revenue and profits).

Company	Customer Satisfaction	Customer Retention	Revenue Growth	Profit
A	Yes	-	-	Yes
B	Yes	Yes	Yes	-
C	Yes	Yes	Yes	Yes
D	Yes	Yes	-	Yes
E	Yes	Yes	Yes	Yes
F	Yes	-	Yes	Yes
G	Yes	Yes	Yes	-
H	Yes	Yes	Yes	Yes
I	Yes	Yes	-	-

Table 20 - Impact of agile capabilities on competitive position
Source: Self-elaboration

Complementary, it is also relevant to compare the impacts in the competitive position with the size of the companies, and the agile capabilities maturity levels of the companies.

	Size	Agile Capabilities Maturity level	Impact Cust. Satisfaction	Impact Cust. Retention	Impact Revenue	Impact Profit
A	Small	1,0	Yes	-	-	Yes
B	Small	3,3	Yes	Yes	Yes	-
C	Medium	2,5	Yes	Yes	Yes	Yes
D	Small	1,3	Yes	Yes	-	Yes
E	Micro	0,8	Yes	Yes	Yes	Yes
F	Small	1,5	Yes	-	Yes	Yes
G	Small	1,0	Yes	Yes	Yes	-
H	Small	1,5	Yes	Yes	Yes	Yes
I	Small	1,0	Yes	Yes	-	-

Table 21 - Comparison between the company’s size, agile capability maturity level, and impact on competitive position variables
Source: Self-elaboration

4. Discussion

From the results, we can point out that the recognition to develop agility came mainly from external drivers (60,8%), nevertheless, that is a clear identification of internal drivers (39,2%) as a reason to change/adapt the business, which is consistent with previous studies conducted by Eisenhardt & Martin (2000) and Walter (2021) that outlined internal capabilities as a factor affecting a firm's competitive edge, leading us to validate **H1: External and internal drivers influence the management team to change.** Moreover, it was found that the most felt driver to change was shifts in the market, which is in line with the results presented by Sharifi & Zhang (1999), and that different companies in different industries face different challenges, so it's related to the conclusions drawn by Z. Zhang & Sharifi (2000).

This study also found that besides the fact that not every company in the analysis developed all four agile capabilities, the management teams of the different companies developed at least one agile capability to respond to the changes, thus validating **H2: Management teams develop Agile capabilities to respond to the changes.**

Additionally, it was discovered that "Competence" and "Flexibility" were the most developed agile capabilities, representing an average weight of 73.1% concerning the development of the four agile capabilities. On the other hand, both, "Responsiveness" and "Speed" had an average weight of 26,9% in the companies' agile capabilities development process. However, there were some differences between the level of development of each capability when evaluating the individual situation of each company. For instance, "Competence", besides being the most developed capability in general, appeared to be less important in A (with a representation of 20%, equal to the capability "Speed") and B (which was the third most relevant capability). Moreover, apart from the overall importance given to "Flexibility", being the second most developed capability, G did not develop this capability. These situations are in concordance with the work developed by Z. Zhang & Sharifi (2000) which underlined that the strategies and practices adopted in different companies are not the same.

Complementary, we found a relationship between each agility driver and the specific agility capabilities that extend the work previously developed by Z. Zhang & Sharifi (2000), where: "product/service flexibility" was the most developed to cope with the drivers "shifts in the market" and "competitive strategy"; "product/service quality" the most developed to answer to "environmental pressures"; "fast operations" the most mentioned to react to "internal processes changes"; "appropriate technology and technological ability" the most developed capability to answer to the driver "technological changes"; and "organisational issues flexibility" the most important to react to the driver "management style".

The results of this study also revealed that agile capabilities positively impact the competitive position of Portuguese SMEs, which is consistent with the conclusions of similar studies (Walter, 2021; Zastempowski & Cyfert, 2023), and that the development of agility had a greater impact on the competitive position variables related to the customer relationship than the variables related to generating profits, which in part follows the results drawn by Zastempowski & Cyfert (2023). In this way we can conclude that in general, the development of agile capabilities had a positive impact on every variable of competitive position, allowing us to validate **H3**: **The development of agile capabilities impacts customer satisfaction; H4**: **The development of agile capabilities impacts customer retention**; **H5**: **The development of agile capabilities impacts revenue growth;** and **H6**: **The development of agile capabilities impacts profit.**

Furthermore, this study extends the conclusions drawn by Walter, (2021) where it was stated that the agile capability maturity level can vary situationally based on the size of the company or the industry they operate in, by considering that in the impact on the competitive position. Where, for instance, despite having the worst agile capability maturity level, E, which is a micro-enterprise that operates in a traditional industry, registered positive impacts in all four variables of competitive position. On the other hand, apart from registering the highest agile capability maturity level, B did not record any positive impact on profit, which can be explained by the fact that the company operates in an industry where it is difficult to fix higher margins.

Conclusions

The number of studies related to agility has increased significantly, mostly related to software development and IT companies in large companies. However, apart from being a topic which has gained importance, organisational agility and its possible impact on an organisation's competitive position is truly scarce, even more so in Portugal. Thus, considering the business environment in Portugal, this study aimed to understand how Portuguese SMEs perceive the need to build agility, which agile capabilities were developed to respond to those changes, and if the development of those capabilities could impact companies' competitive position.

To do so, a literature review was led, as well as an analysis of how SMEs are performing in the EU. After that, a framework of agility that encompasses the influence that external and internal agility drivers can have in the development of agile capabilities, as well as their potential impact on a company's competitive position was developed. Interviews with 9 Portuguese SMEs with more than 10 years of existence, operating in the manufacturer/wholesale industries were then conducted.

At first, it was understood that the main drivers for change mentioned by the companies were shifts in the market (such as the COVID-19 pandemic or consumption preferences shifts), the company's competitive strategies, technological changes, internal processes changes, environmental pressures, and company management style. These drivers were then verified as factors that forced all the companies in the analysis to change or adapt their business in several ways.

Moreover, it was discovered that to cope with the challenges identified, the management teams of the different companies, developed agile capabilities to respond to the changes, where "Competence" was the most developed, followed by "Flexibility", "Responsiveness", and "Speed". In the field of "Competence", the sub-capability "new product/innovation" was the most developed by the companies, in terms of "Flexibility", "product/service flexibility" appeared to be the most important sub-capability to be developed. Regarding the third agile capability: "Responsiveness", the sub-capability "sensing, perceiving and anticipating changes" was the one that stood out. Finally, related to the capability "speed", "fast operations" came across as the most developed sub-capability. Complementary, it was stated that the level of development of each agile capability varies across different companies due to the unique changes they face.

Impacts on companies' competitive position generated by the development of agile capabilities were also recorded. Besides the fact that every company reveals a positive impact on their competitive position, it is possible to underline that agility development had higher impact on the customer variables than in the financial variables. Moreover, we can also affirm that there is not a clear relationship between the level of agile maturity and impacts in competitive position, since companies in certain industries and of different sizes can feel greater impacts on their competitive position even if they develop fewer capabilities.

This study gives important insights into the potential impacts that the development of agile capabilities can have on a Portuguese SME, unveiling possible actions to elevate their competitive position in the market, either in enhancing their relationship with customers or their potential to increase revenue and profitability.

This academic research is subject to certain limitations. The sample considered enterprises with distinctive activities, leading the companies to give industry-specific examples in certain topics, which made the analysis more difficult to precise. Moreover, data was only gathered from 9 Portuguese SMEs mainly based in the north of the country, therefore limiting the conclusions of the study. Also, it was difficult to find a direct relation between agile capabilities and the four distinct variables of competitive position, limiting the conclusions of the analysis.

Thus, for future investigations, it is recommended to study this topic in the field of a specific industry, which can contribute to achieving more precise conclusions. It is also recommended to have a larger sample since it can give a greater number of different perspectives and enrich the findings. Furthermore, when searching for direct relations between agile capabilities and the four distinct variables of competitive position, other methods of data collection such as a quantitative analysis, can be more appropriate.

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Appendixes

1. Appendix I: Distribution of SMEs in the EU by country in 2023

Position	Country	Micro	Small	Medium	Total
1	Italy	3 535 984	169 223	20 425	3 725 632
2	France	3 080 647	134 689	20 338	3 235 674
3	Spain	2 654 416	136 393	17 501	2 808 310
4	Germany	2 068 446	320 693	49 237	2 438 376
5	Poland	2 101 274	83 235	13 940	2 198 449
6	Netherlands	1 391 030	49 133	10 021	1 450 184
7	Czechia	1 054 254	34 498	6 715	1 095 467
8	**Portugal**	**949 654**	**37 419**	**6 002**	**993 075**
9	Greece	701 642	35 064	3 364	740 070
10	Hungary	688 425	29 477	4 389	722 291
11	Belgium	687 304	25 357	4 337	716 998
12	Sweden	644 498	31 718	5 824	682 040
13	Romania	514 418	44 575	7 312	566 305
14	Slovakia	513 577	9 919	1 993	525 489
15	Bulgaria	332 138	22 737	4 122	358 997
16	Austria	315 901	36 349	5 524	357 774
17	Ireland	281 805	23 461	3 843	309 109
18	Finland	231 146	19 454	3 520	254 120
19	Lithuania	239 178	11 117	2 110	252 405
20	Denmark	216 697	24 031	4 509	245 237
21	Croatia	179 980	12 454	1 850	194 284
22	Slovenia	154 057	7 247	1 325	162 629
23	Latvia	96 277	8 726	1 457	106 460
24	Estonia	81 029	5 623	1 036	87 688
25	Cyprus	56 726	3 796	533	61 055
26	Luxembourg	35 509	4 036	815	40 360
27	Malta	31 892	2 340	400	34 632

Table 22 - Distribution of SMEs in the EU by country in 2023
Source: self-elaboration with data retrieved from (Statista, 2024)

2. Appendix II: Value added from the SMEs by country in the EU in 2023

The following table shows the value added from SMEs by country in the EU in 2023:

Country	Value added by SMEs (in euros)
Germany	€ 989 930 000 000
Italy	€ 506 500 000 000
France	€ 503 487 000 000
Spain	€ 384 218 000 000
Netherlands	€ 308 941 000 000
Poland	€ 177 747 000 000
Belgium	€ 174 715 000 000
Denmark	€ 138 284 000 000
Austria	€ 137 996 000 000
Sweden	€ 136 086 000 000
Ireland	€ 120 656 000 000
Czechia	€ 80 715 000 000
Portugal	**€ 78 519 000 000**
Finland	€ 73 093 000 000
Romania	€ 62 484 000 000
Hungary	€ 48 085 000 000
Greece	€ 37 842 000 000
Slovakia	€ 28 817 000 000
Bulgaria	€ 26 913 000 000
Slovenia	€ 24 501 000 000
Luxembourg	€ 23 637 000 000
Lithuania	€ 23 621 000 000
Croatia	€ 20 021 000 000
Estonia	€ 15 921 000 000
Latvia	€ 12 467 000 000
Cyprus	€ 9 223 000 000
Malta	€ 8 077 000 000

Table 23 - Value added by EU SMEs, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

3. Appendix III: Value added from the medium enterprises by country in the EU in 2023

The following table shows the value added from the medium enterprises by country in the EU in 2023:

Country	Value added from Medium enterprises (in euros)
Germany	€ 343 034 000 000
Italy	€ 147 254 000 000
France	€ 142 440 000 000
Netherlands	€ 118 085 000 000
Spain	€ 108 494 000 000
Poland	€ 56 854 000 000
Sweden	€ 49 661 000 000
Austria	€ 49 641 000 000
Belgium	€ 46 292 000 000
Denmark	€ 42 452 000 000
Ireland	€ 31 518 000 000
Czechia	€ 28 999 000 000
Finland	€ 27 017 000 000
Portugal	**€ 24 843 000 000**
Romania	€ 18 561 000 000
Hungary	€ 15 189 000 000
Greece	€ 11 946 000 000
Luxembourg	€ 9 834 000 000
Bulgaria	€ 9 537 000 000
Lithuania	€ 9 238 000 000
Slovakia	€ 8 701 000 000
Slovenia	€ 8 314 000 000
Croatia	€ 6 566 000 000
Estonia	€ 5 192 000 000
Latvia	€ 4 434 000 000
Cyprus	€ 2 458 000 000
Malta	€ 946 000 000

Table 24 - Value added from medium enterprises in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

The following figure shows the value added per medium enterprises by country in the EU in 2023:

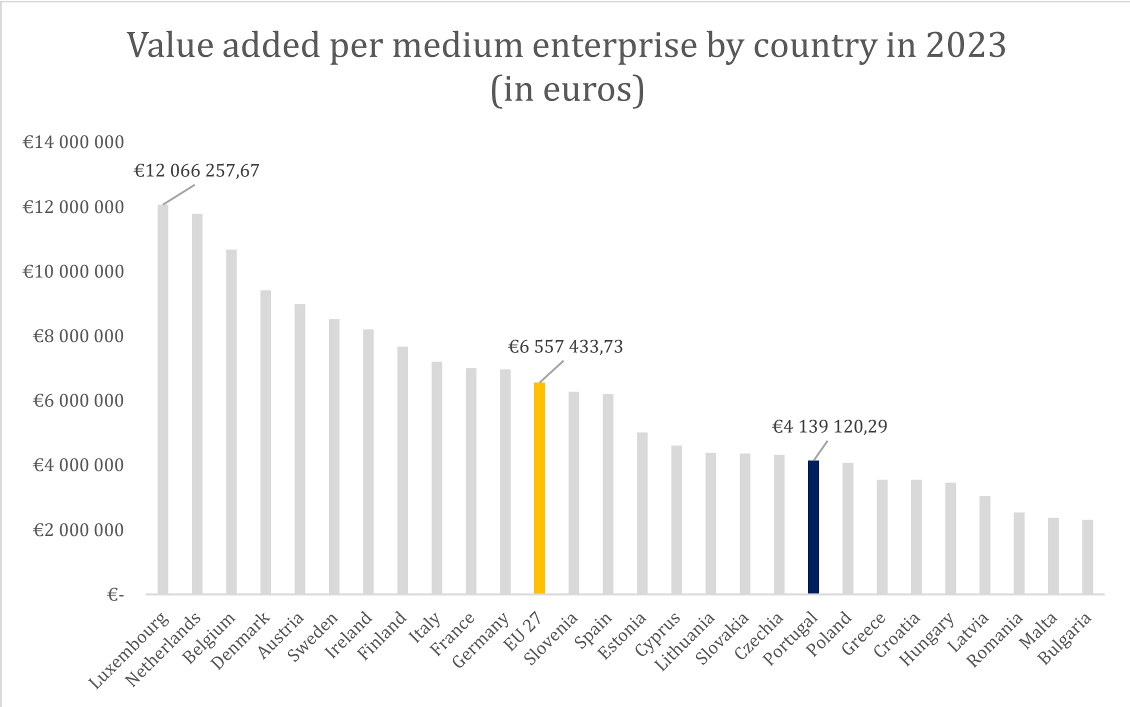

Figure 9 - Value added per medium enterprise in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

4. Appendix IV: Value added from the small enterprises by country in the EU in 2023

The following table shows the value added from the small enterprises by country in the EU in 2023:

Country	Value added from Small enterprises (in euros)
Germany	€353 856 000 000
Italy	€152 720 000 000
Spain	€106 125 000 000
France	€168 794 000 000
Poland	€ 52 788 000 000
Romania	€ 18 909 000 000
Netherlands	€ 86 171 000 000
Greece	€ 13 625 000 000
Portugal	**€ 25 391 000 000**
Austria	€ 48 563 000 000
Sweden	€ 42 853 000 000
Czechia	€ 22 094 000 000
Hungary	€ 14 907 000 000
Belgium	€ 58 492 000 000
Bulgaria	€ 8 872 000 000
Denmark	€ 47 692 000 000
Ireland	€ 29 205 000 000
Finland	€ 24 136 000 000
Croatia	€ 6 646 000 000
Lithuania	€ 7 436 000 000
Slovakia	€ 6 626 000 000
Latvia	€ 4 365 000 000
Slovenia	€ 7 417 000 000
Estonia	€ 4 771 000 000
Cyprus	€ 3 495 000 000
Luxembourg	€ 6 462 000 000
Malta	€ 1 342 000 000

Table 25 - Value added from small enterprises in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

The following figure shows the value added per small enterprise by country in the EU in 2023:

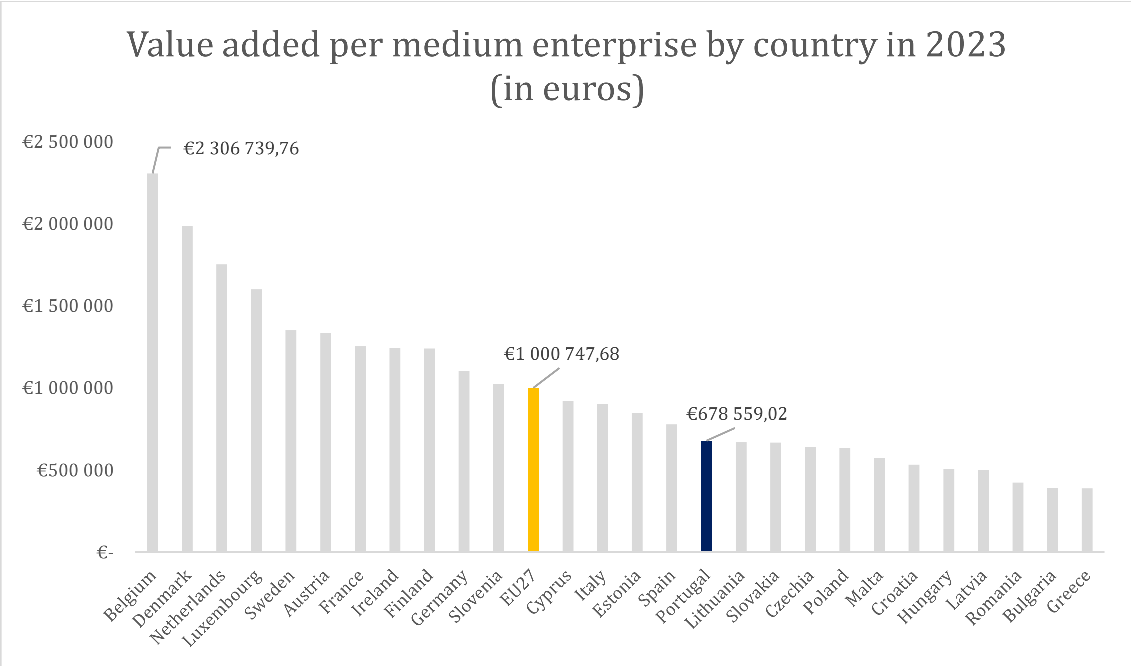

Figure 10 - Value added per small enterprise in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

5. Appendix V: Value added from the micro-enterprises by country in the EU in 2023

The following table shows the value added from the micro-enterprises by country in the EU in 2023:

Country	Value added from Micro enterprises (in euros)
Germany	€293 041 000 000
Italy	€206 526 000 000
France	€192 253 000 000
Spain	€169 599 000 000
Netherlands	€104 685 000 000
Belgium	€ 69 932 000 000
Poland	€ 68 105 000 000
Ireland	€ 59 933 000 000
Denmark	€ 48 139 000 000
Sweden	€ 43 572 000 000
Austria	€ 39 793 000 000
Czechia	€ 29 622 000 000
Portugal	**€ 28 284 000 000**
Romania	€ 25 014 000 000
Finland	€ 21 940 000 000
Hungary	€ 17 988 000 000
Slovakia	€ 13 490 000 000
Greece	€ 12 271 000 000
Slovenia	€ 8 770 000 000
Bulgaria	€ 8 503 000 000
Luxembourg	€ 7 340 000 000
Lithuania	€ 6 947 000 000
Croatia	€ 6 810 000 000
Malta	€ 6 223 000 000
Estonia	€ 5 958 000 000
Latvia	€ 3 667 000 000
Cyprus	€ 3 269 000 000

Table 26 - Value added from micro-enterprises in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

The following figure shows the value added per micro-enterprise by country in the EU in 2023:

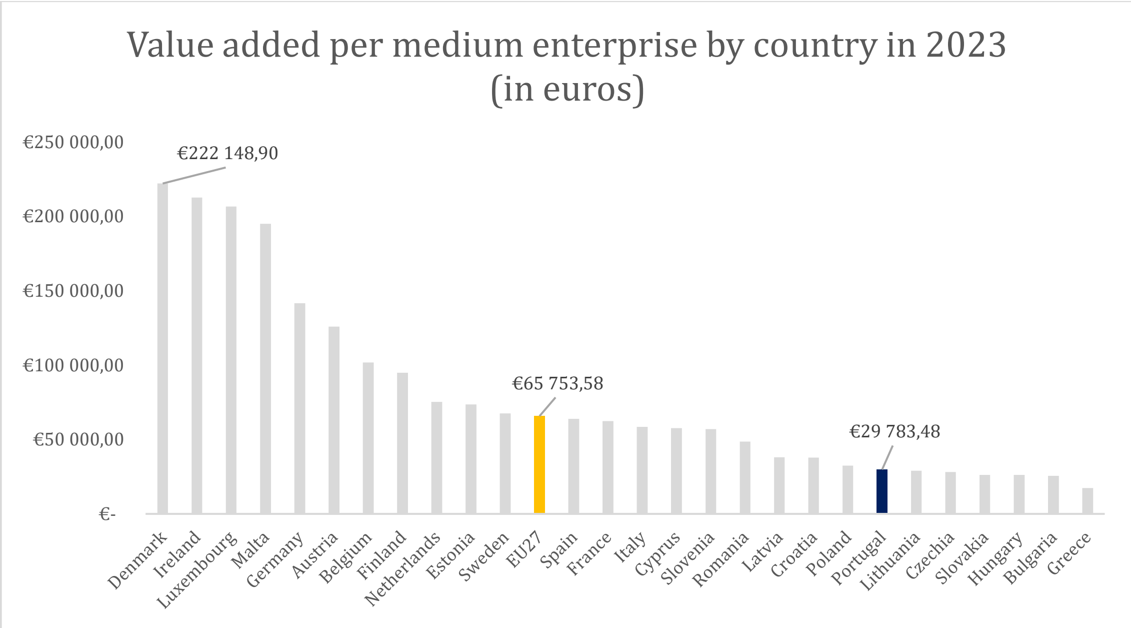

Figure 11 - Value added per micro-enterprise in the EU, by country in euros (2023)
Source: self-elaboration with data retrieved from (Statista, 2024)

6. Appendix VI: Interview script

INTERVIEW SCRIPT
Company Profile
Name: **Location:** **Size:** **Industry:** **Number of employees:** **Revenue:**
Question 1.
In your view, what were the changes in the business environment either external (political, economic, social, technological, and environmental) or internal (competitive strategy, internal processes, management style) that have had the biggest impact on the company and industry in recent years?
Question 2.
Considering the changes mentioned, did the company feel the need to adequate its business strategy to either capitalize on an opportunity or respond to a certain risk?
Question 3.
Following the changes in the environment, did the management team recognize that it was important to build internal capabilities to react quickly and accurately to those changes or to recover from the damages of those changes?
Question 4.
With all the uncertainty that those changes brought to the business, which contribute to a more volatile workflow, did you feel the need to increase the level of flexibility of the organisation and their teams? • **Question 4.1. –** what about the product/service flexibility? Did the company implement new features/small improvements to meet the challenges faced? Or to seize an opportunity in the market?
Question 5.
With the intensification of the digitalisation, technological development, increasing concerns with sustainability and aggressively shifts in demand, did the company feel a need to implement new technologies/innovations to increase the quality of the products/services and, with that, meet the volatile demand of the market? • **Question 5.1. –** In terms of cooperation, did the company promote a higher level of cooperation both internally (in terms of the relations between the different departments) and externally (with other entities outside and inside the industry) to respond to the changes?

Question 6.
Bearing in mind a higher speed on the environment, in terms of overall advancements and changes in consumer behaviours, did the company perceived the need to execute their operations and product/services delivery faster? • **Question 6.1. –** Was the reduction of the time to bring a new product/service from conception to market availability, an important variable to achieve higher levels of speed.
Question 7.
The development of new capabilities to respond to these challenges is expected to have any kind of return in the company. In this sense, I would like to ask if the development of the capabilities mentioned, led to raise the levels of customer satisfaction (in terms of product quality; service quality and speed; customer support…)? • **Question 7.1. –** What about the levels of customer retention? Did you have an increase in the number of customers who continue to use the service or products over a certain period.
Question 8.
Apart from the customer side, it’s important to understand if there was any kind of reaction from the financial side. In this sense, I would like to understand if the adoption of the capabilities mentioned led to a direct increase of the revenue growth rate of the company over time?
Question 9.
Finally, I would like to know if the development of new capabilities impacted the costs associated with the production of products or the development of services, and how this contributed to setting profit margins, particularly in terms of profit?

Table 27 - Interview script
Source: self-elaboration

7. Appendix VII: Companies interviewed

Company A			
Location	Porto		
Size	Small		
Activity	Manufacture and Wholesale of other machinery and equipment		
Revenue 2022	3 292 921,00 €	**Revenue 2020**	2 727 018,00 €
Revenue 2021	3 206 834,00 €	**Revenue 2019**	3 007 908,00 €
Employees 2022	23	**Employees 2020**	34
Employees 2021	19	**Employees 2019**	36

Table 28 - Information about company A
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company B			
Location	Viana do Castelo		
Size	Small		
Activity	Manufacture of perfumes and toilet preparations		
Revenue 2022	3 872 073,00 €	**Revenue 2020**	1 798 604,00 €
Revenue 2021	2 489 817,00 €	**Revenue 2019**	2 521 502,00 €
Employees 2022	32	**Employees 2020**	28
Employees 2021	27	**Employees 2019**	26

Table 29 - Information about company B
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company C			
Location	Porto		
Size	Medium		
Activity	Wholesale of hardware, plumbing and heating equipment and supplies		
Revenue 2022	20 443 242,00 €	**Revenue 2020**	16 522 725,00 €
Revenue 2021	18 896 275,00 €	**Revenue 2019**	16 105 464,00 €
Employees 2022	65	**Employees 2020**	52
Employees 2021	60	**Employees 2019**	50

Table 30 - Information about company C
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company D			
Location	Porto		
Size	Small		
Activity	Wholesale of textiles, perfumes and cosmetics		
Revenue 2022	1 732 444,00 €	**Revenue 2020**	1 798 920,00 €
Revenue 2021	1 490 885,00 €	**Revenue 2019**	2 382 281,00 €
Employees 2022	25	**Employees 2020**	24
Employees 2021	24	**Employees 2019**	19

Table 31 - Information about company D
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company E			
Location	Porto		
Size	Micro		
Activity	Wholesale of raw wood and wood-based products		
Revenue 2022	1 790 628,00 €	**Revenue 2020**	1 225 991,00 €
Revenue 2021	1 406 420,00 €	**Revenue 2019**	1 201 172,00 €
Employees 2022	15	**Employees 2020**	12
Employees 2021	12	**Employees 2019**	14

Table 32 - Information about company E
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company F			
Location	Porto		
Size	Small		
Activity	Manufacture and Wholesale of other machinery and equipment		
Revenue 2022	3 314 042,00 €	**Revenue 2020**	56 507,00 €
Revenue 2021	1 455 526,00 €	**Revenue 2019**	n.a.
Employees 2022	27	**Employees 2020**	17
Employees 2021	17	**Employees 2019**	n.a.

Table 33 - Information about company F
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company G			
Location	Aveiro		
Size	Small		
Activity	Manufacture of non-domestic cooling and ventilation equipment		
Revenue 2022	1 300 840,00 €	**Revenue 2020**	1 093 560,00 €
Revenue 2021	1 305 068,00 €	**Revenue 2019**	893 753,00 €
Employees 2022	13	**Employees 2020**	10
Employees 2021	10	**Employees 2019**	10

Table 34 - Information about company G
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company H			
Location	Porto		
Size	Small		
Activity	Manufacture and Wholesale of clothing and footwear		
Revenue 2022	6 368 186,00 €	**Revenue 2020**	3 714 648,00 €
Revenue 2021	6 106 007,00 €	**Revenue 2019**	3 454 274,00 €
Employees 2022	21	**Employees 2020**	16
Employees 2021	18	**Employees 2019**	15

Table 35 - Information about company H
Source: self-elaboration with information retrieved from (Sabi, 2024)

Company I			
Location	Lisboa		
Size	Small		
Activity	Wholesale of other machinery and equipment		
Revenue 2022	n.a.	**Revenue 2020**	n.a.
Revenue 2021	n.a.	**Revenue 2019**	n.a.
Employees 2022	n.a.	**Employees 2020**	n.a.
Employees 2021	n.a.	**Employees 2019**	n.a.

Table 36 - Information about company I
Source: self-elaboration with information retrieved from (Sabi, 2024)

8. Appendix VIII: Calculation of the level of maturity

The level of maturity was calculated through the number of sub-capabilities developed as follows:

Number of sub-capabilities developed	Level of maturity
0	None
1-2	Very Low
3-4	Low
5	Medium
6-7	Good
+8	High

Table 37 - Calculation of agile capabilities maturity levels
Source: self-elaboration