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Does organizational culture in food small and medium sized enterprises (SMEs) in Greece, fosters the open innovation process as a means to overcome factors hampering innovation and how ?

thesis report

MSc. Food Innovation and Management

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Abstract

This MSc thesis examined if organisational culture in food small and medium sized enterprises (SMEs) in Greece promotes open innovation as a way to overcome factors that hinder innovation and how this is accomplished. Open innovation was defined by Chesbrough, Vanhaverbeke, & West (2006), as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand markets for external use of innovation" and represents a new managerial paradigm. For the empirical part of the research a qualitative study design was formulated and representatives of two innovative (Case Company A & B) and one non- innovative (Case Company C) SMEs were interviewed and the findings were compared with the literature analysis. Case Company A represents a mature company that follows a structured, step by step approach to open innovation and Case Company B represents a startup which was established recently and open innovation is driven by the entrepreneurial orientation of its owner. Both companies collaborate mainly with universities and suppliers, while company A collaborates also with advertising agencies for commercialization purposes. In accordance with the literature both companies, use primarily outside in open innovation processes i.e. purposive inflows of knowledge, while Case Company A also uses the coupled process, meaning a give and take of knowledge between the innovation partners. The non-innovative Case Company C, focuses on producing the same range of products, has a defensive approach towards collaboration with external partners and although having accessed European funds, it has not used its financial advantage to innovate. The culture of the innovative companies is characterized by the four dimensions of open innovation culture i.e. creativity and risk taking, learning focus, internal collaboration and external orientation, while the culture of the non-innovative company was not characterized by these dimensions. This supports the first assumption of the study, that organizational culture does foster open innovation and this conclusion is valid since the non-innovative and the two innovative companies had major cultural differences. As for the factors that hamper innovation, for Case Company A, these were mainly limited time and lack of financial resources, for Case Company B lack of knowledge and expertise and lack of financial resources, while for Case Company C the most important limiting factors were the small size of the firm and the lack of employee's commitment. Through collaboration with external partners, Case Company A mitigated limited time for innovation and Case Company B limited knowledge and expertise, creating successful and innovative products. This supports the assumption that open innovation does mitigate some of the factors that hamper innovation.

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1.Introduction

Innovation is a very challenging process that the organisations face in their competitive environment. Traditionally, innovation has been considered as being exclusively related to the firm's " internal activities", such as research and development. Yet, knowledge and innovative ideas are extensively and abundantly available in the "external environment" of a firm (Kariyapperuma, 2017). Concerning this, Henry Chesbrough (2003) created the term "open innovation". He defined it in 2006 as "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand markets for external use of innovation". The open innovation process is characterized by sourcing innovative ideas from external partners (outside-in), sharing owned knowledge with others (inside-out) or a combination of them (coupled process) and has been proposed as a new paradigm for the management of innovation (Chesbrough, 2003; Gassmann, 2006). Moreover according to Mortara et al., (2009) three main stages of the open innovation process have been identified in the literature: i) research ii) development and iii) commercialisation

The companies of the food sector are actively pursuing knowledge sharing and partnership beyond their own organization, to supplement the innovation process (Omta, Fortuin, & Dijkman, 2014). For SMEs, especially, maintaining a competitive advantage in the marketplace depends on their ability to innovate (Parida, Westerberg, & Frishammar, 2012). SMEs encounter a number of hampering factors to innovation like lack of financial resources or lack of technical capabilities, which do not allow them to complete the new product development process from beginning to end, relying on their own capabilities and therefore they search for external collaboration. Open innovation diminishes some of the hampering factors related to generation and commercialization of novel and creative ideas in SMEs, and even allows them to compete with large multinationals (Hitchen et al., 2017).

This study proposes that this is due to companies' organisational culture that promotes the exchange of ideas, knowledge and technology, thus fostering external collaboration and open innovation. In this manner, Gassmann, Enkel, and Chesbrough (2010) referred to the cultural perspective and the importance of organizational culture for the realisation of the open innovation model. Organizational culture was defined by Lundy and Cowling (1996) as "the way we do things around here to succeed" and according to the existing literature, innovativeness and culture are strongly and positively interconnected (Hurley & Hult, 1998; Tushman, 1997; Zaltman, Duncan, & Holbek, 1973).

It is also argued that corporate organization and culture (affecting inter-organization relationships) are the major barriers for implementation of the open innovation model in SMEs (Mazur & Zaborek, 2016), while Fortuin (2007) indicates that there are big differences in culture between firms that generate new products quite often and firms that do not.

Especially for European countries under economic recession, such as Greece, innovation can contribute to dealing with the turbulence of the external environment (Jimenez-Jimenez, Sanz Valle, & Hernandez-Espallardo, 2008) and reducing the negative consequences of this existing crisis (European Commission, 2011). According to Piperopoulos (2007) "SMEs in the less developed but

rapidly growing regions of the European Union need to reconfigure their organizational structure and strategies aiming toward alleviating if not eliminating barriers to the pursuit of much needed innovative activities"

Innovation culture is an intangible resource that cannot be measured directly (Godfrey & Hill, 1995). In this manner, Mazur and Zaborek (2016) conducted an extensive literature analysis to conceptualise it as a factor that is reflected in three dimensions: (1) creativity and risk taking, (2) internal collaboration and (3) learning focus.

As indicated above, open innovation and external collaboration are strongly related to the external environment of a firm as a source of knowledge and ideas, thus an organizational culture that fosters open innovation, should also be externally oriented. In this manner a fourth dimension, that of external orientation, is considered important, for the measurement of an open innovation culture (Lassen & Laugen, 2017; Radas & Božić, 2009; Saunila & Ukko, 2014).

For this particular study, it can be argued that these four dimensions of open innovation culture can encourage open innovation (or external collaboration) in Greek food SMEs, as a means to overcome hampering factors of innovation. It is also expected that SMEs that follow an open innovation process for new product development, exhibit distinct culture differences when compared to SMEs that do not produce innovative products.

2. Objective and Research Questions

In the above outlined context, the objective of this study is to investigate whether the four dimensions of open innovation culture can encourage open innovation in Greek food SMEs, as a means to overcome hampering factors of innovation.

The **Main Research Question** is: "Does organisational culture in food small and medium sized enterprises (SMEs) in Greece, fosters the open innovation process as a means to overcome factors hampering innovation and how ?"

This main research question is going to be answered by the following sub questions:

SRQ1: What is the innovation process of a company which successfully implements open innovation?

SRQ2: What is the organisational culture of a company which successfully implements open innovation?

SRQ3: What is the organisational culture of a company that does not innovate?

SRQ4: What are the factors that hamper innovation in SMEs?

3. Literature Review

3.1 Open Innovation

3.1.1 The open innovation paradigm

The term innovation comes from Latin's Innovare, which means "to make something new" (Tidd, Bessant, & Pavitt, 2005). Schilling (2012) defines innovation as "the practical implementation of an idea into a new device or process" and argues that "innovation begins with the generation of new ideas" (pp. 18-19).

Innovation is a requirement for organizations in order to experience sustained growth, raising the quality and productivity levels of products and services and responding to customer demands and expectations (Kariyapperuma, 2017). Thus, innovation development is considered as an important organizational goal for every company.

Traditionally, the creation of new products in firms depended on internal R&D. In many businesses, large internal R&D laboratories were a strategic advantage and typified a significant entry barrier for possible competitors. Consequently, firms possessing extended R&D capabilities and complementary assets had a competitive advantage over other, smaller rivals (Teece, 1986). Firms sought to create and develop sufficient R&D facilities as well as exploit the results of their endeavour, thus spending significant resources.

This process in which firms discover, develop and commercialize technologies or products internally has been named as "closed innovation" (Chesbrough, Vanhaverbeke, & West, 2006) . Although this model was successfully implemented for years, the innovation landscape has changed. Due to labour mobility, abundant venture capital and widely dispersed knowledge across numerous public and private organizations, it is not affordable for firms to innovate internally (Chesbrough, 2003).

A growing number of enterprises, has moved to an "open innovation" model which is defined as *"the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively"* (Chesbrough et al., 2006) p.1 .

The concept of open innovation presumes that corporate innovation activities are more like an open system and presented a new terminology and a new managerial paradigm. As Chesbrough et al. (2006) acknowledged it is been assembled upon ancestors in innovation research. Innovation scholars accept since the 1970s that innovative ideas often come from the external environment of a firm. Allen (1984) referring to R&D laboratories, characterized them as "open systems," that rely also on their external environment, for the generation of new ideas. Teece (1986) developed an innovation framework, that focuses on challenges that firms face in their attempt to make profit from their innovative effort, on which the open innovation model can be built. Mowery (2009) even

supports that closed innovation might constitutes the exception in a chronicle typified mostly by open innovation practices.

Huizingh (2011) proposed an explanation to the aforementioned stating that "open innovation became the umbrella that encompasses, connects, and integrates a range of already existing activities. This enabled both academics and practitioners to rethink the design of innovation strategies in a networked world, while at the same time, the timing was great, coinciding with the current interest for outsourcing, networks, core competences, collaboration, and the internet" (p.3).

Open innovation characterises an approach in which companies involve a broad range of external actors in their innovation processes in order to support or exploit this external knowledge (Chesbrough, 2003).

3.1.2 The open innovation processes

There is no single method for open Innovation (Lindegaard, 2011). Open innovation can be performed in different ways, depending on the firm's needs, resources and market situation (Prytz, Flakstad, & Gjertsen, 2013). A funnel shaped diagram (Figure 1) is commonly used for the representation of the open innovation process and includes three stages: research, development and commercialization (Mortara et al., 2009). The key characteristic of this diagram - which also highlights the difference between open innovation and the traditional "closed" innovation model - is the permeability of the firm's frontiers (the dashed line in the figure). This enables the use and integration of external resources between the firm and external partners. Ideas are examined during the research stage and those who are the most promising, proceed to the development and commercialisation phase. Ideas that are not promising are rejected. Concurrently, ideas and technologies that have been developed outside the firm can also be considered. At the development stage, the ideas that come from the previous stage are specified to feasible projects. At the stage of commercialisation, the developed products enter the market. Collaboration with external partners may occur in any stage of the open innovation process in both multinationals and small companies (Mortara et al., 2009).

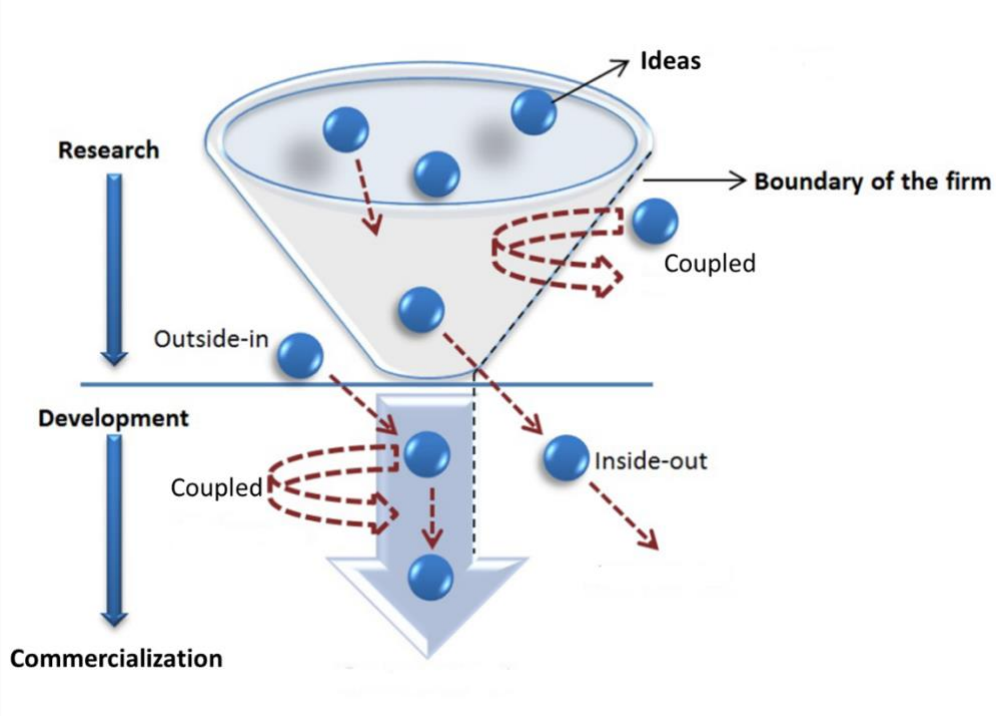

Figure 1: The open innovation process (adapted by Mortara et al. (2009))

Following the definition of Chesbrough et al. (2006) most studies differentiate between purposive outflows and inflows of knowledge to stimulate internal innovation processes and to benefit from innovative efforts, respectively (Chesbrough & Crowther, 2006; H. Chesbrough et al., 2006).

In the above outlined context, according to Gassmann and Enkel (2004) and by a firm's process point of view, three core processes can be distinguished in open innovation: (1) **The outside-in (or inbound) process**: referring to purposive inflows of knowledge, it is related to enhancing the company's owned knowledge base by integrating suppliers, customers and external knowledge sourcing, which can increase a company's innovativeness. (2) **The inside-out (or outbound) process:** referring to purposive outflows of knowledge, it is related to making money by bringing ideas to market, selling IP and multiplying technology by transferring ideas to the outside environment. Firms that follow this process, focus on externalizing their own knowledge and innovation in order to bring ideas to market faster than they could through internal activities (Gassmann & Enkel, 2004; Lichtenthaler, 2008). (3) **The coupled process:** coupling the outside-in and inside-out processes by working in alliances with complementary partners in which give and take is crucial for success (Gassmann & Enkel, 2004).

The above-mentioned processes constitute an open innovation strategy, but not all are equally important for every firm. Each firm selects one basic process, but also integrates some elements of the others (Gassmann & Enkel, 2004). These process archetypes along with the three stages of the

open innovation process (Chesbrough, Vanhaverbeke, & West, 2006; Lind, Holmen, & Pedersen, 2012; Mortara et al., 2009) are summarised in Figure 1 below.

The outside-in and inside-out processes are divided into subgroups based on the work of Van de Vrande et al. (2009). The outside-in processes are divided into the subgroups such as employee involvement, external networking, external participation, outsourcing R&D and inward IP-licensing, while the inside-out processes are divided into venturing and outward IP-licensing.

Empirical studies indicate that most firms perform inbound activities than outbound (Bianchi, et al., 2011; Cheng & Huizingh, 2010; Chesbrough & Crowther, 2006. This can be explained by the fear of giving away relevant knowledge (Rivette & Kline, 2000) or to reveal corporate "crown jewels" (Kline, 2003). Further research on this field should reveal to what extend this trend persists and what is the reason for some companies, not exploiting their knowledge externally.

Outside-in Process

Employee involvement

Employee involvement is concerned with inviting and involving employees who are not originally involved in R&D to contribute with their knowledge and initiatives. It involves listening to their suggestions, creating autonomous teams to realize the innovations etc. (Van de Vrande et al., 2009). Since employees are known within the company, one of the advantages of employee involvement is that employees in other departments possibly know where the best innovation opportunities lie (Lindegaard, 2011). In addition to their ideas and suggestions from outside the original R&D team, employees, may have a realistic view of what is possible to implement, as well as the profit-impact of the implementation (Lindegaard, 2011).

Customer and user involvement

Customer involvement is about involving the firms' customers in the innovation processes and use customer insight and information for the development and commercialisation of the innovative products (Van de Vrande et al., 2009). Firms can either design and produce new products by taking into account customers' feedback from different input channels (e.g. feedback, sales data), they can ask customers for input via surveys, interviews and focus groups, or they can involve customers in the design and development of the products (Piller, Ihl, & Vossen, 2010). The latter lies at the heart of co-creation and is typical of open innovation with customers (Piller et al., 2010). Indeed, over the past years, designers have started using the end customers' input for the development of new products and services (Sanders & Stappers, 2008). Interaction with customers are especially beneficial for product innovation according to Fitjar and Rodríguez-Pose (2013).

Customer involvement can be compared to employee involvement as both parties will contribute with new ideas and influence the product development. However, as the employees may have greater knowledge of the company's values and functions, the customers may contribute with ideas

from another point of view, which may lead to completely different innovations than if they were not involved in the process (Prytz et al., 2013).

External Networking

External Networking involves collaboration with external network partners like suppliers, universities, research centres, competitors and other firms, in order to contribute to the innovation process, providing external knowledge and human capital (Lee, Park, Yoon, & Park, 2010; Van de Vrande et al., 2009). Networking is a way to acquire new knowledge without using too much time and money to obtain it, and includes both formal and informal interactions (Van de Vrande et al., 2009). Fitjar and Rodríguez-Pose (2013) have investigated how different external networking processes influence innovation capabilities. The findings are listed below:

- Interactions with suppliers promote a greater level of innovation.
- Interactions with competitors have a negative effect on innovation capabilities.
- Interactions with firms within the same conglomerate promote innovations.
- Interactions with universities, research institutes and consultancy firms promote innovation.

Hiring employees with advanced skills and knowledge is another subcategory of external networking and constitutes an efficient way to obtain externally originated technology or knowledge. These could be people from other companies, even competitive ones, or people occupied in university research departments (Trott, 2008). As already mentioned, according to the literature, one of the factors why open innovation emerged was the increase of mobility of high skilled workers, demonstrates how this could be beneficial for companies from an open innovation perspective (Prytz et al., 2013). The skills of employees have found to be a considerable parameter for innovation. Statistical evidence of the importance of human capital for innovation is provided by Mohnen and Röller (2005). In their study, lack of skills was the most important innovation obstacle in a wide range of industries and countries.

The need for skilled employees is not limited to the R&D function. The current view of innovation emphasizes information exchange and participation in innovation processes by different units within firms, including marketing, manufacturing, research, and design and development (Kline & Rosenberg, 1986; Rothwell, 1994). Thus, the entire innovating organization benefits from a strong skill-base (Leiponen, 2005).

External Participation

External participation is concerned with equity investments in new or established enterprises to gain access to their knowledge, to obtain other synergies etc. (Van de Vrande et al., 2009).

Investments in other enterprises like start-ups or other businesses is a way to follow and monitor potential opportunities (Chesbrough, 2003; Van de Vrande et al., 2009). External participation, lies at the heart of open innovation, assuming that enterprises cannot conduct the whole new product

development themselves and instead have to capitalize on the external knowledge available (Gassmann, 2006).

External participation can be compared to external networking with the differences being that external participation contains investments in the other party and that the interaction to the other party is more formal than for external networking, as there are more formal agreements and contracts of collaboration over limited amount of time (Prytz et al., 2013).

Outsourcing Research and Development (R&D)

Outsourcing R&D is about buying R&D services from other organisations such as universities, commercial engineers, suppliers etc. (Van de Vrande et al., 2009). Openness towards research institutions permits consequential improvements in the production process, especially openness towards universities has a positive impact on product innovation and the resulting sales (Prytz et al., 2013). Outsourcing R&D is different than external participation, as the company that is outsourcing buys services of the other party and does not conduct equity investment in the other company (Prytz et al., 2013). In addition to hiring skilled employees as discussed under the category of *external networking*, consultants might also possess specialized knowledge within areas that are important to the firm. In the same way as hiring skilled employees, hiring a consultant refers to getting access to knowledge the company needs. Consultants offer help, advice and useful contacts, important for the company's innovative projects (Trott, 2008). According to Prytz et al. (2013) this can be viewed as a way to outsource R&D as well.

Inward IP Licencing

Inward IP licensing is when a firm is buying or using intellectual property of other organisations to benefit from external knowledge (Van de Vrande et al., 2009). Such intellectual property could be patents, copyrights or trademarks. For high tech companies, inward technology licensing is an efficient way to achieve innovation (Tsai & Wang, 2007).

Inside-Out Processes

Venturing

Venturing is when a company starts new organisations based on their internal knowledge, finance, human capital etc. from their own enterprise (Van de Vrande et al., 2009). A firm that conducts research, generates spillovers as a result of projects that the company judged as unpromising, but later turned out to be valuable (Chesbrough, 2003). Spillovers are actions that have been created during a process, but which is of no use in the original process. Spillovers do not have value in the company's business model, but by opening new paths to the market, through venturing they could generate great value. A different way to reduce the firm's spillovers is to license their IP to other companies, as described below (Chesbrough & Crowther, 2006).

Outward IP-licensing

Intellectual property is an exclusive right of assets (Filippetti, 2011), which is protection that restricts others from making a profit of the company's inventions. IP assets could be patents, copyrights or trademarks (Van de Vrande et al., 2009). In Open Innovation, companies, by licensing their IP to other businesses, they can profit from their unrealised results, hence reducing their spillovers. This is called outward IP-licensing (Chesbrough, 2003).

Coupled Processes

The coupled strategy is the third strategy in Open Innovation. Thus, strategy is captured through connecting outside-in and inside-out processes. Because the coupled strategy is a combination of these two processes, give and take is crucial for the companies involved (Lind et al., 2012). In coupled strategy, ideas are crossing the company boundaries more than once. This strategy is less studied than the outside-in and the inside-out strategies (Prytz et al., 2013).

3.1.3 Open innovation in the food industry

The food industry is one of the most significant industrial sectors of a country's national economy. More specifically, the European food and drink industry constitutes the largest manufacturing sector in Europe, with a turnover of € 956/year, a high analogy of SMEs, that generate half of the total industry turnover) and 4.1 million employees (FOODDRINK, 2011). Moreover, the food sector has notable links with the multiple sectors in the value chain, such as agriculture, retail and pharmaceutical industries, chemical industry, packaging, etc. (Samadi, 2014).

Recent changes in the nature of both food demand and supply, together with a growing degree of competitiveness, have rendered innovation an important corporate activity, crucial for the profitability of the food sector. Nowadays it is a strategic choice for most food firms to target more intensively on their core competencies. They are looking beyond the barriers of their own organizations, actively seeking knowledge, technology and partnerships to innovate. This can be explained by the fact that more than 90% of the food sector is comprised by SMEs, which due to their limited resources for in-house R&D, they must preserve a broad network of partners to provide them with scientific and technological knowledge (Knudsen, 2007).

Batterink (2009) has sufficiently shown that open innovation's significance for innovative food firms has increased during the period 1994-2006, notably since 2000 (see also Figure 3) . This credible evidence arose from the responses to six serial Community Innovation Surveys (CIS) by more than 1300 innovative food companies.

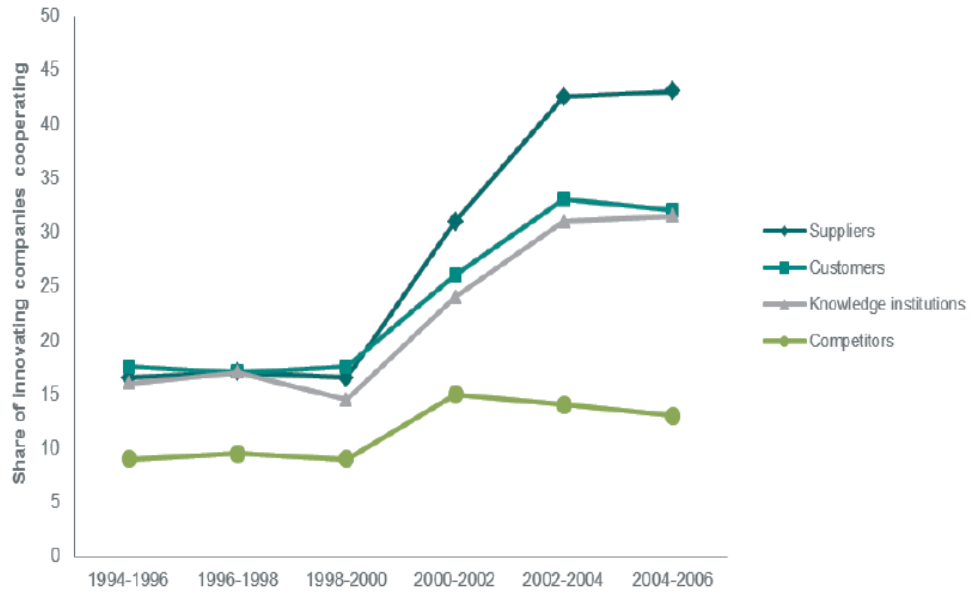

Figure 2: Percentage of innovative food firms that collaborate with various partners in open innovation projects (Batterink, 2009)

Figure 2 clearly indicates the importance of external networks for the survival of innovative food companies. Until 2000, only 15-20% of innovative food firms cooperated with suppliers, clients and knowledge institutions. Since then, the share of collaborations has risen: up to 45% with suppliers and 30-35% with clients and knowledge institutions. The rate of collaboration with competitors is the lowest and has shown the smallest increase, from 10% until the year 2000, and then up to only 15%.

3.1.4 Open innovation in SMEs

SMEs are defined as "the category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding 50 million euro, and/or an annual balance sheet total not exceeding 43 million euro" and more details are provided in Table 1 (European Commission, 2005).

Table 1: Definition of SMEs (adopted by European Commission, 2005)

Company category	Staff headcount	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

The importance of SMEs for the economy is highly recognised in the literature. According to Wolff and Pett (2006), SMEs and entrepreneurial firms drive the economies of most nations. They represent 99% of businesses in the USA, E.U. and Japan and have created jobs for two thirds of people occupied in the private sector. In this manner, SMEs are a key driver for economic growth and they have an obvious role in innovation. Their role in open innovation will increase towards collaborative development efforts (Van de Vrande et al., 2009)

3.2 SMES' Hampering Factors to Innovation

SMEs are notably recipient to open innovation; in order to gain and maintain a competitive advantage in the market, they rely upon their ability to innovate (Parida et al., 2012). According to Laursen and Salter (2004) it is not statistically proven that larger firms and multinationals are better than SMEs in the new-to-the-world type of innovation, which indicates that SMEs are capable to innovate. SMEs' flexibility and specificity can be advantages in stimulating innovation, but a small number of them have sufficient capacity to manage the whole innovation process by themselves, and this motivates them to collaborate with other firms (Edwards, Delbridge, & Munday, 2005).

Open innovation lessens some of the hampering factors related to the generation and commercialization of new ideas in SMEs. These obstacles have been studied extensively in the literature. First, the smallness of the firm, and therefore its lack of financial resources, makes it difficult to recruit researchers. This lack of resources also affects negatively various processes like manufacturing, distribution, marketing and R&D (Lasagni, 2012). Moreover, spreading risks is difficult for SMEs, as their size and limited resources do not allow them to work on multiple projects in parallel. Second, in family-run SMEs, conflicts may come up related to what is best for the business and what are the individual aspirations of family members, which could affect risk-taking when making radical changes (Lasagni, 2012). Furthermore, because of their small dimension, SMEs lack integrative competence and tend to use unstructured approach to innovation (De Toni & Nassimbeni, 2003). Finally, collaboration with external partners may constitute an obstacle to open innovation in the case of differentiated organizational and cultural aspects. Hence, "the way we do things around here", or the organizational culture of a firm, can be an obstacle (Hitchen et al., 2017) to open innovation in SMEs. According to (Omta, Fortuin, & Dijkman, 2014), in the case of an attempt for open innovation, firms should seek complementary knowledge and skills, as well as an aligned organisational culture.

Any competitive advantage an SME may possess in the marketplace comes from its ability to innovate. SMEs differ from multinationals in open innovation practices due to their intrinsic smallness which is a liability, that limits both human and financial resources. Despite their flexibility, financial limitations make them unable to complete the R&D process from beginning to end and therefore have to search outside the firm's boundaries for collaboration. On the other hand, their small size, is also advantageous when it comes to the uptake and assimilation of open innovation practices and that is because SMEs are usually more informal organizations, they undertake risks more easily and exhibit higher degrees of specialization. While multinationals have the monetary capability to support in-house R&D departments, SMEs can utilise their smallness to their advantage and flexibly respond to changing demands (Van de Vrande et al., 2009).

3.3 Organisational Culture and Innovation

Organizational culture refers to the values and beliefs that provide norms of expected behaviors that employees might follow (Schein, 2004). Culture within an organization consists of a strong influence on the behaviors of the employees beyond formal control systems, procedures, and authority (O'Reilly, Chatman, & Caldwell, 1991). Concerning this, organizational culture is a powerful tool to obtain desired organizational results (Parveen, Senin, & Umar, 2015).

A multitude of definitions have been used to describe the term. Among them, the simplest and most widely used, defines organizational culture as *"the way we do things around here to succeed"* (Lundy & Cowling, 1996).

According to Mazur and Zaborek (2016) organizational culture can, more or less, conduce to innovation, but innovation culture does not incur separated from the general cultural context of a business. In this regard, innovative culture can be achieved by modifying organizational culture (Simpson, Siguaw, & Enz, 2006) patronizing the creation of new knowledge, by espousing new ideas (products) and behaviors (Harkema, 2003) .

According to Zaltman et al. (1973), a cultural approach to innovation is critical for firms. Successful organizations absorb innovation into their organizational culture and management (Syrett & Lammiman, 1997). Dobni (2008) states that organization culture lies at the heart of innovation. Schein (2004) and Weick (1985) both point to culture as the linchpin to innovation in organizations

The significance of organizational culture in such fields as innovation and knowledge management is highlighted in many later publications (Ruppel & Harrington, 2001) (Alavi, Kayworth, & Leidner, 2005; Janz & Prasarnphanich, 2003). Studies examining crucial elements of organization's innovation denoted organizational culture as a determinant in controlling the intensity of innovative activity and its outcomes (Higgins & McAllaster, 2002; Jamrog, Vickers, & Bear, 2006; Jassawalla & Sashittal, 2002; Koc & Ceylan, 2007; Laforet, 2016; McLean, 2005; Naranjo-Valencia, Jiménez-Jiménez, & Sanz-Valle, 2011; Riivari, 2012).

3.2.3 Dimensions and Indicators of Open Innovation Culture

Applying an innovative culture framework in this research requires the determination of culture dimensions and indexes to successfully distinguish between innovative and non-innovative cultures. According to Mazur and Zaborek (2016) there is no specific and universally used set of innovative culture dimensions. As a consequence of this, they conducted an extensive literature analysis to determine the dimensions and indicators of innovative culture or, in other words the organizational culture's capability to foster innovations. They concluded that three dimensions need to be accounted for: (1) creativity and risk taking, (2) internal collaboration and (3) learning focus. As indicated above, open innovation is strongly related to the external environment of a firm as a source of knowledge and ideas, thus an organizational culture that fosters open innovation, should

also be externally oriented. In this manner a fourth dimension, that of external orientation, is considered important, for the measurement of an open innovation culture.

For this particular study, it can be argued that these four dimensions of open innovation culture, can encourage open innovation and inter-organizational collaboration in food SMEs, as a means to overcome hampering factors of innovation such as the lack of financial resources.

Creativity and Risk Taking

The creativity and risk-taking dimension examines two closely interconnected factors: creativity focus and risk proclivity. While "creativity is the generation of novel and useful ideas, primary at the individual level (Amabile et al., 1996), innovation is the process of differentiating, evaluating, developing and putting these ideas in practice (Mazur & Zaborek, 2016). "It is creativity that fuels the innovation pipeline. For an organization to remain relevant and to compete in pursuit of its mission, management of organizations must pay close attention to both ends of the process, generating creative ideas frequently and utilizing the innovation process to realize the potential value of those ideas" (Amabile et al., 1996)(p. 240).

Shattow (1996), supports that an organizational culture that promotes creativity and innovation should allow employees time to think creatively. Moreover creativity and innovation are fostered when the degree to which employees have freedom and authority to participate in decision making (which also determines the level of empowerment) within an organization is high (Arad, Hanson, & Schneider, 1997). Co-operative teams are identified by some authors as having an influence on the degree to which creativity and innovation take place in organizations. Well-established work teams which allow for diversity and individual talents that complement one another, should promote creativity and innovation (Arad et al., 1997; Mumford, Whetzel, & Reiter-Palmon, 1997).

On the other hand, risk taking supports the development of more cutting edge innovations, following a bolder creative process that involves more assets, but at the same time, an inherently greater likelihood of market failure (Mazur & Zaborek, 2016). It is supported that tolerance for risk taking and new ideas, promotes innovation (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Jaworski & Kohli, 1993; Kanter, 1983). Moreover, substantial product innovations require greater amount of risk taking and proactiveness from companies. Similarly it is supported that innovative firms, demonstrate a far greater willingness for risk taking than non-innovative firms (Avlonitis & Salavou, 2007).

Several organizational studies support that risk taking is intrinsic to creativity. For instance (Sethia, 1989), mentions that creativity, due to high uncertainty, is risky while the action-outcome association, is often ambiguous and spread out over time. In general, new ideas and behaviours are risky as they represent disruptions in the status quo and power balances (Albrecht & Hall, 1991). Concisely, many authors agree that the conditions for creativity exist when employees are willing to take risks (Tesluk, Farr, & Klein, 1997). Without risk, creativity is hindered and focused on to providing only the most apparent and secure solutions (Mazur & Zaborek, 2016).

Internal Collaboration

Internal collaboration has been extensively measured in the literature. In their study Mazur and Zaborek (2016) refer that it can be expressed in different ways such as interdepartmental cooperation, participative decision making, knowledge exchange and sharing, organization commitment and mutual trust, teamwork and interaction with others.

In some cases, internal collaboration as a dimension characterizes a certain type of organizational culture (collaborative organizational culture) (Sanz-Valle, Naranjo-Valencia, Jiménez-Jiménez, & Perez-Caballero, 2011). It advances involvement, the commitment to innovate and the perceived freedom to act and to innovate, while it communicates to employees that they are valued, which encourages them to work actively on innovative projects for the good of the organization (Hurley & Hult, 1998).

The archetype of internal collaboration among employees demonstrates the network of collaborative ties regarding them (Allen, 1977; Nerkar & Paruchuri, 2005; Paruchuri, 2010). Internal collaboration within a company is influenced by the extent to which the network structure is integrated (Allen, 1977; Allen, James, & Gamlen, 2007; Burns & Stalker, 1961; Chandler, 1962). In this case integration is related to the extent to which the intra organizational network is consisted of one interdependent component, that provides employees with opportunities for mutual knowledge exchange and "continual re-definition of individual tasks through interaction with others"(Burns & Stalker, 1961). Conversely, absence of integration which takes place when the intra organizational network is not continuous and various groups of employees work separately, lessens knowledge exchange and joint problem solving (Fleming, King III, & Juda, 2007; Lazer & Friedman, 2007).

A number of studies have demonstrated that knowledge sharing and internal collaboration, are crucial because they give companies the ability to enhance their innovation performance and minimize redundant learning efforts (Chatenier et al., 2010).

Internal collaboration can also be characterized by the formation of innovation teams within a company. Innovation teams are consisted from professionals from different departments, creating new knowledge, collaboratively. The variety of their backgrounds is a source of creativity and is regarded as a critical success factor for innovation projects. Research on innovation teams highlights that successful teams include members with a wide range of skillsets and experiences, who are involved and committed to make the innovation process a success (Chatenier et al., 2010).

Learning Focus

Learning focus, or learning orientation, influences both the innovation capability and the performance of an organization (Calantone, Cavusgil, & Zhao, 2002). It can modify attitudes, beliefs and decision making processes (Garvin, 1993) and should be viewed as an organization-wide phenomenon; a combination of both individual and organizational learning (Romme & Dillen, 1997).

Learning focus is related to organizational-wide actions for the creation and utilization of knowledge, for the competitive advantage of a firm to be enhanced. It is a combination of both acquiring and sharing information related to consumers' needs, market changes and competitors 'movements, as well as developing new technologies for the creation of novel products, superior to the competitive ones (Hurley & Hult, 1998; Mone, McKinley, & Barker, 1998; Moorman & Miner, 1998). It determines what kind of information is collected (Dixon, 1992), how it is translated (Argyris & Schon, 1978), evaluated (Sinkula, Baker, & Noordewier, 1997) and distributed (Moorman & Miner, 1998).

Learning focused firms are prone to question their well-managed organizational systems, and revise fundamental operating principles (Mone et al., 1998; Senge, 2006). Such firms "drive the market rather than be driven by it". Such philosophies, actions, and strategies should lead to higher long-term performance (Calantone et al., 2002).

External Orientation

External orientation, for instance, towards key customers or sources of major technological achievements and making sure that this penetrates organizational thinking at all altitudes, is considered highly important in framing an innovative organization (Tidd et al., 2005) because as it is explained below, it provides access to resources that cannot be generated internally (Nelson, 1990). According to (Laforet, 2016), external orientation in small, family firms' culture arose as an important precedent of entrepreneurship, exposing the firm and its employees to different sources of knowledge, allowing them to recognize entrepreneurial opportunities. An external orientation is reflected in the acquisition of new knowledge from customers, suppliers, competitors, universities or research laboratories (Powell, 1990).

In periods when technological developments thrive, progress and advance in research are so extensively distributed that no single company possesses all the internal competences that are necessary for success. At the same time, competitors are likely to be focusing on the same targets; and in that case the fastest of them, is rewarded. In this manner, technological developments stimulate collaborative efforts that seek to minimise the intrinsic uncertainties associated with novel products or markets, while enhancing organizational learning (Powell, Koput, & Smith-Doerr, 1996). Even before the open innovation paradigm emerged, Powell et al. (1996) acknowledged that "when knowledge is broadly distributed and brings a competitive advantage, the locus of innovation is found in a network of inter organizational relationships". (p.119)

A network acts as a locus of innovation because it allows access to knowledge and resources that in other case are not available, while also assessing internal expertise and learning capabilities. Companies must know how to deliver knowledge across alliances and settle themselves in those network positions that allow them to keep up with the most promising scientific or technological developments.

3.4 Conceptual Framework

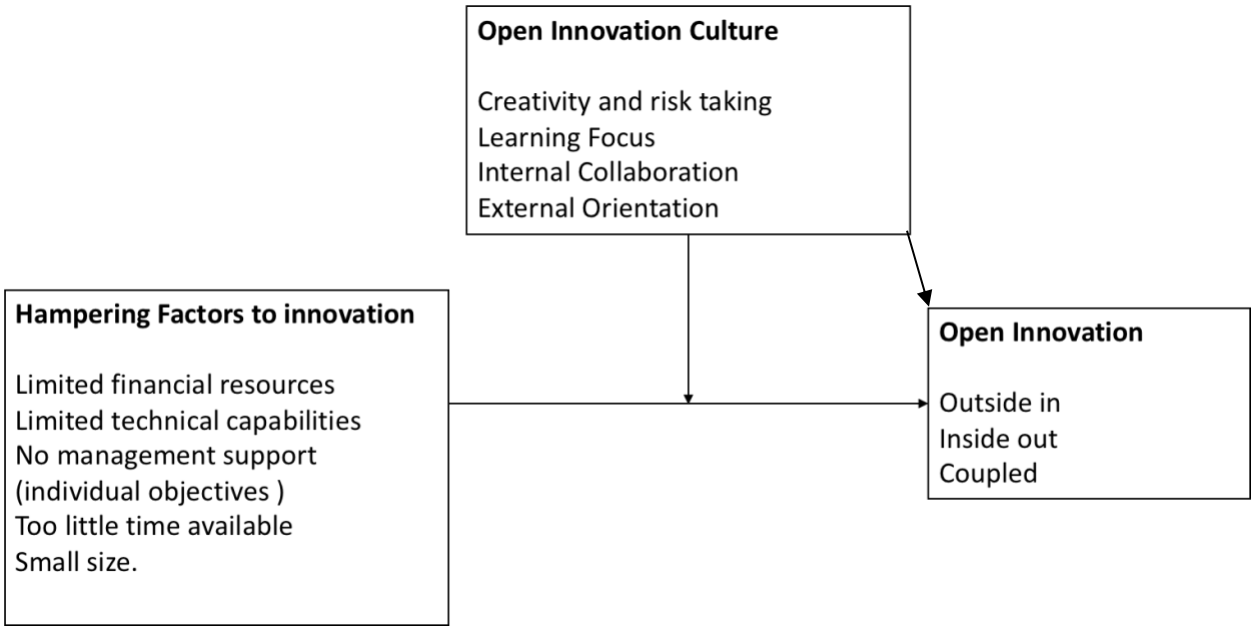

Figure 3: Conceptual framework of the qualitative research

Figure 3 shows the conceptual framework (CF) of this research. Out of the literature review from the chapters before, the Conceptual Framework grows. The CF is related to the main research question, which is: *"Does organisational culture in food small and medium sized enterprises (SMEs) in Greece, fosters the open innovation process as a means to overcome factors hampering innovation and how ?"*

As it is analyzed in the literature review, culture is key element to innovation for companies (Dobni, 2008; Schein, 2004; Weick, 1985). According to Zaltman et al. (1973), a cultural approach to innovation is critical for firms, while Syrett and Lammiman (1997) indicate that successful organizations absorb innovation into their organizational culture and management. It is also argued that corporate organization and culture (affecting inter-organization relationships) are the major barriers for implementation of the open innovation model in SMEs (Mazur & Zaborek, 2016). Thus, it can be conducted that culture and innovation are positively related; values, beliefs, employees' behavior or in other words *"the way we do things around here to succeed "within* a company, are oriented towards innovation and vice versa.

For the purpose of this study culture, an intangible characteristic, had to be measured and typified. Mazur & Zaborek, 2016, conducted an extensive literature analysis to determine the dimensions and indicators of innovative culture, resulting that three dimensions need to be accounted for: (1) creativity and risk taking, (2) internal cooperation and (3) learning focus.

However, open innovation is referring to the external environment of a firm as a source of knowledge and ideas, thus an organizational culture that fosters innovation, should also be externally oriented. In this manner a fourth dimension, that of external orientation, is considered important, for the measurement of an open innovation culture (Lassen & Laugen, 2017; Radas & Božić, 2009; Saunila & Ukko, 2014). During the empirical part of this study, these four dimensions of open innovation culture were typified in order to examine whether open innovation culture fosters open innovation.

Moving to open innovation, and the variables for its measurement, extant research has identified two types of open innovation: in-bound open innovation and out-bound open innovation. Inbound open innovation relates to inward flows of knowledge and consists of opening up the innovation process and acquiring knowledge from external sources, whereas outward flows of knowledge denote outbound open innovation, which refers to the commercialization of technological knowledge by using external parties (Lichtenthaler, 2009). Furthermore a third type, a combination of inbound and outbound open innovation, named coupled process can also be used while applying an open innovation model (Gassmann & Enkel, 2004). These three types constituted the variables of measuring the open innovation processes, within the context of this study.

The third concept that was analyzed was factors that hamper innovation. Small and Medium Enterprises (SMEs) face a variety of factors that hamper the innovation process. According to the literature these hampering factors are the scarcity of monetary resources and technical capabilities (Vanhaverbeke, Vermeersch, & De Zutter, 2012), that make them unable to complete the R&D process from beginning to end. Moreover in family-run SMEs, conflicts may come up related to what is best for the business and what are the individual aspirations of family members, which could affect the firms' innovativeness, negatively (Lasagni, 2012). Van de Vrande et al. (2009) and Van der Meer (2007) also identified that "employees have too many ideas, no management support" and "resistance to change" respectively, are hampering open innovation in SMEs. Van der Meer, 2007 and Van de Vrande et al., 2009 indentified "too little time available" and "balancing innovation and daily tasks" as the main barrier to open innovation practices in SMEs. Moreover, "liability of smallness" as Gassmann et al. (2010) referred to it, affects the ability of SMEs to innovate successfully and plays a limiting role in open innovation adoption and implementation. Thus, the main hampering factors, that were examined in this study were: limited financial resources, limited technical capabilities, no management support or individual objectives, too little time available and small size.

Hitchen et al. (2017) support that open innovation diminishes some of the hampering factors related to generation and commercialization of novel and creative ideas in SMEs, and even allows them to compete with large multinationals. This study proposes this can be the outcome of a cultural approach to innovation; a culture that promotes the exchange of ideas, knowledge and technology, thus fostering external collaboration and open innovation allowing companies to overcome difficulties and obstacles and create an innovative product.

With the help of the main research question, the sub- research questions and the literature review, two assumptions were made and can be found in the CF as arrows between the different boxes. The assumptions are the following:

1. Open innovation culture fosters open innovation
2. Open innovation diminishes some of the hampering factors to innovation that SMEs face.

4.Methodology

In order to answer the main research question and to test the two assumptions mentioned in the conceptual framework, a qualitative study design was formulated. Qualitative research cases are selected not based on statistical issues but according to theoretical considerations (Glaser and Strauss, 1967; Eisenhardt, 1989).

The qualitative study was carried out among three SMEs, located in the area of Greece:

i. Case Company A
ii. Case Company B
iii. Case Company C

Assessing the two assumptions required gathering empirical data from companies that create innovative products through an open innovation process. Case Company A & B are both food SMEs that meet this criterion. For purposes of validity and based on the premise of Fortuin (2007) who indicates that there are big differences in culture between firms that generate new products quite often and firms that do not, a third Case Company was selected. This company does not innovate and was used to identify whether culture is a decisive factor for that.

For the collection of the primary sources of data, the judgmental sampling method was used. This kind of sampling works effectively in qualitative research and in this case the researcher predetermines the people who, from his perspective, are qualified enough to answer to their questions (Kumar, 2011). In this endeavour, three managers and the owner of the Case Companies were interviewed. The interviewing part was semi structured; the conceptual framework of the study were used as a guide for the interview questions, but at the same time, the interviewee had the freedom to diverge from the topic (Bryman & Bell, 2007).

The innovative case companies were found though web research related to award winning food innovations for 2018 in the area of Greece. Representatives of ten companies were approached and two companies were reacted positively to being part of the thesis project. The non-innovative case company was selected also based on web research. A few companies were approached and Case Company C accepted to participate.

The representatives were contacted through e-mail that was explaining the aim of study and asking for their collaboration. After receiving a positive reply, a meeting was scheduled for a skype interview. In every case it was asked, if possible, to interview ideally all people involved in the innovation processes (nine), or the most strongly engaged. In Case Company A the marketing and R&D managers were selected, since interviewing all nine people who are involved in the open innovation process of the company was not possible. The marketing and the R&D managers were the most involved employees of the company in open innovation. Moreover, since Case Company B occupies five employees, interviewing the owner of the company who mainly works on the innovation projects, was considered adequate to gather the information needed. As for Case Company C and due to heavy workload of the employees, the co-owner and quality assurance manager, was interviewed.

Before the start of the interview a short introduction to the research was given. Each interview was recorded (after asking the respondents for permission), transcribed and translated since all interviews were conducted in Greek. The interview protocols for the innovative companies can be found on Appendix 1 and that of the non-innovative company in Appendix 2. In both cases some general questions regarding the company, the background and job duties of the interviewees, the innovative product (if any) were asked.

The concepts which can be found in the conceptual framework (Figure 3), were measured with the help of the interview questions.

For the innovative companies, the interview questions were divided into three parts, which represented the three main concepts (open innovation process, open innovation culture and hampering) examined in the thesis. The first part, that of open innovation process, aimed to get an insight on how this process works in every company and what are the main stages of it. Questions from the second part examined the four dimensions of organizational culture, to identify if there is a relationship between culture and open innovation. Furthermore, the third part examined from the interviewees' perspective what are the factors that hamper innovation and attempted to identify if open innovation mitigates some of these obstacles. The interview questions were derived from the conceptual framework and the literature review. The main variables for each concept were identified and then operationalized to questions for the interviews.

For the non-innovative company, two dimensions of the conceptual framework were examined; that of hampering factors to innovation and organizational culture. The question on hampering factors to innovation was formulated exactly as in the case of innovative companies. In order to examine the four dimensions of organizational culture of the non-innovative company a questionnaire was formulated and each of these dimensions was measured by a five-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Except for the general questions, all questions were derived from the literature (Calantone et al., 2002; Mazur & Zaborek, 2016; Saunila & Ukko, 2014). That way, the innovation culture was typified through many different questions for each one of the culture dimensions.

The literature analysis was built by extensively searching the literature from scientific journals (e.g. International Journal of Management and Economics, Technovation, Journal of Business Strategy, Research-Technology Management etc.). Google Scholar, Scopus and Web of Science were used to gather relevant articles and books and the following key words were searched in the aforementioned databases: 'open innovation', 'open innovation process', 'open innovation culture', 'hampering factors to innovation' etc. Moreover, open innovation was searched in relation to 'SMEs', while terms that are synonymous to the proposed keywords were searched. The collected literature was evaluated based on relevance and categorised, depending on its contribution to the answer of the sub research questions.

5. Results of Empirical Study

In this part, the empirical findings of the case studies are presented. The findings are based on the interviews with the four representatives of the companies. The interview questions were built upon the conceptual framework of this study (Figure 3). The empirical findings concern general information about the SMEs, the open innovation process (in the case of the innovative companies), the organisational culture within the companies and the factors that hinder innovation, in terms of importance for the managers.

5.1 Case Company A

General Information

Case company A, is a dairy company, located in Northern Greece and occupies 105 employees. It produces dairy products such as Greek yogurt, kefir, sour milk and pasteurised milk, from 100% Greek milk. The history of the company goes back to 1977, when it started operating as a family, cow raising unit. Its steady development over the years, led to vertical integration of production in 1999, adding a modern pasteurization unit. Company A in its present form was established in 2009 when, production and company headquarters move into a new and modern factory in North Greece, able to support more product lines and higher volumes. In 2011, Case company A, started exporting in Italy. Since then, it exports its products to more and more countries every year, including England, France, Germany, Dubai and Hong Kong. In 2013, its Greek yogurt was awarded with a Gold Star in Great Taste Awards, held in London.

The product KEFIR with STEVIA & FRUIT, produced by Case Company A through an open innovation process, was awarded as one of the most innovative products in Europe at the Anuga Taste Innovation Show, in 2017. This show is part of the world's biggest food exposition which is held every two years. KEFIR with STEVIA & FRUIT (strawberry, sour cherry, blueberry) is a healthy, fermented (probiotic) dairy drink with a unique taste, caused by the lactofermentation and a combination of red fruits. It is manufactured from 100% fresh, Greek milk, and it does not contain sugar.

Two managers of the company were interviewed; the marketing & exports manager and the R&D & Quality Control manager. They have been working for the company for 9 and 5 years, respectively, being part of the company's innovation team and the departments that they manage are the most deeply involved in the open innovation process.

Case Company A is strongly engaged in Open Innovation as it has been working closely with suppliers, academia and other external partners since the establishment of the company in its current form (2009). Open innovation is very important for the activities of the company, but it can be

inferred from the interviews that the term "open innovation" is not been used, to describe the new product development activities within the company, in all years.

The Open Innovation Process

As already mentioned, Case Company A produces new products through an open innovation process. Moreover, it follows a specific pattern that has not changed overtime. The managers mentioned that within the company an innovation team which consists of 6 members, is the one that undertake the new product development. The members of the innovation team belong to different departments, to make sure that an integrated approach is followed. These are: the general director of the company, the marketing manager, the sales manager, the R&D manager, the supplies manager and the processing manager. "We meet every month and discuss about ongoing and new innovative ideas and make a plan of action for the coming month", the R&D manager mentioned.

From the responses of the two respondents, three main stages of the open innovation process can be distinguished:

1. The conceptualisation of the idea; outcome of extensive research
2. The development of the idea into a new product
3. The commercialisation of the new product.

Research

As indicated by the managers, the open innovation process starts with a new idea. This new idea can originate by anyone within the company, since all departments work closely. In the case of the specific innovative product, the idea was generated by the marketing department. As the marketing manager indicated. "the initial idea was kefir with fruits". Then the marketing manager conducted an "off the record" analysis, as he called it, to identify the ideas potentiality within the market (if it is in line with market trends and economically feasible for the company to implement it). The results of this initial screening were positive, he and the sales manager, in collaboration with a market research company, conducted further research based on available data about competitive or related products (sales, how many companies produce something similar, if the market of the specific product is growing). The promising results of this first commercial investigation were communicated to the R&D manager. The R&D manager, described the idea as feasible, since *"not much investment was needed for new equipment and that is because in our company, we already produce plain kefir, we had adequate know-how and we could find the ideal external partners"*. *"The answer was positive, so I presented the new idea and the initial findings to our innovation team's meeting",* the marketing manager stated. After discussion and exchange of opinions and ideas, between the members of the team, it was decided that the product should be developed.

Development

The development of the product occurred with close collaboration between the marketing and the R&D department as well as with external partners. After presenting the initial approach for the product to the innovation team, then the marketing manager conducted a more detailed analysis. For this, he collaborated with the same market research company that provided the data, needed. *"Further research indicated that consumer needs are related to health and wellness but at the same time, the need of pleasure was also important. So, the product should contain not only one fruit but a combination of fruits (red fruits) and stevia instead of sugar, to increase its healthiness",* the marketing manager added. For the following meeting with the whole innovation team, a more detailed plan had to be presented, included this information. In this plan, there was also an annual sales estimation as well as the production volume required. Moreover, a Profit and Loss statement was presented. The cost of the production came out of collaboration between the marketing and the R&D manager. In the development of the product five external partners were included, that offered their insights into different steps of the open innovation process. During the product development the R&D department collaborated with two external partners. When the product was specified as kefir with red fruits and with stevia, preferably, R&D had to, first the find the right combination of red fruit. For this reason, they send their suppliers a brief description of the product and after some time they came back with their recommendations. The next step was to find out how to create the product. Within the company plain kefir was already produced, but mixing kefir with edible materials and substituting sugar with sweetener was new for the company. For this reason, Case Company A, collaborated with Aristotle university of Thessaloniki, that contributed to the development of the final product. Many different samples were created, in terms of fruit preparation and amount and type of sweeteners. The combination of strawberry, sour cherry and blueberry was chosen as the ideal fruit preparation. Moreover, the combination with stevia and fructose gave the ideal sweetness to the product. When they were satisfied with the final product the marketing manager, also tried it. The product was presented to the innovation team's meeting and each member was positive about it. As for the packaging of the product, marketing department's supplier of packaging materials, proposed a better material than the one that they had in mind and it was decided to use this one. Finally, the marketing department decided to conduct a survey, to evaluate how the product was perceived by the consumers. For this, they collaborated with a research associate that conducts qualitative and quantitative analyses. The consumers' perception about the product was positive and the company decided to launch the product to the market.

Commercialisation

For the commercialization of the product, the marketing department collaborates with two external partners. A graphic designer, that creates the label of the product and the self-wobblers and stands, for the exposition of the product in the retail store. Secondly, they worked closely with an advertising agency for the promotion of the product in the market. Since Case Company A is a

small company, at first, they usually collaborate with one retailer. This retailer possesses the largest network of stores in Northern Greece, being the leader in the retail sector in that area, while at a Greece-wide level the company is amongst the four largest chains. That is because introducing a product to the market is costly (100 € / product code & retail store). If the product is successful within the first year, then the company will collaborate with another retailer, to introduce the product in the market of Athens, too.

Table 2: A summary of the open innovation process within case company A

General Information Dairy company Year of establishment: 1977 Number of employees: 105 Uses open innovation model since 2009 Innovative Product: *KEFIR with STEVIA & FRUIT* Innovation team consisted of 6 members from different departments Follows specific innovation pattern that has not changed over the years Number of interviews: 2 vice
1. Research Always starts with a new idea An initial screening of the idea followed The marketing and sales manager as well as a market research company conducted commercial investigation The idea characterized as feasible from an operational point of view by the R&D manager The idea was presented in the innovation's team monthly meeting
2. Development Close collaboration between marketing and R&D A detailed market analysis by a market research company followed The product was typified in accordance to market needs Relevant information was presented to the innovation's team monthly meeting The company collaborated with Aristotle University for the product development The suppliers of the company proposed the combination of edible materials. Different product samples were created and the desired one was selected In collaboration with the packaging supplier the packaging of the product was selected. Quantitative analysis was conducted to identify consumers' perception. The results of the analysis were presented to the innovation's team monthly meeting

3. Commercialization

In collaboration with a graphic designer the product label and self-wobblers were created
An advertising company undertook the promotion of the product to the market
The company collaborated with the biggest retailer in Northern Greece

Typification of Open Innovation Culture

Creativity and Risk Taking

The consensus among the interview respondents was that creative thinking or in other words, "thinking outside of the box", is crucial when it comes to new product development. Especially for? Case Company A, that has to compete with large companies within the dairy sector, creative ideas and solutions can lead to successful products. The need of creative ideas is illustrated by the R&D manager when stating that: *"we lack in almost everything when compared to the big dairy companies in Greece. So, the only way to succeed is to be creative"*. Within the open innovation process, creative thinking was needed for the conceptualisation of the product and it was about creating, aligned with consumers' needs, a healthy and delicious fermented drink, better than the competitors of Case Company A. The marketing manager added that creativity was also needed in terms of packaging, in order the product to be appealing.

As for the risk-taking factor, there is also an agreement of opinions between the respondents. They support that, taking risks is not the case in Case company A. And that is because, the food sector in general is a well organised sector and every company can conduct research, to explore the market trends. In this manner, every question can be answered and uncertainty can be avoided. *"It is better to spend 10.000 euros on that, than taking the risk to shut down your business. In to bring this product to the market, the company needed a couple of hundred thousand euros, so we decided not to take any risk. We make sure that we use the right tools and the right partners.",* the marketing manager explained. The R&D manager added that for the creation of KEFIR with STEVIA & FRUIT, the technology used was already existed in the plant, so no big financial investment was needed.

Internal Collaboration

Internal Collaboration is an integral part of all three stages of the open innovation process within Case Company A. Teamwork, participative decision making and interdepartmental collaboration characterize the new product development within the company. There is an innovation team which

consists of each department's managers, that monitors the progress of the innovative product's development. The team is consisted of six members: the general director of the company, the marketing manager, the sales manager, the R&D manager, the supplies manager and the processing manager. Every month a meeting is arranged for the whole team, when innovative ideas are being presented, ongoing new product development is being evaluated, possible deficiencies are being discussed and solutions to problems are being provided. The important characteristic of these meetings is that, valuable knowledge is being put together and combined for the ideal result to be obtained.

Learning Focus

Learning focus, is another dimension of open innovation culture, that characterizes Case Company A. For the development of KEFIR with STEVIA & FRUIT, acquisition of new knowledge required with respect to the substitution of sugar with another sweetener. Although the necessary equipment existed, since the company already produces plain kefir, there was lack of knowledge in some parts of the processing. It was the first time that they had to create a mixture of a fermented beverage (kefir) with edible materials (red fruit preparation). The stability of the product during the whole self-life was an issue that had to be considered. Moreover, it was also the first time that the company had to create a sugar-free product. The substitution of sugar required further research. In that case the R&D department collaborated with the food technology department of Aristotle University of Thessaloniki, solved the aforementioned problems and managed to create a high-quality product.

External Orientation

External orientation is the fourth dimension of open innovation culture and its importance for Case Company A is remarkable. The consensus among the respondents is that the significance of external partners is crucial for the operation of the whole company and an integral part of each step the open innovation process. At the research part, collaboration with market research companies is highly important, because at this step the company needs market insights in terms of market shares, sales, revenues, output etc. for products similar to the one, under consideration. As for the development part, the R&D department works very closely with suppliers. In this case they collaborated with the suppliers of fruit preparations. By sending a brief product description to different suppliers, the company received different suggestions and recommendations. Moreover, the department collaborated with academia (Aristotle University of Thessaloniki), in order to create a stable mix of beverage and fruit preparation, with sweeteners instead of sugar, since they had not developed a similar product by then. For the packaging of the product, the marketing department

collaborated with the company's suppliers of packaging materials. Moreover, the department collaborated with a research associate that conducts qualitative and quantitative analyses, to identify the consumers' perception about the product. Finally, at the commercialisation point, the marketing manager collaborated with a graphic designer and an advertising agency, as mentioned above.

Another influential factor for Case Company A is the competitive environment. The company's biggest competitor in Northern Greece, had already launched a similar product. *"We wanted to create a product superior in every possible way"* the marketing manager stated. The products' superiority against the competitive product was that it was healthier, tastier and had a more attractive packaging. For Case Company A, keeping an eye on the competition was productive and fruitful.

When the interviewees were asked about that the criteria that they use to identify the ideal external partners, they both mentioned that major criterion is trust. There is a number of external partners that have collaborated successfully with the company and they are preferred in most cases. Depending on the project, new external partners will be considered. The marketing manager mentioned that in these cases, the company considers recommendations from other external partners, or collaborates with partners of other competitive companies, in case they have jointly created a successful product. The R&D manager, seeks to create relationships with the external partners based on trust, mutual understanding and communication.

Table 3: Typification of Open Innovation culture within Case Company A

Creativity and Risk taking - Creative thinking was present in all three stages of the open innovation process. When compared to the big competitors, the only way to succeed is to be creative - Risk taking was avoided. The company did not take any risk since abundant information about consumer's needs was available and not big financial investment was needed.
Internal Collaboration - Present in all three stages of open innovation process Participative decision making and teamwork due to the presence of the innovation team, consisted of 6 members that manage different departments within the company.
Learning Focus - Present in the development phase of the open innovation process

Obtaining new knowledge was required in the development of the product (choice of sweetener, processing) and was obtained through the collaboration with the university
External Orientation - Present in all three stages of open innovation process At the research part the company collaborated with a market research company. At the development part the company collaborated with suppliers of edible materials and university to fill knowledge gaps, suppliers of packaging materials and a research associate to investigate how the consumer perception of the final product. At the commercialization part the company collaborated with a graphic designer and an advertising agency. Competitive environment is another important external factor that drives company's innovative efforts.

Hampering Factors to Innovation

All interview respondents could identify multiple factors that hinder innovation and there was a consensus when it comes to their opinions and order, in terms of importance. Both the marketing and the R&D manager referred to their high-volume workload, as the most important obstacle to innovation. The structure of internal organisation within Case Company A, is such that the respondents have multiple job duties within the company; the job duties of marketing manager, also involve managing the exports of the company, while the second respondent manages both the R&D and the Quality Control Department. Moreover, the sales manager, is responsible for fifteen retailers, while in bigger companies, the number is limited to five – six per manager. "*This alone, does not give space and time to conceptualise and develop creative ideas"*, the marketing manager stated.

The second most important obstacle to innovation, as the marketing manager indicated, is the limited budget for the new product launch. A large company when launching a new product, will spent a big amount of money which can be up to 1 million, allowing it to collaborate with almost every retailer in the market, within a day. The cost of getting into a supermarket is very big (100 € / product code & store). *"Our company always starts with one supermarket chain. If the product is successful then next year, another chain can be considered etc."* the marketing manager added. According to the R&D manager, the second biggest obstacle to innovation in terms of importance is related to the small size of the company. Case Company A distributes its products mostly in northern Greece and they are competitive against their biggest competitor. But north Greece's market represents only 20% of the whole Greek market and they do not distribute a lot, in the remaining parts of Greece. That means that even if they develop a highly innovative product, the product volume and the amount of sales will be small, compared to the competition. Producing such

small amounts, also limits the number of suppliers that Case Company A can collaborate with. The large supplying companies in Europe, with advanced knowledge and technical expertise, can lead to superior products in many ways, but they collaborate only with companies that produce substantial amounts of the end product.

The respondents referred also to the lack of governmental support for the development of innovative products. As they mentioned, before the financial crisis in 2009, national funds were provided to SMEs and they constituted a substantial support for their growth. Case Company A took-out a loan in 2009 to invest in equipment and appropriate facilities, that still must repay. *"Now the only support that we have is related to attending international food expositions like Anuga. Monetary support for investing in new product lines and equipment is zero."* the R&D manager added. Referring to the impact of economic recession, the marketing manager added that it adversely affects the sales of innovative products. Usually such products are more expensive than the normal or conventional ones, and consumers are not willing to pay this difference. That explains the reason why *"the bestselling products within the company is plain yogurt and milk",* the marketing manager stated.

The role of individual objectives in hindering innovation activities was also highlighted. *"There have been times when the individual objectives of the administration of the company led to failure"*, while in other cases *"we had a promising idea but no support from the administration"* the marketing and the R&D manager mentioned, respectively.

When the interviewees were asked if they believe that the employees of Case Company A, lack in technical expertise, they were both negative. They mentioned that within Case Company A, the employees; technical expertise is very advanced since many of them have many years of research and practical experience, while working for competitors and other multinational companies. *"That is the reason why the company does not collaborate with consulting companies",* the marketing manager said while the R&D manager added that, although highly experienced and knowledgeable, their number is limited and the workload increased.

Finally, the managers were referred to the importance of open innovation, in the new product development process to overcome some of the hampering factors of innovation. According to them open innovation eliminates, what both managers mentioned as the most important obstacle to innovation, heavy workload. For them division of labour is highly important since their day-to day activities are many. And a big solution to that problem was the collaboration of Case Company A with the university. *"That saved us a lot of hours of lab work."*, the marketing manager stated.

Table 4: Hampering factors to innovation within case company A

High volume workload and multiple job duties thus limited time available on innovation
Limited budged for the new product launch, thus a step by step approach is followed
Small size of the company that limits the number of sales and potential collaboration partners

Lack of governmental support for innovation due to economic recession
Consumers prefer conventional products over innovative due their lower price
Individual objectives of the administration

5.2 Case Company B

General Information

Case Company B, is a bee culturing company that produces honey of exceptional quality and flavour. It is in Northern Greece and occupies 5 employees. The company was established in 2016. It produces pure biological, raw honey of superior quality which is extracted through natural processes thus maintaining its original flavours and nutritional value. The honey is created in remote forests in North Greece, most of them being part of the Natura 2000 network that aims to ensure the long-term survival of Europe's threatened species and habitats. Case Company B produces forest honey and pine honey and sells it in the wholesale market. The products are mostly sold in the islands of Greece and specifically in fine food shops and luxurious hotels. The company also exports its product in European Countries like Switzerland, Denmark, Germany, Belgium, Cyprus.

The honey produced by case company B, was awarded in 2017 with a Gold Award for its innovative packaging in the packaging Innovation awards which was held in Athens, Greece. Moreover, its unique taste has been awarded in 2017 with a Great Taste Award which was held in London.

The owner of the company was interviewed. His idea about producing his own honey, was turned into a very successful and growing company that produces high quality, innovative honey. Case Company B, was established during the economic crisis, representing the owner's "*last chance to stay in Greece*" as he called it. The owner decided to start working on apiculture, mostly because it did not require tremendous financial investment and he already had the basic knowledge related to it.

Case Company B is strongly engaged in Open Innovation as it has been working closely with suppliers and academia since its establishment. Open Innovation is an integral part of Case Company B but, within the company the term "open innovation" is not been used to describe the product development process.

The Open Innovation Process

Case Company B produces new products through an open innovation process. In this process two members out of five that the company occupies, the owner and the marketing manager are involved.

For the empirical part of the interview, the owner of the company was interviewed. From his responses, three main stages of the open innovation process can be distinguished:

1. The conceptualisation of the idea; outcome of extensive research
2. The development of the idea into a new product
3. The commercialisation of the new product.

Research

According to the owner of Case Company B, it all started with his idea of producing honey for himself and his family, since they always preferred high quality organic food. *"I decided to create a product that will stand out from the rest; from the first stages of production to its packaging"*, the owner added. He was familiar already, with the basic principles of apiculture, having attended seminars related to it, at the Aristotle University of Thessaloniki. Conducting further research together with the marketing manager, they decided to choose special varieties of plants that give the final product (honey) unique taste, aroma and density and that most honey producers do not prefer using, for several reasons. *"For more information and details about my findings, I contacted Aristotle University of Thessaloniki"*, he added. Moreover, he conducted a market research on his own, related to the honey and deli food sector as well as some trends related to these products.

Development

For the product development Case Company B, approached Aristotle University of Thessaloniki. *"At the beginning, due to our lack of experience, we faced some difficulties related to how to handle the hives and the university was there to fill these gaps"* the owner mentioned. Having attended seminars there, the owner of Case Company B had already created a network of experts on the field of apiculture and sharing their knowledge with the owner, benefited the company in multiple ways. "*The university provided us knowledge both on theoretical and practical level"*, he added. The owner wanted to create a superior product and differentiate it in every feasible way from the competition. Following the advice of the experts to apply nomadic beekeeping, instead of static, was a key to this endeavour. Moreover, since Case Company B is very small, they lack experts in the field of safety and quality analyses of the final products. For this reason, the university also conducts the necessary analyses including microbiological analyses, antibiotics, veterinary and pesticide residues analyses, mineral analyses etc. When it comes to the packaging, that was also a very important aspect for Case Company B. *"For us a good packaging is as important as the quality of the product, since the first impression of the potential customer, about the product is related to its packaging, followed by the taste and flavour. For this reason, we invested in the design and creation of a unique and innovative packaging"*, the owner mentioned. He conducted an extensive research to identify the ideal partners for this. The company collaborated with five different external partners with creative and innovative ideas, that leaded to an award-winning innovative packaging.

Commercialisation

"Putting the product into the market is basically my and the marketing manager's job" the owner of Case Company B stated. In this endeavour they approach wholesalers, both in Greece and in other European countries, to build a network for the distribution of their products. By conducting

extensive research, they try to identify in which European countries they could sell their products and travel there to meet potential customers. Moreover, they take part in different food expositions both in Greece and abroad, to promote the product. The owner also mentioned that the cost for the promotion of the company and its products is high, especially concerning the costs of travelling and attending different expositions. *"So, money is a very crucial aspect but still, we can make it",* he added. He also mentioned that nowadays, there are also some marketing tools for promoting a product free of charge and these tools did not exist before. The company tries to take advantage of these tools in order to promote its products to a maximal effect.

Table 5: A summary of the open innovation process within case company A

General Information Bee culturing company Year of establishment: 2016 Number of employees: 2 Uses open innovation model since 2016 Innovative Products: *Forest and Pine Honey* Innovation team consisted of 2 members Number of interviews: 1
1. Research It all started with the owner's idea to produce honey for him and his family His idea was turned into a business, in a period of economic recession He collaborated with Aristotle University to identify plant varieties that create a unique product The owner conducted his own market research to identify specific trends in the honey and deli food sector.
2. Development The owner attended apiculture seminars in Aristotle University due to his lack of knowledge on it. There was a close collaboration between the company and Aristotle University both on theoretical and practical level The university undertook the quality and safety tests of the final product The company's investment on packaging included the collaboration with five different partners that created an innovative packaging.
3. Commercialization

Only the owner and the marketing manager are included.
They built a distribution network including retailers in Greece and other European countries
They also take part in European food expositions to promote their product despite the transportation costs.

Typification of Open Innovation Culture

Creativity and Risk Taking

The owner admitted that creative thinking or "thinking outside of the box", is a crucial parameter for the new product development within case company B. According to him, creativity is synonymous to innovation. Creativity is what keeps Case Company B growing and being differentiated, allowing it to compete with companies in the same sector. Moreover, he mentioned that creativity is also important for small companies as it helps them undertake initiative and propose their new, innovative ideas to the market. The above mentioned are summed up in the owner's following phrase: *"We try to produce creative and innovative products. And that is because want to take initiative, evolve, grow and be different"*. According to the owner of Case Company B, creative thinking was important for the research and development part of the open innovation process. The application of nomadic beekeeping instead of static as well as the conceptualization of an innovative packaging, both in collaboration with external partners, are examples of creativity for the development of an innovative product of the highest quality possible.

When it comes to the risk-taking factor, the owner of Case Company B, admitted that when decided to start his own business, that inherently included some risks, mostly financial. At the same time the risk of failure is also present, because the success of the company to the market is not guaranteed. *"Maybe our plan would work out, maybe not",* the owner added. These risks are present during the whole open innovation process. In a period when no support from the government is provided to those who are starting their own business, the owner of Case Company B, took a loan from the national bank of Greece, which the company is still repaying. He concluded, mentioning that *"At least we tried to make sure that we could assimilate the cost in case of a failure. Luckily, things worked out"*.

Internal Collaboration

Internal Collaboration is also an integral part of Case Company B. The owner mentioned that although the company is small as well as the number of employees, participative decision making between the owner and the marketing manager, characterizes the whole new product development process. There is an open discussion of new concepts and ideas and how these ideas can be

developed into products. Moreover, the marketing manager and the owner, cooperate to identify the right external partners for the development of the products. Conducting market research and examining if the development of a specific product is economically feasible for Case Company B, is also the outcome of collaboration. The findings of market research and information related to the new product development, are communicated to the rest of the employees to contribute to the process giving feedback or making suggestions.

Learning Focus

Learning Focus is fundamental for Case Company B or as stated by the owner, within the company *"we try to learn new things and evolve"*. Since its establishment, many questions, problems and limitations have been arisen and continuous learning was the key for the company to overcome them. In his interview the manager mentioned that getting updated about topics relevant to entrepreneurship and new developments on Greek start-ups, is highly important for them. For this reason, Case Company B takes part in many different workshops related to the aforementioned topics. Moreover, the owner added that this is not only related to getting updated and staying current, but it also constitutes a good opportunity for them to have a continuous contact with Greek startups and people who share the same passion with Case Company B. It allows them to exchange ideas and knowledge, indicating that this company is also externally oriented as it will be analyzed below. Furthermore, the owner admitted that the collaboration with Aristotle University of Thessaloniki helped them acquire knowledge, crucial for the honey production and packaging. Finally, the owner added that, to create a more specific and solid business plan and develop their skillset, they took part in a workshop, called Venture Garden. That was part of the founding members' effort of finding out how an idea could be turned into a business and as the owner added later, *"we had to reach out many sources of knowledge, to achieve it."*

External Orientation

Within Case Company B, there is the belief that being externally oriented is the key for the new product development. The external partners' role in the development part of the open innovation process was crucial and indispensable. The company collaborated with Aristotle University of Thessaloniki to obtain information and knowledge both in the theoretical and practical level, especially on the handling of the hives, the honey production and packaging. Moreover, the advice and the expertise provided by the university, was also important in the research part of the open innovation process, when the owner of Case Company B, needed more in-depth information about the varieties that should be chosen for the creation of a superior and fine honey. Furthermore, the laboratory analyses of the final product are conducted by lab technicians of the university, since Case Company B does not occupy a food technologist to conduct these analyses, yet. External partners were also essential for the packaging of the final product. Case company B, aspired to create a unique packaging for their exceptional product. For this reason, they collaborated with five

different suppliers of packaging materials, each of them undertaking a different part of the packaging.

When the owner of Case Company B, was asked about the criteria that they use when collaborating with an external partner, he stated that they are related with some personal standpoints, with trust being one of the major ones. *"I try to collaborate with people that understand our company's passion to produce a high-quality product"* he added, while he spends a lot of time searching for the ideal partners. Since the company's aspiration is to innovate in every product they create, its external partners should share the same philosophy. Most of the times the owner of Case Company B, chooses to collaborate with small companies, since he believes that they *"have a unique way of thinking and working, offering us fresh, new and creative ideas"*. He also emphasized on the importance of having in person contact both with the supplies and the retailers of the company because he believes that it helps them to increasingly improve their products. And that is because he stays updated on the current trends and news through the communication with the suppliers and he can get direct feedback from the company's customers, related to the consumers' perception of the products.

Finally, the owner of Case Company B, highlighted the importance of the competition and the market trends when making decisions related to the development of new products. By checking trends concerning the market of honey and related markets, they try to find out how these trends can be assimilated by the company to create an innovative and different than the competition, product.

Table 6: Typification of Open Innovation culture within Case Company B.

Creativity and risk taking - Present in the research and development part of the open innovation process Creativity is synonymous to innovation. Creativity was important in terms of beekeeping practices and the packaging of the product. - Present in all three stages of the open innovation process Risk taking is inherent to creating a startup The risk of failure is present in every step of the open innovation process.
Internal Collaboration - Present in all three stages of the open innovation process Despite the limited number of employees there is close collaboration between the owner and the marketing manager of the company in every stage of the open innovation process.
Learning focus

- Present in all three stages of the open innovation process

The company had reach many sources of knowledge.
There is constant update on topics related to entrepreneurship and the Greek start up environment.
There is a continuous contact with Greek startups and people who share the same passion, to exchange ideas and knowledge
The collaboration with the Aristotle university played a key role in the acquisition of new knowledge.

External Orientation

- Present in the research and development part of the open innovation process

Being externally oriented is the key for new product development
part the company collaborated with Aristotle University due to lack of theoretical and practical knowledge.
The quality and safety analyses of the final product are conducted by Aristotle University due to lack of qualified employees.
The company collaborated also with suppliers of packaging materials to create an innovative packaging.
The company keeps an eye on the competition and the market trends when considering the development of new products.

Hampering Factors to Innovation

The owner of case company B, identified the most principal factors that hinder innovation and which the company faced during the new product development. According to him, the biggest obstacle to innovation is the lack of financial resources. "*Access to capital is one of the biggest obstacle for us"*, he stated. He elaborated on that, mentioning that capital is very important for Case Company B both for commercialisation and promotion reasons. Since the company is new, established in 2016, they are trying to create a network of partners both in Greece and in some European Countries. Entering a new market requires financial resources both for travelling to meet potential retailers and for taking part in food expositions. He also stated that due to the financial recession in the country, financial support is not provided anymore from the government. *"A company can obtain monetary support only if there is an initial capital available and these criteria do not favor small companies or startups"*, he added. Due to that, he took a loan from the national bank of Greece, in order to start his own business, which is not reciprocated yet. Another important obstacle that the company faced, is the lack of technical expertise and know-how. For Case Company B, *"the need of knowing the market, how to enter the market and how to evolve and grow*

within the market is big", the owner of the company stated. They have to rely on their own capabilities in order to commercialise the products of the company. The manager continued and mentioned that, this obstacle could be overcome if they had more financial resources available.

He also mentioned that missing knowledge for the development of the innovative product, is a critical factor, but in their case, that was overcome through the collaboration with the right external partners, thus highlighting the importance of open innovation as a means to overcome some hampering factors of innovation.

Table 7: Hampering factors to innovation within case company B

Access to capital and financial resources are limited, while there is not governmental support.
Lack of technical expertise and know how

5.3 Case Company C

General Information

Case Company C, is a family dairy company that produces traditional cheese and yogurt from sheep and goat milk and is located in the island of Crete, in Greece. It occupies 25 employees, including 9 family members. It started operating in 1928 when the family became involved in stock raising and production of dairy products. The high quality of products it created and the trust it built with its customers, allowed the company to grow continually. The family created a factory in in 1970 and in 1995 it relocated. In 2013 the company moved to bigger and modern operations. Since then, managing a wide spread, optimized network for the direct distribution of finished products, the company has won local and foreign market and started exporting in Europe (Sweden and Germany), Australia and US. Since 2011 the company has been approved by AGROCERT for the production of Protected Destination of Origin (PDO) for Gruyere Crete and for Pichtogalo Chanion. In Greece the products of Case Company C are mostly sold in the island of Crete but also in Athens and Thessaloniki which is the second biggest city of Greece, both in the wholesale and retail market.

Case Company C is not involved in innovation practices yet and it mainly focuses on producing traditional Greek products without diverging a lot from the usual practises. The company's goal is to start creating some innovative products in the following years. For this study, the Quality Assurance manager of the company was interviewed. He is also one of the owners of the company and is involved in all major activities within the company; from processing to exports and sustainability issues.

Typification of Organisational Culture

Creativity and Risk Taking

The quality assurance manager's responses to questions related to this cultural dimension indicated that creativity and risk taking is not supported within Case Company C. The employees' strict schedule and their heavy workload do not allow them to think creative ideas that could be implemented in the development of new products. Moreover, the manager stated that there is lack of qualified staff to conduct the necessary research and support the innovative product's development. Acting creatively when it comes to solving problems that occur within the company, is also not the case in the company. The manager indicated that since everyone occupied in the company has to deal with his/her own responsibilities, the problem is solved by those who have related experience. Sometimes problems are solved jointly. He did not give an example of a problem which was solved in a way different than the one expected or already proposed. As for the risk-

taking factor, the manager explicitly indicated that, due to their limited budget, financial risks are not preferred. Since the manager accepted the idea that new products occasionally fail, he added that in case of a failure, the company's survival will be threated. *"We only undertake costs that we can handle"*, he concluded tersely.

Internal Collaboration

As for the internal collaboration dimension, it can be concluded that it does not characterise the organisational culture of Case Company C. According to the quality assurance manager of the company, depending on the situation, collaboration among the employees in problem solving can be helpful, but in other cases, the final decision is taken by the administration of the company *"and that should be the rule"*, he clearly stated. He continued mentioning that: *"there have been times that I said: 'we must do it that way'. At the same time, I accepted liability in case of a failure"*. He also argued that in case of a problem that is related to the quality of the end product, then collaboration among the employees is required. Moreover, since within Case Company C there is not a clear division of departments, interdepartmental decision making does not exist. On the contrary, the manager stated that working within Case Company C, requires being multitask and, referring to his duties, he stated that he is also involved in the processing part while at the same time organises the exports. Finally, he mentioned that open discussion and debate of facts in decision making is not always possible, due to the fact that in many cases, the decisions are taken by the administration.

Learning Focus

The third dimension of organisational culture examined during this qualitative study, analyses the focus on learning and acquiring new knowledge within Case Company C. The responses of the quality assurance manager, indicated that learning focus is central to the organisational culture of Case Company C. He mentioned that the company invests on employee training. He elaborated on that referring that a year ago, Case Company C provided to a recently hired food technologist training courses on the Food Safety Management System ISO 2200 and the Environmental Management System ISO 14001, covering all the expenses. The manager also supported the idea that, organisational learning is essential for market success stating that *"in our company we support that when working on something, you must be a hundred percent knowledgeable about it. Only that way a company can succeed."*. Moreover, according to the manager, employee growth and learning is considered as top priority within Case Company C and he elaborated on that, referring again to the training of the employee on ISO 14001 and 22000. Finally, he asserted that, management highly focuses on obtaining new knowledge, recognising it as a competitive advantage. He continued stating that he also received training on the aforementioned standards before working as the company's quality assurance manager.

External Orientation

The fourth dimension of organisational culture examined during this study was external orientation. Within Case Company C, external orientation does not possess a pivotal role. As stated by the manager, the company does not maintain close relationship with its customers, to obtain insights about their needs and to modify its products according to them. The manager explained that this is because, Case Company C mainly produces traditional Greek products and they are partially aware of their customer's needs and preferences. Moreover, he declared that they do not conduct market research to obtain more information about their potential customers. He also added that within the company there is a lack of information concerning the market. They are not knowledgeable about their market share or market growth within their primary areas of activity. In addition, communication and exchange of knowledge with suppliers does not characterise the organisational culture of Case Company C. The manager described it as typical. He mentioned that in some cases suppliers have proposed creative ideas. He continued recalling when the company's supplier of edible materials, proposed a mix that would differentiate the final product. He concluded that the incentive behind that, was discarding the remaining stock. *"It's not that they care for us being innovative"* he added. Furthermore, he denoted that communication with competitive companies is not typical for Case Company C. This happens only in cases that the competitors distribute their products is areas different than these that Case Company C is active. The company does not have close relationships with other companies in the area of Crete, since every company produce more or less the same traditional products and exchange of ideas is not favoured in this competitive environment, according to the manager. *"We are not that open minded",* he added. Case Company C also attempted to collaborated with universities but the attempt was not fruitful. The manager mentioned that the cost of collaboration with the university that the company approached was high (approximately 10.000 euros). Moreover, the manager assumed that the researchers were looking for a less demanding project and that they were not interested in creating an innovative product in collaboration with the company. He also recognised his own accountability stating that: *"Maybe it did not work out because of me. But I am not sure"*. Finally, he admitted that Case Company C, has approached a public research institute in Athens, in order to conduct research onto using polyphenols in sheep's yogurt, to lower the blood cholesterol level. Another project that they are working on, together with the same institute is related to the use of aloe in yogurt. The manager mentioned that everything is in the initial phase and added that *"we are not sure if it will work out at the end"*.

Table 9: Typification of organizational culture within Case Company C

Creativity and risk taking - Does not characterize the company's culture The strict schedule of the employees and their lack of knowledge do not allow them to think creatively. Creativity is also absent in problem solving Due to the limited budget, the company does not undertake financial risks
Internal Collaboration - Does not characterize the company's culture Participation decision making in limited, since the final decisions are taken by the administration. Interdepartmental decision making is absent since there is no clear division of departments. Open discussion and debate of facts is not always possible
Learning Focus - In disagreement with the respondent, learning is not central to company's culture New employees receive training in the safety standards that the company is certified for. It is inferred that employees receive training but the added value of it is limited and cannot support innovation
External Orientation - Does not characterize the company's culture The company does not maintain close relationship with customers to obtain insights regarding their needs. Within the company there is a lack of information regarding the market. The company maintains a defensive approach when it comes to exchange of ideas with its suppliers

The company terminated its collaboration with a University because it would not lead to the desired results (innovative product)

Hampering Factors to Innovation

The manager identified several factors that hamper innovation activities within Case Company C. According to him, the most important factor that limits innovation, is the company's market size which is very small, since it is focused mainly in the area of Crete. It is not economically sustainable for the company to produce an innovative product, which most of the times is costly both for the company and for the consumers, and sell it in a small and limited market. Moreover, the small size of the company as well as its small distribution network is another limitation. The company collaborates primarily with 4-5 retailers in the area of Crete and this makes them *"very sceptical when considering creating an innovative product"* the manager mentioned. *"A big company for example company X, with 70.000 selling points both in Greece and abroad, can invest in an innovative product and put it in all big supermarkets (in Greece) easily. For us this is not possible",* the Quality Assurance manager added. Another important limiting factor is time. The employees within the company have many daily responsibilities that require a lot of time and effort. *"Considering innovating does not fit in our strict schedule"* the manager stated. Another problem that hampers innovation within Case Company C is that the employees of the company are not interested in the evolution and growth of the company. The manager also stated that their commitment and sense of responsibility is limited. *"They just want to work for eight hours, get paid and basically go home"*. Moreover, according to him, the food technologists' actions are specific and do not diversify. They do not take initiative and propose a new, out of the box idea that may lead to the development of an innovative product. The lack of qualified staff is another important determinant of the absence of innovation within Case Company B. According to the manager, the company cannot support the development of a new product because, the technical skills of the employees are limited only into conducting the basic analyses that are determined by the law and by the standards that the company is certified for. Moreover, they are familiar with specific production processes that are followed within the company and given that a new product's development process may require new processing steps, innovation is concerned as impossible. When, the manager was asked whether the insufficient support from the government is a factor that hampers innovation, he stated that *"it is very convenient to blame the government for not being creative and innovative"* meaning that this should not be concerned as the most important obstacle to innovation. Referring to the economic crisis in relation to the food sector, he mentioned that it's a common answer that crisis has severely affected innovation. *"Economic crisis should act as a promoter of innovation, not as an obstacle. Crisis creates opportunities"*. He supported his opinion stating that a structured approach towards innovation is very important allowing innovative products to be produced, without monetary support being an obstacle.

Table 8: Hampering factors to innovation within case company C

The market size of the company which is limited in the area of Crete
The small size of the company as well as its small distribution network
Many day to day responsibilities and strict schedule of the employees
Employees lack of interest and involvement in the evolution and growth of the company
Limited technical skills and expertise of the employees

6. Discussion

In this part, the empirical findings of the Case Companies are analysed and discussed. The results of the interviews are compared with each other to find similarities or differences between the answers. Furthermore, the results of the interviews are compared with the findings of the literature review. The analysis and discussion is linked to the conceptual framework of the study (Figure 3). The discussion is divided in three main parts: the open innovation process (in the case of the innovative companies), the organisational culture of the case companies and the factors that hinder innovation, in terms of importance for the interviewees.

6.1 Open Innovation

In order to identify the process which is followed by SMEs that apply the open innovation model for new product development purposes, three representatives from two different SMEs (Case Company A & B) were interviewed. From Case Company A, the marketing (and exports) manager and the R&D (and quality control) manager were interviewed, having 9 and 5 years of experience on open innovation. As for Case Company B, the owner of the company was interviewed, having 2 years of experience on open innovation.

Case Company A, is a dairy company and has been focusing on open innovation since it was established in its current form in 2009, following a specific pattern that has not diversified a lot during the years. Case Company B which is a bee culturing company that produces high quality honey, has implemented open innovation processes since it was founded in 2016. Case Company A occupies 105 employees, while Case Company B occupies 5 employees, being classified as a medium sized and a micro company, respectively (European Commission, 2005). According to the definition of the European Commission, SMEs can be assigned into three subgroups: medium-sized, small and micro enterprises, based on staff headcount, annual turnover and annual balance sheet (European Commission, 2005). As financial data is rarely available for SMEs, we relied on the number of employees for the categorization

Both companies are strongly engaged in open innovation, collaborating closely with external partners, for instance suppliers, customers, academia and research institutes, exchanging knowledge and ideas. For both companies, collaboration with external parties was crucial for the new product development process and by extension indispensable for corporate expansion. The aforementioned are in line with the view of Chesbrough (2003), who supports that open innovation characterises an approach in which companies involve a broad range of external actors in their innovation processes in order to support or exploit this external knowledge. Furthermore, the companies have been awarded for their innovative products, produced through an open innovation model.

It was inferred from the interviews that in both cases, the term open innovation is not used to describe the new product development process and the collaboration with suppliers, academia as

well as other external partners being inherent to this process and coming naturally. This is in accordance with the literature which supports that open innovation is not new, being utilized decades before Chesbrough defined it (Huizingh, 2011; Mowery, 2009).

In accordance with (Mortara et al., 2009) the development of the innovative products was the outcome of close collaboration between the most important representatives of the Case Companies. In particular, Case Company A, has established an *innovation team* that undertakes the new product development process. The company's attempt is to make sure that the creation of innovative products is the outcome of interdepartmental collaboration and teamwork. Case Company B, follows more or less the same approach. Due to the company's small size, the new product development process is the outcome of continual collaboration between the owner of the company and the marketing manager. The implications of the above mentioned, in the organizational culture of the companies will be analyzed bellow.

The three stages of open innovation

Compliant with the literature (Chesbrough et al., 2006; Lind et al., 2012; Mortara et al., 2009), the process that the two Case Companies follow can be divided in these three main stages: i) the conceptualisation of the idea; outcome of extensive research, ii) the development of the idea into a new product, iii) the commercialisation of the new product.

Summarily, the basis of the process which is followed is more or less the same for both Case Companies and in accordance with the literature. Ideas and concepts, are examined during the research stage and if they are promising, proceed to the development and commercialisation phase. Ideas that are not promising are rejected. The ideas originated within the companies in both cases. At the development stage, the ideas that came from the research stage became more specific and turned to feasible projects. Finally, at the commercialization stage, the products developed by the companies, entered the market. The literature indicates that collaboration with external parties can occur at any stage of the open innovation process and that was the case in the innovative companies. Case Company A collaborated with external partners in every stage of the open innovation process, while Case Company B, collaborated with external partners during the research and the development stage of the open innovation process.

The open innovation processes

According to Gassmann and Enkel (2004), three core processes can be distinguished in open innovation: the outside-in, the inside-out and the coupled processes. According to Gassmann and Enkel (2004), not all of them are equally important for every company and each firm selects one basic process but can also integrate some elements of others. Empirical studies indicate that most firms perform outside-in activities than inside-out (Bianchi et al., 2011; Cheng & Huizingh, 2010; Chesbrough & Crowther, 2006).

In agreement with the literature, both companies utilise the outside-in open innovation process, while Case Company A also uses the coupled open innovation process.

Outside-in processes

How the Case Companies manage to bring external knowledge, resources and ideas in the new product development is analysed and discussed below and according to the categories presented in the literature review.

Employee involvement

As mentioned earlier, both companies involve employees from different departments to contribute to the development of innovative products, with their knowledge and suggestions. Case Company A, has created an innovation team consisted of members from all the different departments within the firm, that meets monthly in order to monitor the progress of ongoing innovations and consider the development of new products. According to the managers, an innovative idea may come from anyone which is occupied within Case Company A, indicating that the company has a flat structure that allows employees to communicate easily across the firm sharing easily, knowledge and ideas. In the case of Case Company B, every decision related to innovation, is made jointly by the owner of the company and the marketing manager. Case Company B is a newly established company and as already mentioned occupies 5 employees. There is no clear division of the departments as in Case Company A thus employee involvement is expressed in a less formal but still dynamic approach. also give valuable feedback that can be utilized in the innovation process.

The employee involvement seems to be in close connection to the culture and incentives in both Case Companies, with the intention of facilitating the sharing of knowledge and ideas. As stated by Lindegaard (2011) employee involvement may lead to new innovations and more realistic suggestions. Both companies have found a way to benefit through these processes and the employee involvement constitutes an important part of the companies' open innovation processes.

Customer and user involvement

Involving Customers and end users when developing new products and services constitutes a crucial part of the open innovation process in both Case Companies. Case Company A uses a more structured and formal approach in order to involve the customers in the new product development than Case Company B. The latter maintains close relationship with its retailers and that allows it to have direct access to the end consumers' perception about the products thus identifying if improvement is needed for the company to reach the end customers' demand. In compliance to Piller et al. (2010) who support that firms can either design and produce new products by taking into account customers' feedback from different input channels, or they can ask customers for input via surveys, interviews and focus groups, Case Company A, created a product, aligned with the

consumers' needs which were identified and presented to the company by a market research company. Furthermore, when the desired final product was created, then the company collaborated with another external partner that conducted a survey in order to identify how the product was perceived by the consumers.

According to Prytz et al. (2013), customer and user involvement increases the company's external visibility, helps accessing new ideas and develop competitive products, characteristics that apply in both Case Companies' intentions on involving customers and users in the open innovation process.

External Networking

External Networking involves collaboration with external network partners like suppliers, universities, research centres, competitors and other firms, in order to contribute to the innovation process, providing external knowledge and human capital (Lee et al., 2010; Van de Vrande et al., 2009). Networking is a way to acquire new knowledge without using too much time and money to obtain it, and includes both formal and informal interactions (Van de Vrande et al., 2009).

Both Companies have a large network of external partners and utilise it to access external ideas, get feedback and acquire knowledge in relation to the pursued innovation. Several processes of the Case Companies can be characterised as external networking.

In accordance with the literature (Batterink, 2009; Rosell & Lakemond, 2012; Un, Cuervo-Cazurra, & Asakawa, 2010), interactions with suppliers constituted one of the most important forms of external networking during the open innovation process for both Case Companies. Case Company A has an extended network of suppliers which was utilised for the new product development. The suggestions and knowledge that suppliers provided to the company, in terms of packaging and the use of specific fruit preparations, contributed to the creation of a unique product. For Case Company B, the network that it has developed with five different suppliers of packaging materials, is one of the most critical parameters for the new product development, leading to an award-winning packaging.

Another external networking process is the companies' collaboration with Aristotle University of Thessaloniki. Case Company A collaborated with the university during the development of the product, while Case Company B gained access to missing knowledge both in the research and the development part of the products, through the collaboration with the university. Many researchers have studied the institutional side of the firm-university relationship and there is evidence, which complies with the results of this empirical research, for a higher innovative impact in collaborating with universities (Cohen, Goto, Nagata, Nelson, & Walsh, 2002; Hall, 2000; Mansfield, 1991).

Furthermore, Case Company A uses its external network to gain knowledge about market and consumer needs by collaborating with market research companies and research associates during the development stage of the open innovation process and to promote the final product by collaborating with a graphic designer and an advertising company during the commercialisation stage of the open innovation process. On the other hand, in Case Company B the owner is the one that conducts market research without collaborating with external partners, yet. The reason behind

this, may rely to the fact that Case Company B is a new company (established in 2016) and has not created a complete network of external partners, yet. During the interview the owner of Case Company B, highlighted the importance and the need of obtaining market insights, indicating the importance of identifying the right external partner for this.

In addition, Case Company B, participates in start-up environments and workshops in order to get updated in topics related to entrepreneurship and new developments on Greek startups, while at the same time exchanging ideas and knowledge.

In accordance with Trott (2008) Case Company A, hires skilled employees who had been also working for competitors or multinational companies. The company's managers support that, this is critical for the firm and allowing it to access technical expertise of high level as well as undertake and integrate the development of innovative products. As it is already mentioned in the literature review and is also applicable in this study, the skills of the employees within a company play an important role to innovation and is not limited to the R&D department only (Kline & Rosenberg, 1986; Rothwell, 1994).

To sum up, external networking is an important contribution to the companies' open innovation processes, allowing them access to external knowledge and ideas and being essential for their development and growth.

Coupled processes

Coupled processes is a combination of the outside-in and inside-out processes in which give and take is important for companies to succeed (Gassmann & Enkel, 2004) and it is the less studied strategy out of the three, as it is already mentioned in the literature review. For the development of the innovative product Case Company A collaborated with Aristotle University of Thessaloniki. The company was already producing similar products, but for the innovative one, there were some knowledge gaps in terms of product stability that were solved by the university. During the development process, both parties contributed with knowledge and expertise and the process was carried out in close collaboration between them. In that way, Case Company A had the opportunity to combine internal and external knowledge in a way beneficial for both parties that led to the creation of an award winning, innovative product.

6.2 Organizational Culture

Creativity and Risk Taking

According to (Amabile et al., 1996) the three respondents of Case Companies A&B, which follow the open innovation model for new product development, acknowledged that creative thinking or in other words, "thinking outside of the box" is crucial for new product development. Within Case Company A, creative thinking is the only way to succeed in the marketplace of a small company that has to compete with much bigger firms. Creative thinking was needed during the research and development part of the open innovation process. When it comes to Case Company B, creativity is what keeps the company growing, being differentiated and competitive. Furthermore, the importance of creativity, in startup companies like this, was also highlighted. Creative thinking was present during the research and development part of the open innovation process, similarly to Case Company A.

When it comes to Case Company C, the heavy workload of the employees does not allow them to conceptualize creative ideas that can lead to the development of an innovative product. Moreover, the lack of the necessary qualification of the employees cannot lead to the implementation of a creative idea, in case there is one, while there is absence of creativity in problem solving within the company and implementation of solutions suggested by employees from different departments, since only those with related experience are proposing a solution. This can be translated into absence of participative decision making and collaboration, thus absence of creativity and innovation within the organization.

Continuing with the risk-taking factor, all the respondents both from the innovative and non innovative companies maintain the idea that risks are mostly related to financial risks and big investments. The companies cannot undertake big financial risks and take over, only those that they can handle. For Case Company A, having the right tools to conduct market research and the right partners, every important question can be answered and uncertainty can be avoided. As for Case Company B, the owner stated that when starting his business, the risk of failure is always present. Moreover he undertook a finacial risk, due to absence of monetary support from the governent and initial capital, taking a loan from the national bank of Greece. Taking into account the interview, it can be conducted that the ower is a typical entrpreneur who took the risk to start his own business, with limited knowledge and financial resourses in a period of economic ressesion. The non innovative, Case Company C, does not undertake any finacial risks, in any case. Acknowledging that riks can lead to a failure and that this can threaten the survival of the company, the manager concluded than the company only takes risks that can handle.

In sum, it was found that the innovative companies support that creativity is a critical factor for innovation, while the non innovative company does not promote creative thinking. On the other hand, the risk taking factor does not characterise the organisational culture neither of case company A which acts in a sturtured and planned approach to innovation nor of the non-innovative company, while characterising the culture of Case Company B which is a start up.

Internal Collaboration

From the responses of the interviewees of the innovative Case Companies, it can be comprehended that internal collaboration as it is described in the literature (Allen, 1977; Nerkar & Paruchuri, 2005; Paruchuri, 2010; Mortara et al., 2009; Arad et al., 1997; Mumford et al., 1997) is an integral part of new product development. In both cases, internal collaboration was correlated with the existence of a team of employees, with a size proportionate to the size of the firm and consisted of representatives of the departments that are principally engaged to the new product development process.

In Case Company A, the innovation team is consisted of 6 members that interact with each other in order to identify the most promising idea and turn it into a feasible project as well as develop and commercialize the innovative product, following a specific structure for the open innovation process. When it comes to Case Company B, the team that undertakes the new product development is smaller and consisted by 2 members: the owner of Case Company B and the marketing manager. This is related with the size of the size of the company that occupies only 5 employees.

As for Case Company C, internal collaboration is not representing the organizational culture of it. The employees within the firm, most of the times do not collaborate in problem solving and in many cases the decisions are taken by the administration and should be respected by everyone occupied within the company. Furthermore, interdepartmental decision making and collaboration is not the case within the company.

To sum up, it can be conducted that in the case of innovative companies, the members of them interact and exchange knowledge in all the three steps of the open innovation process (research, development, commercialization), indicating a clear focus on internal collaboration, while in the case of the non-innovative company, internal collaboration does not describe the organizational culture of it.

Learning Focus

Learning focus is fundamental for both innovative Case Companies, as mentioned by the three representatives. In accordance with the literature, both Case Companies create and utilize knowledge, related to consumers' needs, market changes and competitors' movements, as well as developing new technologies for the creation of novel products, superior to the competitive ones (Hurley & Hult, 1998; Mone et al., 1998; Moorman & Miner, 1998).

More specifically, Case Company A&B, pay a lot of attention to consumers' needs and market changes, and they try to obtain as much information as possible about them. The marketing manager of Case Company A, mentioned that during the research part of the open innovation process, he conducted an off the record analysis, in order to identify the idea's potentiality within the market and the research was continued in collaboration with a research company. The manager collaborated with the latter also in the development stage of the open innovation process. Furthermore, the R&D

department collaborated with Aristotle university of Thessaloniki and by exchanging knowledge and expertise, the desired final product was created. The marketing manager also mentioned that collaborating with a research associate that conducted a quantitative analysis, the company obtained knowledge consumers' perception of the final product. Finally, the managers admitted that, the competitive environment of Case Company A is a very important factor, since they endeavor to identify information and knowledge in order to create superior products, than the competitive ones.

When it comes to Case Company B, learning focus is also fundamental. During the research part of the open innovation process, the owner conducted extensive research himself and in order to attain more in-depth information, he also contacted Aristotle University of Thessaloniki. Market research, also conducted by the owner, was another crucial part during this first stage of the open innovation process. The collaboration with the university, was another a decisive factor for the development stage, since Case Company B lacked knowledge both in theoretical and practical level. Furthermore, to identify the consumers' perception about the final product the owner tries to have access in this information by maintain personal contact with the company's retailers, while such contact with the company's suppliers provides Case Company B with information, related to current market trends. In addition, checking competitors' movements also characterizes Case Company B, since they aim for the creation of high quality, innovative and superior than the competition, products. Moreover, the owner gets updated about topics relevant to entrepreneurship and new developments on Greek start-ups by taking part in workshops and in the area of Greece. Finally, the owner added that, in order to create a more specific and solid business plan and develop their skillset, they took part in a workshop, called Venture Garden.

As for the non-innovative, Case Company C is supported by the quality assurance manager that learning is supported within the firm. He elaborated on that mentioning, that Case Company C, invests on employee training that includes covering all expenses for training courses on the Food Safety Management System ISO 2200 and the Environmental Management System ISO 14001. Moreover, the manager mentioned that within the company, the training of the employees is considered essential for market success and a top priority of the company. He also mentioned that management of Case Company C also supports the acquisition of new knowledge and focuses on learning, adding that he also received training on the above-mentioned standards. He did not provide another example of training that the employees obtain, or of a situation that demanded exploring new knowledge areas for the product development process. It is worth mentioning that although the standards that the quality assurance manager mentioned are not mandatory, they constitute an atypical rule for most food companies; Case Companies A&B are also certified for them. Furthermore, during the interview the manager stated that the company does not have an R&D department. The aforementioned indicates that by definition, Case Company C, does not focus on research and acquisition on new knowledge that constitutes the basis for innovation. Thus, it can be conducted that learning focus is not deeply rooted in the organizational culture of the company.

To sum up, learning focus is an integral part of the organizational culture of both innovative companies. The acquisition of new knowledge, is highly correlated with the external orientation of the two companies, which will be discussed next, since in some cases the companies approached an external partner to obtain information and knowledge regarding specific topics. On the other

hand, the organizational culture of Case Company C, is not typified by the focus on learning and the acquisition of new knowledge.

External Orientation

Compliant with the literature, both innovative companies are externally oriented towards key partners including suppliers and academia. From the responses of the three company representatives it can be inferred that external orientation and collaboration with external partners for the new product development is intrinsic to the innovation process and exists since the establishment of the Case Companies.

Case Company A, is externally oriented towards key partners in every step of the open innovation process. At the research part of the open innovation process, Case Company A collaborated with a market research company. During the development part, the R&D and the marketing department collaborate closely with suppliers of fruit preparations and packaging materials, respectively. The collaboration with the suppliers, in both cases leaded to innovative ideas that the managers and employees of the department had not came up with. Moreover, during this stage, the R&D department collaborated with academia. Finally, at the commercialisation point, the marketing manager collaborated with a graphic designer and an advertising agency.

Case Company B, collaborated with external partners during the research and development part of the open innovation process, differently than Case Company A which, as already mentioned collaborated with external partners in all three stages. This can be attributed to the fact that Case Company B is a newly established company (operates since 2016) and has not identify or, does not possess the required capital to collaborate with, the right external partners such as an advertising agency or a media buying company. More specifically, during the research and development part of the open innovation process, the company collaborated with Aristotle University of Thessaloniki. Furthermore, the company collaborated with 5 different suppliers of packaging materials. The quality of the final product is analyzed also by Aristotle University of Thessaloniki, since Case Company B, does not occupy someone with that knowledge, yet.

Moreover, all three respondents of the innovative Case Companies, highlighted the importance of another external factor: that of the competition. The representatives of the companies stated that they always stay updated and monitor the competitors moves because this gives them opportunities to create products superior than the competitive ones and be successful in the market.

Finally, the respondents mentioned that specific criteria are used in order to identify collaboration partners. Both the marketing and the R&D manager of Case Company A, stated that they work with partners that they trust and with whom they have collaborated successfully over the years. The marketing manager also added that in case that new partners are needed, then the criteria for their selection will be based on whether the partner under consideration has worked before for competitive companies and what was the outcome of this collaboration or if the collaboration is recommended by other external partners that Case Company A, trusts. Similarly, in Case Company B the criteria are based on personal standpoints and trust is among the most important ones.

Moreover, the ideal partner should share the same philosophy with Case Company B, be small company and provide "fresh, new and creative ideas".

Regarding Case Company C, it can be deduced that external orientation is an emerging trait of its organizational culture. The company does not maintain close relationships neither with its customers for the identification of their needs, nor with competitors explicitly stating that "we are not that open minded". Furthermore, does not exchange knowledge and ideas with its suppliers and maintains a rather typical relationship with them, while the manager stayed that in many cases the suppliers propose new ideas, for their own gain and not for the benefit of the company. The company has also attempted to collaborate with University of Crete, but the cost of this collaboration as well as the absence motivation and interest of the researchers -according to the manager's opinion – did not favor this collaboration. Recently, the company approached a public research institute, located in Athens in order to obtain knowledge onto how to create yogurt with polyphenols and yogurt with aloe. The collaboration is in its initial stages and the results of it are not available yet, but this attempt indicates that Case Company C, has started recognizing that collaboration with external partners is crucial for the development of innovative products.

In summary, both innovative Case Companies are externally oriented towards key suppliers and academia, while the non-innovative, Case Company C had not realized the importance of external collaboration in the new product development being defensive to it until recently, when it approached a research institute, proposing collaboration for the development of an innovative product.

6.3 Hampering Factors to Innovation

The respondents of both the innovative companies (Case Companies A&B) and the non-innovative company (Case Company C), were asked to identify the major factors that hamper innovation. More specifically and in accordance with the procedure that Van de Vrande et al. 2009 followed, the interviewees of Case Companies A&B were first asked if they had experienced barriers to innovation, and once they answered positively, the nature of these barriers was tried to be identified by open-ended questions. As for the non-innovative, Case Company C, the representative was asked to identify the obstacles that the company faces and which hamper innovation. The barriers to innovation were asked to be ranked in terms of importance.

The main barriers to innovation mentioned by the respondents are related to: limited financial resources, lack of governmental support, limited time for innovative projects, small size, no management support and employees with limited technical capabilities.

Limited financial resources constitute one of the most important barriers to innovation in the innovative Case Companies. The companies continue facing difficulties when it comes to accessing capital and in order to obtain the required financing to start the business, the owners took a loan from the National Bank of Greece. It constitutes the most important hampering factor for Case Company B and more specifically, it limits the capabilities of building a network of potential retailers, as the marketing manager indicated. The manager also expressed lack of financial resources as lack of financial support from the government, which as he stated is provided only to companies that possess initial capital and these criteria favor only bigger companies and not SMEs. In Case Company A, limited financial resources constitute the second most important barrier to innovation, according to the marketing manager. He expressed it as limited budget for the new product launch to the market, which does not allow the company to have a big distribution network and lack of financial support from the government. Both interviewees mentioned that support from the government is not provided due to economic recession. The above mentioned are in line with literature on factors that hamper innovation in SMEs. Many researchers have identified financial issues as one of the most crucial barriers to innovation (Bigliardi & Galati, 2016; Van de Vrande et al., 2009; Van der Meer, 2007; Verbano, Crema, & Venturini, 2011). Moreover, according to Lasagni (2012) the lack of financial resources affects negatively various processes like manufacturing, distribution, marketing and R&D. On the other hand, the quality assurance manager of Case Company C, did not identify limited financial resources and lack of financial support as an obstacle to innovation, while he mentioned that periods of economic recession should create opportunities for innovative companies. A possible explanation for that is the fact that Case Company C has received financial support from the European union before the outburst of the economic crisis and has a stable profit from the production and distribution of traditional dairy products in the area of Crete. Moreover, the manager, noted that the company's structure is the one that turns these opportunities into innovative products. This can be attributed to cultural and

organizational parameters that favor innovation and that as already concluded, do not characterize Case Company C.

Limited time for innovative projects, is another obstacle to innovation. More specifically, the 2 representatives of Case Company A as well as the quality assurance manager of Case Company C, revealed that the organization within the companies is such, that requires multitasking and having to cope with "many day to day responsibilities". This leads to limited space and time to work on innovative projects and represents the biggest obstacle to innovation for Case Company A. The literature on factors that hamper innovation, acknowledges limited time for innovative projects as the main obstacle. More specifically, Van der Meer, 2007 and Van de Vrande et al., 2009 indentified "too little time available" and "balancing innovation and daily tasks" as the main barrier to open innovation practices in SMEs. On the contrary, the owner of Case Company B, did not reffered to that factor as an obstacle to innovation. This is explained by the fact that since the establishment of the company, two years ago, there is a clear focus on producing high quality and innovative products and that the product range of the company is only limited in two honey varieties.

The small size of the Case Companies is another factor that hinders innovation. In Case Company A, it limits the product volumes and the amount of sales, which limits the number of suppliers that the company can collaborate with, negatively affecting the production of innovative products. When it comes to Case Company B, its small size, limits the number of retailers that can collaborate with, while the small size of Case Company C, limits both the selling points that can be reached and the distribution network of the company. A company's size and its effect on innovation have been broadly discussed in the literature and the results are in line with the aforementioned. Lasagni 2012**,** also correlates the size of the firms with their lack of financial resources. Moreover, "liability of smallness" as Gassmann et al. (2010) referred to it, affects the ability of SMEs to innovate successfully and plays a limiting role in open innovation adoption and implementation (Gassmann et al., 2010; Van de Vrande et al., 2009).

Absence of management support was also pointed out by the representatives of Case Company A and Case Company C, as an obstacle to innovation. In many cases the individual objectives of the administration of Case Company A led to the production of an unsuccessful product and in other cases the administration did not permit the development of a promising product. As for Case Company C, the quality assurance manager recalled that there have been times, the family (founding) members, did not give the green light for the implementation of innovative ideas. These findings comply with what Lasagni (2012) supports about conflicts within SMEs, that can affect a firm's innovativeness negatively. Moreover Van de Vrande et al. (2009) and Van der Meer (2007) also identified that "employees have too many ideas, no management support" and "resistance to change" respectively, are hampering open innovation in SMEs.

Limited technical capabilities of employees are an additional hampering to innovation factor that was identified during the interviews and concerns Case Company B and C. The owner of the first company recognized that missing knowledge for the development of the innovative product was a critical obstacle during the open innovation process. As for the latter company, the quality assurance manager underpinned that lack of qualified staff and by extension, lack of technical skills hinders innovation within the firm. The aforementioned, are consistent with the literature on hampering

factors of innovation. According to Van der Meer, 2007 and Van de Vrande et al., 2009, "lack of skilled personnel" and "lack of technological knowledge", "lack of competent personnel" and "employees lack of competences" constitute important obstacles to open innovation practices. Moreover Mohnen and Röller (2005), also support that lack of skills was the most important innovation obstacle in a wide range of industries and countries. However, the representatives of Case Company A, mentioned that within the company, highly expertised employees are occupied but the collaboration with academia helped them to solve some problems regardind the processing part.

Some other obstacles to innovation, that describe only specific Case Companies, were also identified. According to the quality assurance manager of Case Company C, innovation is not favored within the company also due to the limited interested of the employees in the evolution and growth of the company. The manager indicated that their commitement and sense of rensponsibility are limited. This is also in line with the studies of Van de Vrande et al. (2009) and Van der Meer (2007), who identified that "lack of employee commitment" and "too little commitement" as substantial hampering factors. The findings are also supported by Chesbrough and Crowther 2006 and Lasagni 2012. Moreover, during the interview the manager also mentioned that within the company there is a lack of information concerning the market, since they are unaware about their market sare or growth within their main area of activity. According to Van der Meer (2007), lack of information concerning the market constitutes another factor that hampers innovation. The managers of Case Company A, emphasized in one last limiting factor which is related both with the high cost of innovation as well as with the economic crisis in the area of Greece. The manager mention that the cost of innovation for the company is high and this is also supported by Van de Vrande et al. (2009) and Van der Meer (2007), leads to the creation of products with higher price than the conventional ones and because of the economic recession the majority of the consumers would not prefer a buying more expensive product.

Table 10: The hampering factors to innovation within Case Companies A, B & C

	Case Company A	Case Company B	Case Company C
Limited Financial Resources	●	●	
Limited Time	●		●
Small size	●	●	●
Individual objectives (no management support)	●		●

Limited technical Capabilities		
No employee commitment		
Lack of market information		
High cost of innovation		

7. Conclusions

In this chapter, the report is concluded by answering the research questions of this master thesis, followed by evaluation of the two assumptions.

7.1 Answering the research questions

SRQ1: What is the innovation process of a company which successfully implements open innovation?

Both innovative companies are strongly engaged in open innovation, collaborating closely with external partners, for instance suppliers, customers, academia and research institutes, exchanging knowledge and ideas. In both companies, an innovation team supports the new product development projects. Three main stages of open innovation were identified: i) the conceptualisation of the idea; outcome of extensive research, ii) the development of the idea into a new product, iii) the commercialisation of the new product. Collaboration with external parties occurred in every stage of the process for Case Company A and in the first two stages for Case Company B.

As for the different processes, and in compliance with the literature, both companies utilise the outside-in open innovation process, bringing external knowledge, resources and ideas in the new product, while Case Company A also uses the coupled open innovation process characterised by knowledge give and take between the innovation partners. Regarding the outside-in processes, both companies make use of employee, customer and user involvement as well as external networking to successfully produce and bring an innovative product to the market (Table 10).

SRQ2: What is the organisational culture of a company which successfully implements open innovation?

With regards to the open innovation culture, the four dimensions presented in the literature review, highly characterise the two innovative companies.

For both companies, creativity is considered an important trait for the production of innovative products in terms of ideas, product processing and packaging, being characterised as “the only way to succeed in a competitive environment” and “synonymous to innovation” for Case Company A & B respectively. It was present in all three stages of the open innovation process within Case Company A and in the research and development part for company B. As for the risk-taking factor, it was avoided in Case Company A, since it used a carefully planned, and structured approach towards innovation, while for Case Company, it was considered as inherent to creating a start-up company, related to financial and knowledge limitations and it was present throughout the innovation process.

Internal collaboration, was expressed in both companies as participative decision making and teamwork. Important decisions are made after thorough examination of data and facts with the whole innovation team of Case Company A being involved. This team is consisted of six members (the general director of the company, the marketing manager, the sales manager, the R&D manager, the supplies manager and the processing manager) and meets once every month to monitor the progress of ongoing innovations and consider the development of new products. In Case Company B, decisions are made jointly by a smaller team of two members (the owner and the marketing manager) in a less formal approach compared to company A, including an open discussion of new concepts and ideas and how these ideas can be developed into products.

Learning Focus is fundamental for the innovative companies. Case Company A supplemented its knowledge base, collaborating with the academia during the development of the product. For Case Company B, learning had a more decisive impact, being a way that would contribute to acquiring important knowledge and for the growth and the evolution of the company. Lack of knowledge was one of the biggest limitations within the company and continuous learning was the key to overcome this limit. The owner had to reach many sources of knowledge such as academia, workshops and seminars combined with personal effort and research in order to establish his own business and successfully bring an innovative product to the market.

The third dimension of innovative culture, that of external orientation, is another typical feature of the two innovative companies. It was conducted from the interviews that for both companies, innovation could have only been achieved, through collaboration with key partners. Case Company A was externally oriented during all three stages of the open innovation process. By collaborating with a market research company, suppliers of edible materials, academia, a graphic designer and an advertising agency, managed to create a unique product, better than the competitive ones. The selection of these partners was mainly based on trust. Case Company B collaborated with external partners during the research and development part. For them, the cooperation with academia was essential for success, since limitations on knowledge were prohibitive. Moreover, the collaboration with five different suppliers of packaging materials allowed the startup company to create a product that was awarded for its innovative packaging. For the selection of partners, the key criterion was them being small companies, sharing the same passion with Case Company B, that could provide fresh and unique ideas.

SRQ3: What is the organisational culture of a company that does not innovate?

In order to ensure that the four culture dimensions typify the organisational culture of innovative companies only, and based on the literature which supports that non- innovative and innovative companies, differ distinctively in their organisational culture, the culture of a non-innovative company (Case Company C) was examined. In accordance with the literature, the company's culture is not typified by the aforementioned four dimensions. Creativity is hindered due to heavy workload and the lack of expertise of the employees. Risk taking is avoided and the company undertakes only risks that can handle. Internal collaboration is also absent since the important

decisions are only taken by the administration. As for the learning focus, although that it was supported by the interviewee that it is central to the company's goals, it was inferred that is limited to the provision of basic knowledge and training on quality assurance standards, that all three companies follow. That means that exploring new knowledge areas to support innovation is not deeply rooted in the organisational culture of the company, since it provides a basic training to its employees. Finally, external orientation although recognised as crucial for innovation, it is not supported mainly due to the administration's defensive approach towards potential partners.

SRQ4: What are the factors that hamper innovation in SMEs?

All three Case Companies identified several factors that hinder innovation and are summarised in table 12. They recognised that their small size inhibits innovation, limiting: production volumes, number of potential suppliers and amount of sales for company A and the number of retailers and selling points for companies B and C. Limited time for innovative projects was acknowledged by Case Company A and C that prohibits innovation, since employees are occupied with many day to day responsibilities. More specifically, it represents the most important barrier for Case Company A, as mentioned by the two interviewees. Limited financial resources were also addressed by Case Company A&B. Both companies are facing difficulties when it comes to accessing capital and rely on their own sources. For Case Company B, it represents the major barrier to innovation since it limits the capabilities of building a network of potential retailers. For Case Company A it constitutes the second most important barrier. On the other hand, Case Company C having received financial support from European funds some years ago, did not recognise access to capital as a barrier to innovation. Company A and C identified individual objectives and absence of management support as hampering factors to innovation, while Case Company B and C pointed out that lack of technical expertise is also crucial. The owner of the Case Company B, mentioned that missing knowledge was a critical obstacle for the development of the innovative product. Some other obstacles to innovation, that describe only specific Case Companies, were also identified. Those were lack of market inofrmation and no employee commitment for Case Company C and the high cost of innovation for Case Company A.

7,2 Assumptions evaluation

This study was built in order to answer the main research question**: *"Does organizational culture in food small and medium sized enterprises (SMEs) in Greece, fosters the open innovation process as a means to overcome factors hampering innovation and how ?".*** At the same time, it was also expected that SMEs that follow an open innovation process for new product development differ in organizational culture distinctively, when compared to SMEs that do not innovate. As indicated in the conceptual framework part, with the help of the main research question, the sub-research questions and the literature review, two assumptions were made and are the following:

1. Open innovation culture fosters open innovation
2. Open innovation diminishes some of the hampering factors to innovation that SMEs face.

Assumption 1: Open innovation culture fosters open innovation

In order to examine if open innovation culture does foster open innovation and how this is achieved, representatives of two innovative (Case Company A& B) and one non-innovative (Case Company C) companies were interviewed to evaluate whether there are distinct differences in their culture.

As indicated by the interviews, Case Company A is a settled and mature company, that follows a structured approach to innovation. This structure is reflected in its innovation pattern which has not changed over the years. It includes a formal process, organizing a cross-functional committee for innovation. The company's organizational culture promotes open innovation in every way. Innovation is synonymous to collaboration with external partners and creative thinking, focused on learning and exploiting new knowledge and is based on teamwork. Although the risk of failure is always present, the company refrains from taking risks that can threaten its survival and supports that carefully planned steps when innovating, lead to success. In other words, the company's structure mitigates the risk of failure.

Case Company B is a startup company established two years ago, in a period of financial recession for Greece, demonstrating the owner's last attempt to stay in the country. It can be concluded that open innovation originates from the overall entrepreneurial orientation of the company and an open innovation culture that is characterized by all four dimensions i.e creativity and risk taking, learning focus, internal collaboration and external orientation. For this company, creativity is synonymous to innovation and risk proclivity is apparent since the owner started his own company having neither any substantial knowledge base nor financial support. Internal collaboration between two out of the five members of the company is always the case while the owner is trying to supplement his knowledge constantly by attending different workshops and collaborating with academia. Finally he is constantly scanning and monitoring the external environment of the firm to identify new opportunities as well as prospective partners for the development of the products. Moreover he spends a big amount of time and effort to seek marketplace information as well as customer and competitor based information. Overall the aforementioned support that the company's organizational culture foster open innovation.

Although from these results a positive relationship between culture and open innovation can be implied, the validity of the results has to ensured. In this manner, the non-innovative Case Company C was selected to identify if there are differences in terms of culture, between companies that innovate and companies that do not. Although financially supported by European funds, the company has not leveraged these sources for market growth, being the only company that does not consider financial resources as a hampering factor to innovation. It is apparent that decisions within the company are mainly made by the administration while open discussion of the facts with the employees is not the case. Moreover the absence of learning focus cannot support innovation especially within an environment which, does not favor creative thinking and has defensive approach towards collaboration with external partners. In other words the organizational culture of the non-innovative company is not characterized by neither of the four culture dimensions. These findings ensure the validity of the results, supporting that open innovation culture, does foster open innovation i.e. assumption 1.

Assumption 2: Open innovation diminishes some of the hampering factors to innovation that SMEs face.

It is already mentioned that this study examined also the factors that hamper innovation from each company's perspective and part of the main research question was to identify if these obstacles can be mitigated though open innovation and how.

To start with Case Company A, its structured approach to innovation ensures that it acts in an efficient and effective way in all aspects of the innovation process. It also mitigates the company's most crucial factor that hinders innovation; that of limited time. Since more immediate matters typically consume the employees' work day, a structured approach to innovating ensures this important, yet not always urgent task, does not get postponed. Thus, collaboration with key partners and external orientation ensures that high-in-demand employees are tasked with maintaining the status quo while being present (in a smaller extent) in the innovation process, ensuring market growth.

For Case Company B, open innovation represents the only way that the company is successful, being the ideal representative of all these companies that managed to succeed in the marketplace without neither substantial knowledge nor financial support. Mainly through collaboration with academia and suppliers of packaging materials the company created a high quality and innovative product, compensating for the owner's lack of theoretical and technical expertise. Although financial resources are still limited, this company managed to succeed and this is attributed to open innovation.

On the other hand, Case Company C, is a company with the financial background to support innovation like Case Company A, while at the same time lacking practical and theoretical knowledge like Case Company B. The company has not overcome these limitations, differentiate and produce an innovative product and remains focused on the production of traditional products. Although it was mentioned that the company attempted to collaborate with academia for new

product development purposes, it did not work out due to the administration's defensive approach towards this collaboration. Since the company does not follow an open innovation model, it cannot overcome factors like limited time and knowledge and be benefited by innovation. This evidence supports and adds validity to assumption 2, that open innovation diminishes some of the hampering factors to innovation that SMES face.

8. Limitations and Recommendations for Future Research

The main method of primary data collection in this study were interviews among managers and owners of food SMEs, innovative and non-innovative. The small number of respondents is an important limitation for this study. Moreover the reliability of the interviews in terms of identifying the organizational culture within the companies may have been affected, since literature suggests that organizations are not one homogeneous culture, but are 'multi-cultural' and culture can be a source of conflict (Gregory, 1983). In this case the organisational culture was described and presented as depicted by the people interviewed. Taking these into account , a starting point for further research is to increase the number of interviews/respondents (preferably multiple per company). Only then it is possible to compare the results and find more accurate connections in the conceptual framework.

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10 Appendix

Appendix 1. The Interview Protocol – Innovative SME

General Questions

- Information about the company, year of establishment, activities and number of employees.
- Information about the hierarchy and responsibilities of the interviewee within the context of the company.
- How long (in years) has the company been working with the open innovation model?
- General description and information about the innovative product (Kefir with Stevia & Fruit).

Open Innovation Process

- Which members of the company were involved in the open innovation process of this specific product?
- How does an OI project usually work in your company?
  - Detailed Overview of the main stages of the process
- Did you use any specific criteria to find collaboration partner/s?
  - If yes, which criteria?

Typification of Open Innovation Culture

Creativity and Risk taking

- Was creative thinking (or "thinking outside of the box") required during the open innovation process ?
  - If yes what was the creative idea, and in which stage of the open innovation process?
- Was risk taking required during the open innovation process?
  - If yes what was the risk that you took, and in which stage of the open innovation process?

Internal Collaboration

- Was internal collaboration required during the open innovation process ?
  - If yes in what way it was expressed, and in which stage of the open innovation process?

Learning Focus

- Was organisational learning required during the open innovation process ?
  - If yes in what was the knowledge missing, and in which stage of the open innovation process?

External Orientation

- With which external parties did you collaborate during the open innovation process?
  - At which stage of the open innovation process?

Hampering Factors to Innovation

- Can you name some obstacles (ranked in terms of importance) that you, as a company have faced when it comes to producing innovative products ?
- Do you think that by using an open innovation model, these (or some of these obstacles) were reduced?
  - Please specify which problems were solved and in what way.

Appendix 1.1 – Translated Transcript of the Interview – Marketing & Exports Manager – Case Company A

General Questions

- **Information about the company, year of establishment, activities and number of employees.**

Case company A, is a dairy company, located in North Greece and occupies 105 employees. It produces dairy products such as Greek yogurt, kefir, sour milk and pasteurised milk, from 100% Greek milk. The history of the company goes back in 1977. Company A in its present form was established in 2009.

- **Information about the hierarchy and responsibilities of the interviewee within the context of the company.**

I am the Marketing Manager and Export Manager working for the company for 9 years.

- **How long (in years) has the company been working with the open innovation model?**

The company uses this model since 2009.

- **General description and information about the innovative product.**

KEFIR with STEVIA & FRUIT (strawberry, sour cherry, blueberry) is a healthy, fermented (probiotic) dairy drink with a unique taste, caused by the lactofermentation and a combination of red fruits. It is manufactured from 100% fresh, Greek milk, and it does not contain sugar.

Open Innovation Process

- **Which members of the company were involved in the open innovation process of this specific product?**

The innovation team of this company is consisted of 6 members: the general director of the company, the marketing manager, the sales manager, the R&D manager, the supplies manager and the processing manager.

- **How does an OI project usually work in your company?**

Research

The open innovation process, is more or less the same since the beginning (2009). It all starts with a new idea for a product. It can originate from anyone within the company. The idea originated from the marketing department (kefir with fruits). Firstly I conducted an off the record analysis. The results of this initial screening were positive, then we communicate the results to the sales department. They also agreed on the new idea. Then the sales manager and me, conducted a more

detailed market research, in collaboration with a market research company, based on available data about competitive or similar products and I communicated the results to the R&D department. They supported that it was feasible to produce the product, so I presented the new idea and the initial findings to our innovation team's meeting and it was decided to continue with the development of the product.

Development

Close collaboration between me and the R&D manager occurred. I conducted a more detailed analysis. For this, I collaborated with a market research company. The findings indicated that consumer needs are related to health and wellness but at the same time, the need of pleasure was also important. So the product should contain not only one fruit but a combination of fruits (red fruits) and stevia instead of sugar, to increase its healthiness. For the next meeting these finding were presented along with an annual sales estimation as well as the production volume required. Moreover a Profit and Loss statement was presented. The cost of the production came out of collaboration with the R&D manager. The R&D created different samples of the product with different fruit, sweeteners etc. and when they were satisfied with the product, I also tried it. The product was presented to the innovation team's meeting and each member was positive about it. As for the packaging, our supplier of packaging materials, proposed a better material than the one that we as a marketing department had in mind and we decided to use this one. The next step was to conduct a survey, in order to evaluate how the product was perceived by the consumers. For this, the department collaborated with a research associate that conducts qualitative and quantitative analyses. The results of the survey were positive and presented in the following meeting of our company's innovation team.

Commercialisation

In order to put the product to the market, we collaborated with two external partners. The first one is a graphic designer that created the label of the product and the self-wobblers and stands and the second one an advertising company that promotes the product to the market. When we put a product to the market, we firstly collaborate with one retailer in Northern Greece because introducing the product the market is very costly. If the product is successful, in the following year we will collaborate with another retailer etc.

- **Did you use any specific criteria to find collaboration partner/s?**
  - **If yes, which criteria?**

There is a number of partners that the collaboration with them was successful. Depending on the situation, where new ideas are needed or something different has to be produced, new partners will selected. briefed. These partners may have worked before with some competitors with good results, or may be recommended by other partners. The most important is to find partners we can trust in order to have a good collaboration.

Typification of Open Innovation Culture

Creativity and Risk taking

- ***Was creative thinking (or "thinking outside of the box") required during the open innovation process ?***
  - ***If yes what was the creative idea, and in which stage of the open innovation process?***

Yes. Since we have to compete with large dairy companies in the area of Greece, thinking outside of the box is one way street. Creativity was needed in the conceptualisation of the product and it was about creating, aligned with consumers' needs, a healthy and delicious fermented drink, better than our competitors. Creativity was also needed in terms of packaging, in order our product to be appealing.

- **Was risk taking required during the open innovation process ?**
  - **If yes what was the risk that you took, and in which stage of the open innovation process?**

No, In our sector (food/dairy), it is wrong to take risks. There is extensive research, so that one can see the current trends, for example. There are the right tools available; it is a well a well-organised sector. It is better to spend 10.000 euros on that, than taking the risk to shut down your business. In in order to bring this product to the market, the company needed a couple of hundred thousand euros, so we decide not to take any risk. We make sure that we use the right tools and the right partners.

Internal Collaboration

- **Was internal collaboration required during the open innovation process ?**
  - **If yes in what way it was expressed, and in which stage of the open innovation process?**

Yes. Our innovation team is consisted of each department's managers. Once a month we talk about innovative ideas and projects. Internal collaboration exists in every step of the innovation process. But the closest collaboration is between me (marketing manager) and the R&D manager.

Learning Focus

- **Was organisational learning required during the open innovation process ?**
  - **If yes in what was the knowledge missing, and in which stage of the open innovation process?**

No. We (marketing team) had the help of our external partners, when we did not have a lot of information about the market trends etc. R&D had some gaps in the process that had to be filled.

External Orientation

- **With which external parties did you collaborate during the open innovation process?**
  - **At which stage of the open innovation process?**

During the development part of the new idea, I collaborate with two market research companies. I work closely with a supplier of packaging materials during the product development. For the commercialisation process, I collaborate with an advertising agency and with a graphic designer, for the creation of the product label. A very important external factor for us is competition. We wanted to create a product superior (than our competitor's) in every possible way.

Hampering Factors to Innovation

- **Can you name some obstacles that you, as a company have faced when it comes to producing innovative products ?**
  - **Could you also rank them in terms of importance?**

1. *The biggest obstacle is the* organisation within the company. *I (marketing manager) am also responsible for the exports. The R&D manager, is also the Quality Control manager. This alone, does not give space and time to conceptualise and develop creative ideas.*
2. *Another obstacle is that* budget is limited. *A large company when launching a new product, will spent a big amount of money which can be up to 1 million which allows it to collaborate with almost every retailer in the market, within a day. Our company always starts with one supermarket chain. If the product is successful then next year, another chain can be considered etc.*
3. *A big obstacle is that* national funds are not provided anymore, due to financial crisis. *Due to crisis also, people don't spent money on innovative products because they are expansive. The bestselling products within the company is plain yogurt and milk*
4. *There have been times when* the individual objectives *of the administration of the company led to failure.*

  - **Do you think that the employees 'technical expertise is another obstacle?**

No. In this company the heads of each department and the mangers, are very experienced and knowledgeable. That is the reason why the company does not collaborate with consulting companies.

- **Do you think that by using an open innovation model, these (or some of these obstacles) were reduced?**
  - **Please specify which problems were solved and in what way.**

The rule is that, when you collaborate with an external partner, this can only lead to positive results. Division of labour is very important. They had the knowhow and the expertise and that saved us a lot of hours of lab work.

Appendix 1.2 – Translated Transcript of the Interview – R&D and Quality Control Manager – Case Company A

General Questions

- **Information about the company, year of establishment, activities and number of employees.**

Case company A, is a dairy company, located in North Greece and occupies 105 employees. It produces dairy products such as Greek yogurt, kefir, sour milk and pasteurised milk, from 100% Greek milk. The history of the company goes back in 1977. Company A in its present form was established in 2009.

- **Information about the hierarchy and responsibilities of the interviewee within the context of the company.**

I am the R&D manager and Quality Control Manager, working for the company for 5 years

- **How long (in years) has the company been working with the open innovation model?**

The company uses this model since 2009.

- **General description and information about the innovative product.**

KEFIR with STEVIA & FRUIT (strawberry, sour cherry, blueberry) is a healthy, fermented (probiotic) dairy drink with a unique taste, caused by the lactofermentation and a combination of red fruits. It is manufactured from 100% fresh, Greek milk, and it does not contain sugar.

Open Innovation Process

- **Which members of the company were involved in the open innovation process of this specific product?**

The innovation team of this company is consisted of 6 members: the general director of the company, the marketing manager, the sales manager, the R&D manager, the supplies manager and the processing manager.

- **How does an OI project usually work in your company?**

Research

We follow a specific procedure when creating an innovative product. All ideas are welcomed from everyone (from normal workers to salesmen). The idea is screened, first by the marketing manager in collaboration with the sales manager and then, they ask my opinion on the ideas feasibility. We had to evaluate whether the company was currently capable of producing the innovative product.

Not much investment was needed for new equipment and that is because in our company, we already produce plain kefir, we had adequate know-how and we could find the ideal external partners. So my opinion was that then we could proceed, presenting the new idea to our company's innovation team. The team decided that the product should be developed.

Development

During the product development the R&D department collaborated with two external partners and with the marketing department. When the product was specified as kefir with red fruits and with stevia, preferably our work was first the find the right combination of red fruit. For this reason we send our suppliers a brief description of the product and after some time they came to us with their recommendations. The next step was to find out how to create the product. Within the company we already produce plain kefir, but mixing kefir with edible materials and substituting sugar with sweetener was new to us. For this reason we collaborated with Aristotle university of Thessaloniki, that contributed to the development of the final product. We created many different samples, in terms of fruit preparation and amount and type of sweeteners. We chose to use a combination of strawberry, sour cherry and blueberry for the fruit preparation. We also combined stevia and fructose that gave the ideal sweetness to the product.

- **Did you use any specific criteria to find collaboration partner/s?**
  - **If yes, which criteria?**

The most important, is mutual trust. I desire to collaborate closely with my partners and to have to build a relationship of mutual understanding and communication.

Typification of Open Innovation Culture

<u>Creativity and Risk taking</u>

- ***Was creative thinking (or "thinking outside of the box") required during the open innovation process ?***
  - ***If yes what was the creative idea, and in which stage of the open innovation process?***

Yes. We lack in almost everything when compared to the big dairy companies in the area of Greece. So the only way to succeed is to be creative . Creativity was needed in the research part. We wanted to create a healthy kefir that tastes better (sweet).

- **Was risk taking required during the open innovation process ?**
  - **If yes what was the risk that you took, and in which stage of the open innovation process?**

No. In this case we did not take any big risk. We analysed the market trends and we decided to create this product, using already existing technology. Also no big investment was needed.

Internal Collaboration

- **Was internal collaboration required during the open innovation process ?**
  - **If yes in what way it was expressed, and in which stage of the open innovation process?**

Yes, collaboration was definitely required in such processes. The managers arrange a monthly meeting, when we evaluate the innovative projects and make sure that everyone is in the same page of the open innovation process. There is a much more frequent collaboration between us (R&D) and the marketing department, for the development of the product.

Learning Focus

- **Was organisational learning required during the open innovation process ?**
  - **If yes in what was the knowledge missing, and in which stage of the open innovation process?**

For us, it was the first time that we created a product without sugar. We had to do some research about it. It was decided, in collaboration with our suppliers, that the product should contain both stevia and fructose. Moreover knowledge was missing on how to mix a beverage (kefir) with edible materials (red fruit) and how this mix will remain stable during the product's self-life. We fill this gap by collaborating with the Aristotle University of Thessaloniki and we managed to create a high quality product.

External Orientation

- **With which external parties did you collaborate during the open innovation process?**
  - **At which stage of the open innovation process?**

We work very close with our partners during the new product development process. In this case we collaborated with the companies that supply the fruit preparations and with the Aristotle University of Thessaloniki for the creation of a stable mix.

Hampering Factors to Innovation

- **Can you name some obstacles that you, as a company have faced when it comes to producing innovative products ?**
  - **Could you also rank them in terms of importance?**

1. *For me the most important obstacle is that employees within the company have* too many day to day responsibilities.
2. *The second big obstacle for me is relates to the* size of the company. *The amount of sales and the product volume is small, compared to the competition. That limits the number of suppliers that we can collaborate with.*
3. *A very important obstacle is that* we do not have any support from the government. *Before the economic crisis the support was bigger. Now the only support that we have is related to attending international food expositions like Anuga. Monetary support for investing in new product lines and equipment is zero*
4. *There have been times, when we created a product that was fully supported by the general director of the company and not by the rest of the innovation team, and some other times when we had a promising idea but* no support from the administration.
5. *Also,* innovation is costly. *Especially in an economic crisis period, consumers will choose a product with lower price*

- **Do you think that the employees 'technical expertise is another obstacle?**

No, the technical expertise of the employees is in a very high level. We all have many years of research and practical experience. But our number is limited and the responsibilities a lot.

- **Do you think that by using an open innovation model, these (or some of these obstacles) were reduced? Please specify which problems were solved and in what way**

External collaboration is essential for our company. The advantage of it is that we divide tasks when we collaborate with other parties and this is what happened in the case of our collaboration with the university.

Appendix 1.3 – Translated Transcript of the Interview – Owner – Case Company B

General Questions

- **Information about the company, year of establishment, activities and number of employees.**

Case Company B, is a bee culturing company that produces pure biological, raw honey of superior quality which is extracted through natural processes . It is located in Northern Greece and occupies 5 employees. The company was established in 2016.

- **Information about the hierarchy and responsibilities of the interviewee within the context of the company.**

I am the owner of the company and I work on the honey production process as well as the trading part.

- **How long (in years) has the company been working with the open innovation model?**

We work with external partners since the establishment of the company.

- **General description and information about the innovative products** .

Forest Honey is a honeydew honey which is collected from a wide variety of forest trees such as wild oaks, pine trees, firs, lindens, chestnut trees and wild herbs as well as from almost 1100 rare indigenous plant species. This diversity of forest trees gives it a complexity in its characteristics. Pine Honey, it is a honeydew honey that is extracted only in the area of Greece and it contains all the nutritious elements that render it in an invaluable superfood. Both products are rich in minerals, and have up to four times more intense antioxidant action than any other forest honey worldwide and are packaged in an innovative packaging.

Open Innovation Process

- **Which members of the company were involved in the open innovation process of this specific product?**

Me and the marketing manager of the company. Since we are a relatively new and small company, to this day we do not have a big innovation team that collaborate together for the new product development. Every information about the market or the new products is discussed with the rest of the employees.

- **How does an OI project usually work in your company?**
  - **Detailed Overview of the main stages of the process**

Research

It all started with my idea of producing honey for domestic purposes, since in my family we always preferred high quality organic food. That was a personal choice and also my last attempt to stay in Greece. Having some basic knowledge on apiculture, and after conducting some more research in collaboration with the marketing manager, I decided to choose varieties of plants that create unique taste, aroma and density in the final product and that most of the honey producers do not prefer to use for some reasons. For more information and details about the findings I contacted Aristotle University of Thessaloniki, where I had also followed seminars on apiculture. Moreover during the research, I always search the honey and the deli food industry as well as some tends related to these products.

Development

For the product development we have collaborated with Aristotle University of Thessaloniki. At the beginning, due to our lack of experience, we faced some difficulties related to how to handle the hives, the university was there to fill these gaps. The access to the university is easy since I had created a small network with some experts on this field. The university provided us knowledge both on theoretical and practical level. No monetary compensation was asked. Moreover the university undertake the laboratory analyses of our honey. These analyses include: microbiological analyses, antibiotics, veterinary and pesticide residues analyses, mineral a analyses etc. As for the packaging, we have been awarded for that. We collaborated with five different external partners, with creative ideas in order to create a delicate package for our exceptional product. Moreover in order to create a business plan, we took part in a training program in Thessaloniki, Greece, which is called Venture Garden and supports entrepreneurs develop their skills, knowledge and network to succeed in the Greek Market.

Commercialisation

Putting the product into the market is basically my and the marketing manager's job. We try to approach wholesale retailers in the area of Greece and abroad. This is done by extensive research conducted by us. We are trying to build a network and find the right partners in the wholesale market, both in Greece and abroad. So getting in this market requires capital for traveling in order to find retailers or even promote the product in expositions. Being part of an exposition is also costly. So money is a very crucial, but still we can make it. Of course today, there is also the possibility, via using marketing tools, to promote a product free of charge and this is something that did not exist before. And we do it.

- **Did you use any specific criteria to find collaboration partner/s?**
  - **If yes, which criteria?**

Yes. Those are purely personal. I try to collaborate with people that understand our company's passion to produce a high quality product. We build relationships based on trust. We collaborate mostly with small companies that have a unique way of thinking and working, offering us fresh, new and creative ideas. I have a personal contact with the company's suppliers in order to

increasingly improve the product. The same is with our customers. Whenever I can have direct access to them I try to get feedback related to the consumer's perception about our products

Typification of Open Innovation Culture

Creativity and Risk taking

- **Was creative thinking (or "thinking outside the box") required during the open innovation process ?**
  - **If yes what was the creative idea, and in which stage of the open innovation process?**

Yes. We try to be creative and innovative. We want to grow and be different. Creativity was needed in the research and development part. We wanted to find and apply methods that would differentiate our product such as the nomadic beekeeping in places that are part of the Natura 2000 network. That would create a natural and unique blend, giving high quality honey. Moreover we wanted to create a unique packaging.

- **Was risk taking required during the open innovation process?**
  - **If yes what was the risk that you took, and in which stage of the open innovation process?**

Yes. When taking the initiative to create your own (innovative) business, you undertake a financial risk. It is during the whole process. We took a bank loan in order to start the business. Maybe our plan would work out, maybe not. At least we tried to make sure that we could assimilate the cost in case of a failure. Luckily, things worked out.

Internal Collaboration

- **Was internal collaboration required during the open innovation process ?**
  - **If yes in what way it was expressed, and in which stage of the open innovation process?**

Yes. For the development of our products there is a close cooperation between me and the marketing manager of the company. We discuss our new ideas and communicate the results of our research in order to find out how we can improve our products, if we can find the right partners and of course, if it is economically feasible.

Learning Focus

- **Was organisational learning required during the open innovation process ?**
  - **If yes in what was the knowledge missing, and in which stage of the open innovation process?**

Yes. Learning is very important in the whole process. We try to learn new things and evolve by taking part in workshops that cover existing and, mainly, new developments on Greek start-ups, as well as the relevant topics of entrepreneurship and technology. Moreover though our collaboration with Aristotle University of Thessaloniki, we obtained knowledge crucial for the honey production and packaging. Our participation on Venture Garden also helped us develop our skills and knowledge and create a concrete business plan.

External Orientation

- **With which external parties did you collaborate during the open innovation process?**
  - **At which stage of the open innovation process?**

Yes. External partners were very helpful in the development of the products. We collaborated with Aristotle University of Thessaloniki, which provided us knowledge both in theoretical and practical level. Moreover the university undertakes the laboratory analyses of our honey. As for the packaging we collaborated with a graphic designer for the logo, with two different companies that work on wood processing, for the lid and with another company located close by for the label. Moreover we imported the glass jars from Italy. It is also very important for us to check trends related with apiculture but also with related areas such as cosmetics and see how these can be utilised within our company in order to create something new.

Hampering Factors to Innovation

- **Can you name some obstacles (ranked in terms of importance) that you, as a company have faced when it comes to producing innovative products ?**

1. *For me, the most important obstacle is the* lack of financial resour***ces.*** *Access to capital is one of the biggest obstacle for us. We are trying to build a network and find the right partners in the wholesale market, both in Greece and abroad. So getting in this market requires capital for traveling in order to find retailers or even promote the product in expositions. Moreover* financial support from the government *does not exist. A company can obtain monetary support only if there is an initial capital available and these criteria do not favor small companies or startups.*
2. *The second most important obstacle is the technical* expertise and know how . *The need of knowing the market, how to enter the market and how to evolve and grow within the market is big. But I believe that these needs can be covered if the financial resources are available. Moreover missing knowledge on the product development is very important.*

- **Do you think that by using an open innovation model, these (or some of these obstacles) were reduced?**
  - **Please specify which problems were solved and in what way.**

Yes. The collaboration with our external partners was very important. We had access to knowledge collaborating with Aristotle University of Thessaloniki and that actually helped create a high quality product which was innovative in the way of production. Moreover our suppliers of packaging materials, offered us valuable, creative ideas that helped us win the packaging innovation award. Finding the right partners is very important for a small company like ours, because it helped us create a unique product, even if we had some serious monetary limitations.

Appendix 2. The Interview Protocol – Non Innovative SME

General Questions

- Information about the company, year of establishment, activities and number of employees.
- Information about the hierarchy and responsibilities of the interviewee within the context of the company.

Hampering Factors to Innovation

- Can you please indicate what are the obstacles that your company faces and don't allow you to innovate?
  - Could you also rank them in terms of importance?

Typification of Organizational Culture (please indicate to what extent you agree with the following statements)

Creativity and Risk Taking	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Are the employees within the company encouraged to "think outside the box".					
Are employees allowed to try to solve the same problems in different ways					
Do you support that it makes sense to take financial risks in order to increase profits?					
Do you accept the idea that new products occasionally fail?					

Internal Collaboration	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Do you think that advice from work colleagues is a common way of solving problems among employees in your company?					
Do employees from different posts or departments often cooperate in problem solving?					
Are all of our business functions (marketing/sales, manufacturing, R&D, etc.) integrated in serving the needs of your target markets?					
Are decisions based on open discussion and debate of facts?					

Learning Focus	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Do you perceive employee learning and training as an investment or an expense?					

Do you believe that our organization's ability to learn is key to your market success?					
Is employee growth and learning is among your top priorities?					
Do managers support that your organization's ability to learn is the key to your competitive advantage?					

External Orientation	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
Do you assemble effective relationships with your customers, to better implement solutions for their needs by using the most adequate technology?					
Do you regularly carry out market research (e.g., surveys, analyses of target groups etc.) to gain more information about your (potential) customers?					
Do you maintain regular communication with your suppliers to get in-depth knowledge about ongoing technological developments?					
Do you exchange information with competitors and accomplish benchmarks with them, to be up-					

to-date concerning the latest technological developments and trends?					
Do you maintain communication with universities to be always up-to-date with the latest technological inventions?					
Is regular exchange with universities important for your firm?					
Is regular exchange with independent experts (e.g., public research institutes important for your firm)?					

Appendix 2.1 – Translated Transcript of the Interview – Quality Assurance Manager – Case Company C

General Questions

- **Information about the company, year of establishment, activities and number of employees.**

Case Company C, is a family dairy company that produces traditional cheese from sheep and goat milk and is located in the island of Crete, in Greece. It occupies 25 employees. including 9 family members. It started operating in 1928. In its current form it operates since 2013. The same year it started exporting in Europe (Sweden and Germany), Australia and US.

- **Information about the hierarchy and responsibilities of the interviewee within the context of the company.**

I am the quality assurance manager and one of the owners of the comoany and I am working for this company since ever. I am also 100% occupied in the production processes within the company and arrange the exports.

Hampering Factors to Innovation

- **Can you please indicate what are the obstacles that your company faces and don't allow you to innovate?**
  - **Could you also rank them in terms of importance?**

1. Innovation is not something that we pursue because our **market size is very small**. A big company for example company X, with 70.000 selling points both in Greece and abroad, can invest in an innovative product and put it in all big supermarkets easily. For us this is not possible.
2. Our **small size** and **small distribution network** also limits innovation. We collaborate mainly with 4-5 retailers in Crete and are very skeptical when considering creating an innovative product.
3. Time is also a big problem. Everyone within the company has too many tasks to do daily and considering to innovate does not fit in our strict schedule.
4. Employees are not much interested in the evolution and growth of the company. They just want to work for eight hours, get paid and basically go home.
5. We do not have the technical skills to create an innovative product. Our employees are good at doing the usual analyses of the products and are familiar with specific production processes. New **qualified staff** is needed to support innovation.

6. There have been cases where we had to diverge from the usual, specific processes that we used and the **family members** that were also involved in the decisions did not want that.
7. We also lack information concerning market. We do not know our market share or growth within our main areas of activity. But still we have the whole picture of it.

– **Do you think that the lack of financial support from the government is a factor that hampers innovation?**

It is very convenient to blame the government for not being creative and innovative. I do not consider it as a problem since this is the rule for every company nowadays.

– **Do you think that the economic crisis has negatively affected innovation?**

No. Economic crisis should act as a promoter of innovation, not as an obstacle. Crisis creates opportunities. If the company is "structured" as an innovative one, it creates innovative products.

Typification of Organizational Culture (please indicate to what extent you agree with the following statements)

Creativity and Risk Taking	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Are the employees within the company encouraged to "think outside the box"?		●			
Are employees allowed to try to solve the same problems in different ways?				●	
Do you support that it makes sense to take financial risks in order to increase profits?		●			

Do you accept the idea that new products occasionally fail?					

- Everybody is occupied with many day to day responsibilities. There is no time for creative thinking and the necessary research that follows a creative idea. Moreover there is no qualified staff that can support the development of this idea.
- Everyone within the company has his/her own responsibilities and duties within the company. Whenever a problem occurs everyone makes a contribution to its solution from his/her perspective in order to solve it jointly.
- Within this company we do not undertake such risks and that is why our budget is limited If the product fail, then the consequences may threaten the company's survival. We only undertake costs that we can handle.
- For me, the possibilities for success and failure are equal when it comes to an innovative product. Anything in between is also considered as failure.

Internal Collaboration	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
Do you think that advice from work colleagues is a common way of solving problems among employees in your company?					
Are employees from different posts or departments often cooperate in problem solving?					
Are all of our business functions (marketing/sales, manufacturing, R&D, etc.) integrated in serving the needs of your target markets?					

Are decisions based on open discussion and debate of facts?					

- I believe that in many cases, collaboration is very important but in other cases, administration has to take the final decision and that should be the rule. There have been times that I said "we must do it that way". At the same time I accepted liability in case of a failure.
- Decisions related to quality issues of the final product, most of the times require participative decision making and collaboration among the employees.
- There is not a clear division of the departments. For example I am the quality assurance manager, I am involved in the processing part and I am also planning the exports. There is no an R&D department in our company.
- Every situation is different. Sometimes the administration has to make a decision alone.

Learning Focus	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
Do you perceive employee learning and training as an investment?					
Do you believe that our organization's ability to learn is key to our market success?					
Is employee growth and learning among our top priorities?					

Do managers support that your organization's ability to learn is the key to our competitive advantage?					

- When it is required, the company provides the necessary training to the employees. For example, last year we hired a food technologist and paid for her training on the Food Safety Management System ISO 2200 and the Environmental Management System ISO 14001.
- In our company we support that when working on something, you must be a hundred percent knowledgeable about it. Only that way a company can succeed.
- We make sure that our employees remain updated about everything concerning their work and especially Food Safety and Environmental Management issues.
- Training I highly supported by management. I also got trained on the aforementioned standards and then worked on the quality assurance.

External Orientation	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
Do you assemble effective relationships with your customers, to better implement solutions for their needs by using the most adequate technology?					
Do you regularly carry out market research (e.g., surveys, analyses of target groups etc.) to gain more information about your (potential) customers?					
Do you maintain regular communication with your suppliers to get in-depth knowledge about ongoing technological developments?					

Do you exchange information with competitors and accomplish benchmarks with them, to be up-to-date concerning the latest technological developments and trends?					
Do you maintain communication with universities to be always up-to-date with the latest technological inventions?					
Is regular exchange with universities important for your firm?					
Is regular exchange with independent experts (e.g., public research institutes) important for your firm?					

- It is something that we do not do. We just produce traditional Greek products and more or less know what our customers expect from us.
- No, we do not do it.
- The relationship that we have with our suppliers is typical. We recognize that they may have some good ideas. For example, our suppliers of packaging materials proposed us a new packaging for our products and our suppliers for edible materials, proposed a mix that would differentiate our products. But as I see it, the truth is that they just have some products in stock that they want to get rid of and sell them in a good price. It's not that they care for us being innovative.
- No. There have been times when I had some conversations with owners of small dairy companies, but they distribute their products, mainly in areas that we do not. In Crete we do not exchange ideas with our competitors because we create the same traditional products. In such local environment one cannot exchange ideas that easily. We are not that open minded.
- We do not it, yet. We would like to collaborate with universities. The first attempts on a personal level were not very promising. We did not reach a connection point. Also the cost of the collaboration was high. They asked us to donate approximately 10.000 euros. And it

seemed that they were looking for an “easy” project. They were not really interested in creating an innovative product for the company. Maybe it did not work out because of me. But I am not sure.

- This year we started collaborating with a research institute in Athens. We are searching on how to use polyphenols in sheep’s yogurt in order to lower the cholesterol levels in human bodies. At the same time we are searching how to use aloe in yogurt. But it’s in the initial steps. We are not sure if it will work out at the end.