

# **Identifying innovation strategies: Insights from the Greek food manufacturing sector**

## **Abstract**

This paper examines the concept of innovation that is widely recognized as very important for all companies across different business sectors. The paper initially provides a review of the innovation literature in terms of types, classifications, and sources of innovation that have been proposed over time. Then the paper examines innovation in the context of the food industry and in particular it attempts to identify innovation strategies followed by Greek food manufacturing companies based on a specific model. Evidence from the Greek food manufacturing sector indicates that companies tend to innovate along the dimension of offerings that is more related to the traditional view of innovation (product and process innovation).

**Keywords:** business innovation, innovation strategies, Greek food manufacturing.

## **Introduction**

Innovation has become a central issue in the business agenda of companies, and in many cases, it is recognized as the cornerstone for organizational survival and growth. In the food and drink industry (hereafter food industry), significant market forces and changes related to development of innovation, are driving the industry. At the same time however, the level of research and development expenditures (part of overall innovation activity) in the food industry is rather low compared to total manufacturing (EU, 2007). This paradox is due to specific characteristics of the industry. Innovation is important in the food industry, but has a different character compared to other sectors such as telecommunications or electronics. Innovation is more process, marketing and management oriented and less technology-push based, with new products emanating mainly from variations of older ones (Sawhney et al.

2006; EU, 2007). Analysing innovation in the context of the food industry is also a complex task due to the strong links of the industry with the different sectors in the food chain. In many cases food companies rely more on suppliers for technological innovations rather than on internal efforts (Rama, 1996). For example, the industry has links with various non-food sectors such as chemicals, food technology, packaging, machinery, where, high levels of innovation are achieved. Moreover, the food sector is comprised of various subsectors with distinct characteristics. Some of the major subsectors include fruits and vegetables, dairy products, beverages, snack foods, flour and bakery products, confectioneries, meat and poultry products, fish and marine products and fats and oils. Even within subsectors significant differences seem to exist in terms of innovative performance. The dairy sector, or water and soft drinks for example, are leaders in innovation as opposed to meat, pasta and rice products (CIAA, 2006). In this paper, we aim to expand the traditional view on innovation, often expressed in terms of product and process innovation. Innovation is approached following the twelve dimensional concept of business innovation as this was proposed by Swahney et al (2006). In comparison to other approaches their approach takes a more holistic approach of linking innovation to new value created for customers and not necessarily to new things. Based on their proposed model and dimensions, this paper aims to identify innovation strategies and practices followed by companies in the Greek food industry and in particular to identify how various companies and sub-sectors act upon these dimensions. In order to do this, the paper will use secondary data that have been published in industry forums, market surveys, and corporate publications.

## **Conceptualizing innovation**

### *Context and sources of innovation*

The concept of innovation comes with a plethora of definitions, types, and classifications and has been analysed from many different angles. At the bottom line of these approaches stands the recognition that innovation refers to something new, is a process, and differs from invention, new product development or research and development. These concepts are far less holistic. Invention for example, is the first occurrence of an idea for something new, while innovation is the first attempt to carry it out into practice (Fagerberg, 2004). According to Von Hippel (1988) there are two main sources of innovation: manufacturer innovation and end-user innovation. Manufacturer innovation is where an agent (person or business) innovates in order to sell the innovation, which is a very common source. The other source of innovation, end-user innovation, is where an agent (person or company) develops an innovation for their own (personal or in-house) use because existing products do not meet their needs. An example of this source is a company, International Flavors and Fragrances (IFF), which is a global supplier of specialty flavors to the food industry and has built a toolkit that enables its customers to modify flavors for themselves, which IFF then manufactures (Von Hippel, 2005). Similar to Von Hippel (1988), many authors noted that many opportunities for innovation exist both within and outside a company or industry (Drucker, 1998; Porter, 2001). In particular, Drucker (1998) identified seven major sources of innovation and some are related to the company internally and some externally: unexpected events (*failures as well as successes, which energize the innovation process*), incongruities (*result from a difference between perception and reality*), process need innovations (*those created to support some other process or product*), industry structures changes (*in response to growth and changes in the marketplace*), demographic changes (*shifts in the makeup of the*

*population*), changes in public perception and new knowledge or technology (*new options available for companies and customers*).

This paper follows the approach of business innovation that was proposed by Swahney et al (2006). According to them, business innovation is a much more holistic approach, than product and process innovation, which is linked to new value that is brought in firms, instead of new things. They defined innovation as the “*creation of substantial new value for customers and the firm by creatively changing one or more dimensions of the business system*”. Their framework included twelve dimensions: offerings (*develop new products or services*), presence (*create new distribution channels or innovative points of presence, including the places where offerings can be bought or used by customers*), processes (*redesign core operating processes to improve efficiency and effectiveness*), customer (*discover unmet customer needs or identify undeserved customer segments*), platform (*use common components or building blocks to create derivative offerings*), solutions (*create integrated and customized offerings that solve end-to-end customer problems*), customer experience (*redesign customer interactions across all touch points and all moments of contact*), value capture (*redefine how company gets paid or create innovative new revenue streams*), organizations (*change form, function or activity scope of the firm*), supply chain (*think differently about sourcing and fulfilment*), networking (*create network-centric and intelligent offerings*), and brand (*leverage a brand into new domains*). Their framework was developed based on interviews from managers responsible for innovation activities at several large companies across different business sectors. The model was then pretested in two rounds with 70 managers from various sectors including the food sector.

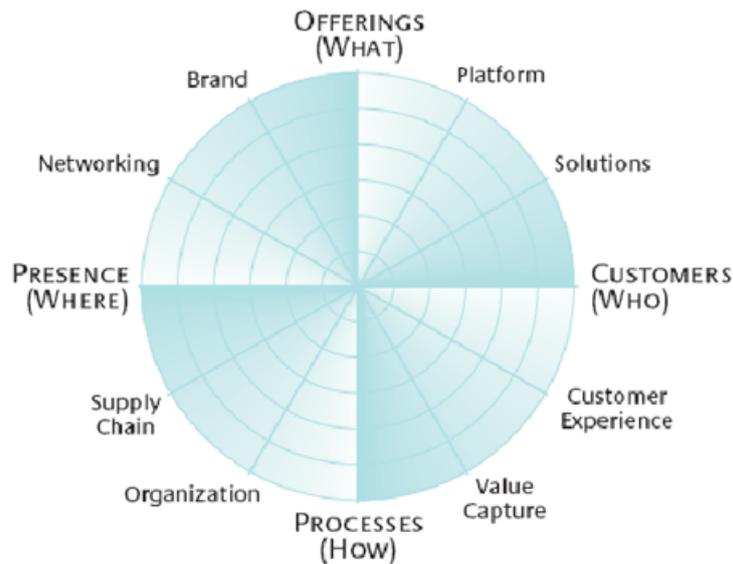


Figure 1. The innovation radar (Source: Swahney et al. 2006)

### *Types and classifications*

One very common classification of innovation is radical and incremental (Abernathy and Utterbach, 1978). Radical innovation, involves considerable change in basic technologies and methods, created by those working outside mainstream industry and outside existing paradigms. This involves more uncertainty about future outcomes and much larger risk. Incremental innovation is a step forward along a technology trajectory, or from the known to the unknown, with little uncertainty about outcomes and success and it is generally related to minor improvements made by those working day to day with existing methods and technology, responding to short term goals. Another common classification is the one by Christensen (1997) of disruptive and sustaining innovation, where disruptive innovation is a technological innovation, product, or service that eventually overturns the existing dominant technology or status quo of a product in the market and by contrast, sustaining innovation improves product performance of established products. Tidd et al. (2005) distinguished four commonly accepted types of innovation: product (*refers to new products or improvements on products*), process (*where some part of the process is improved to bring benefit*), position (*refers to an existing product or service that is repositioned*) and paradigm (*major shifts in*

*thinking that cause change*). Finally, another classification is the one by OECD (2005). According to the third version of the Oslo Manual (OECD, 2005), four types of innovations are distinguished: product innovations, process innovations, marketing innovations and organisational innovations. This classification maintains the largest possible degree of continuity with the previous definition (first and second version) of technological product and process innovation used in the second edition of the Oslo Manual. The classification by OECD presents similarities to the classification by Tidd et al. (2005) regarding product and process innovations. However, marketing innovations (*the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing*) and organisational innovations (*the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations*) present significant differences. In the following table (Table 1) an overview of some of the most important types and classifications of innovation is presented.

Table 1. Overview of types and classification of innovation

<b>Types or classifications of Innovation</b>	<b>Author (s)</b>	<b>Context</b>
Programmed vs. non-programmed innovation	Cyert and March 1963,	Innovation planned through R&D vs. innovation occurring when there is slack in the organization in the form of more resources available than are presently needed, which are then used for innovation purposes
Product vs. process innovation	Knight, 1967	Any new product introduced by the organization vs. the introduction of new elements in the organization's task, decision, and information system or its physical production or service operations
Social innovation	Young, 1967	Refers to either innovations that aim to meet a societal need or the social processes used to develop an innovation
Radical vs. incremental innovation	Abernathy and Utterbach, 1978	Fundamental changes that represent revolutionary changes in technology vs. minor improvements or simple adjustments in current technology
Organizational innovation	Daft, 1978	The creation or adoption of an idea or alteration of business structures, practices, or behaviour new to the organization
Financial innovation	Miller, 1986	Creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets.
Architectural innovation	Henderson and Clark 1990	A type of technological shift that changes the linkages between components in a system
Disruptive vs. sustaining innovation	Christenssen, 1997	Disruptive innovation is a technological innovation, product, or service that eventually overturns the existing dominant technology or status quo product in the market and by contrast, sustaining innovation improves product performance of established products

## **Innovation in the food industry: Literature review**

Various research efforts have been carried out for the issue of innovation in the food industry, in various sub-sectors and different countries. Earl's (1997) research, approached innovation in the food industry under a very broad view, by focusing on different types of innovation, and moreover, by identifying the importance of foodservice companies and food retailers in addition, to food manufacturers and food processors. Martinez and Briz (2000) examined the innovative performance of Spanish food manufacturers based on the classification of product vs. process and radical vs. incremental innovation and highlighted the 'evolutionary' rather than 'revolutionary' nature of innovation activities in this particular sub sector of the Spanish food industry. Harvey's (2000) research examined product innovation (radical vs. incremental type), but also considered organizational innovation. Interestingly, his research focused at the retailers' level and examined their performance. Trail and Meulenber (2002) investigated the way twelve food-manufacturing companies in six European countries innovate as regard product or process innovation. Results indicated that firms behaved differently depending on their dominant "orientations" towards the product, the process, or the market, the types of market they supply (particularly whether they supply branded or private-label products), the nature of their ownership (public, private, co-operative), market size and scope, and company size. Another research by Avermaete et al. (2003) examined determinants of innovation in Belgian small food firms, based on four types of innovation: product, process, organizational and marketing. They concluded that innovation was regarded important by small firms and emphasis was placed on all four types of innovation, but some aspects of innovation relate to the age and the size of the company, as well as to the regional economic performance. Menrad (2004) analysed the innovation system of the German food industry, and in particular the structure and innovation activities of industrial companies focusing on interactions between the different actor groups, as well as the political and legal framework. A focus on two

specific types of innovation, incremental and process, was given by Francis (2006) who examined the main determinants of cycle time performance in incremental innovation development projects within the UK fast moving consumer goods industry. This research included the perspectives of a British leading retailer and two typical manufacturers (one for lager and beer products and one for private label biscuit and confectionery products) that both supply this retailer. Limited research efforts have materialised in the Greek food industry. For example, Salavou and Lioukas (2003) examined the strategic drivers of radical product innovation adoptions in the context of SME's in the Greek food industry at the manufacturer level. Another research by Caloghirou et al. (2004), provided empirical data from an extensive survey carried in 558 companies from Greece and other six European countries (Italy, Denmark, UK, France, Germany and the Netherlands). The results showed that the food sector (in comparison to the computer sector and other related industries) is less likely to innovate and also there seems to be a strong positive relationship between the extent of innovation of the firms and their R&D intensity and personnel qualifications. Inter-firm linkages seemed also to promote innovativeness. In general, it seems that research in the food industry has taken so far a rather traditional view of innovation, by linking it with new things, namely new products or new processes.

## **Innovation and the Greek food industry**

### *Key characteristics, trends and structural changes*

The food manufacturing sector is one of the most important sectors of the Greek economy (CIAA, 2005; National Statistical Service of Greece, 2005; SEVT, 2006). It accumulates 6,5% of the Gross Domestic Product, 25% of the Gross National Product of the industrial sector and employs 22% of the total workforce (Hotel and Restaurant 2004, National Statistical Service of Greece 2005). Foodstuffs and wine together make up 35% of the Greek

total exports and the food manufacturing sector has accumulated 14% of total investments (including investments in trade and services) (SEVT, 2006). The importance of the Greek food industry lies also on the strong link of the industry with the primary sector. The food industry in Greece played traditionally a central role for the processing of agricultural raw materials and food supply of the population. Historically, the Greek food sector is characterized by the existence of small-medium sized companies (SMEs). However, after the 1990s, large domestic companies were created, and multinational companies have also entered the market. The Greek food industry has the strong presence of national companies, despite the presence of major international manufacturers and distributors.

At food processor level, nearly 1500 companies exist and most of them are mainly small family-based companies. On average, a Greek food company employs sixty persons in comparison to the European average, which is one hundred (CIAA 2003, Greek General Secretary of Trade 2005). At the wholesaler level, most companies are also small family-based companies and concentration of the market is relatively low. As a result, the role and the power of these companies has been diminished in favour of the retailers. At the other end of the food supply chain, at the retailer level, the appearance of new multinational players in the early 1990's resulted in a major sector transformation, with a decline of the traditional grocery store and the growth of the hypermarket, cash and carry and discount sectors. In fact, foreign retailers are still entering the Greek market. The latest entrance is that of a German retailer which will open the first stores in 2008. The entrance of foreign retailers resulted in increased levels of competition fostering domestic retailers to accelerate their growth through acquisition of smaller ones, and entry to new markets (Doukidis, 2004). Retailers, both domestic and multinational ones, have nowadays become the most powerful players in the sector exercising their power to every other entity in the food supply chain. In the following table (Table 2) the key characteristics of the Greek food industry are presented.

Table 2. Key characteristics of the Greek food manufacturing sector (Sources: SEV, 2007; SEVT, 2006; SEVT, 2009).

	<b>Key Data</b>	<b>Relative Position (%) to the Total Greek manufacturing industry (%)</b>	<b>Relative Ranking to the Greek manufacturing industry</b>
<b>Number of companies</b>	~1500*	21%	Number of companies - 1st
<b>Employment</b>	67800**	22%	Employment - 1st
<b>Turnover</b>	10.2 billion euros	25%	Turnover - 1st

\*It is very difficult to calculate the exact number of companies. This number is an estimation based on SEV (2007)

\*\*Based on SEVT (2006)

### *Sources of innovation*

In this section, the sources of innovations as proposed by Drucker (1998) are explored in the context of the Greek food industry. In terms of unexpected events, it seems that failures in safety and quality systems that originated in northern European countries, supported process innovation via the implementation of quality and production standards. Quality issues are particularly important for Greek consumers and Greek food manufacturers. A recent survey by the Greek General Secretariat of Consumers revealed that Greek consumers consider quality as the most important criterion in selecting products and retail stores (GGSC, 2007). Process need innovation is also one of the most important sources of innovation for the Greek food industry. Many surveys have pinpointed that Greek food companies invest mostly in modernising their production processes and in increasing their production capacity of existing products. A significant part of these investments is used for the development of new products (Greek Retail, 2005b; SEVT, 2006, IOBE, 2006). Considerable changes in the structure of the Greek food industry occurred in the last few years. The entrance of multinational retailers resulted in mergers and acquisitions with local retailers and similar changes occurred at manufacturer's level. All these changes resulted in increased competition, often expressed as the need to develop innovative products (e.g. at the private label category) (Greek Retail, 2005a). In terms of demography, no radical demographic changes are found in the population

although immigration has increased; nevertheless, the latter did not create any opportunities for new products or services, due to the fact that food consumption preferences between local consumers and immigrants are quite similar (Marketing Week, 2007). In terms of market changes, there has been an increase of households with two adult members and single-parent families. However, these changes did not have an impact to consumption patterns (Greek Retail, 2005b).

Greeks have also become more health and diet conscious and demand products with more vitamins and other supplements plus products that are chemical free or organic. This trend is a key one for innovation. In North America, for example, the health-driven innovation is dominant (CIAA, 2006). In Greece, however, this trend is mainly expressed with a turn in the consumption of “traditional products” which are considered part of the Mediterranean diet and have a more health appeal. The problem and the challenge therefore for Greek food manufacturers, in terms of production, is the extent to which “traditional” products can be modified, since there is the risk of abolishing their “traditional” attributes. Companies therefore face a paradox as they have to innovate based on traditional products. In addition, although it is generally accepted that knowledge and technology are key forces of innovation, the Greek food industry fails to adopt these technologies and applications. Research by Manthou et al. (2005), and Matopoulos et al. (2007) revealed that companies from the Greek food industry are late adopters or do not adopt at all new technologies especially Internet-based applications.

## Overview of innovation strategies

### *Methodology*

In the following sections the innovation strategies from the Greek food manufacturing sector are identified based on the model and the twelve dimensions of business innovation proposed by Swahney et al (2006). With respect to the companies selected, these were all leaders in their sectors and therefore it was more likely that they will have increased their innovation activity in comparison to SME's. The following subsectors were also selected: fruit processing, dairy products, meat products (cured meats), and bakery products. The logic behind this selection was first of all that all four sub-sectors are of particular importance to the Greek food manufacturing industry and the Greek economy. Secondly, they are linked to agricultural production. Finally, they also present some interesting differences. For example, the milk and the meat subsector are more developed, in terms of market evolution, structure, and the competition in comparison to the other two subsectors. This study is based on the analysis of secondary data. Data were collected from a number of sources such as companies' websites, industry and market reports (ICAP, Euro2day) as well as any other relevant information that were publicly published or announced. In the following table (Table 3), an overview of the data sources used is provided.

Table 3. An overview of the companies

Rank	Company/ Website	Subsector	Turnover 2006 (in €)	Market share (2006)	Number of employees	Number of products
1	Almme <a href="http://www.almme.gr">www.almme.gr</a>	Fruit process.	22.000.000	n/a (exports mostly)	34 (750 seasonal)	~18
2	Chios Gum Mastic <a href="http://www.mastihashop.com">www.mastihashop.com</a>	Fruit process.	7.576.000	n/a	n/a	~ 60
3	Vivartia (delta) <a href="http://www.vivartia.com">www.vivartia.com</a>	Dairy products	466.149.000	39%	2850	~ 30
4	Olympos <a href="http://www.olympos.gr">www.olympos.gr</a>	Dairy products	88.000.000	16%	320	~ 30
5	Nikas <a href="http://www.nikas.gr">www.nikas.gr</a>	Meat products	107.080.915	20%	648	~ 76
6	Creta Farm <a href="http://www.cretafarm.gr">www.cretafarm.gr</a>	Meat products	82.583.000	16%	789	~ 112

7	Katselis <a href="http://www.katselis.gr">www.katselis.gr</a>	Bakery products	48.437.635	65%	664	~ 175
8	Karamolegos <a href="http://www.karamolegos-bkr.gr">www.karamolegos-bkr.gr</a>	Bakery products	35.665.285	20%	370	n/a

### *Evidence from the fruit processing sector*

Two companies were selected for this sector: Almme and Chios Gum Mastic Growers (CGMG). Almme is one of the biggest fruit processors (mainly peach) in Greece, and is exporting in most European markets, as well as in USA and Japan. The innovation strategy of the company focuses on the dimension of offerings with the development of new products (e.g. expanding canned fruit range, develop new packaging, fruits in pots, peach puree etc.). Another dimension of business innovation is the platform dimension. The company took advantage of the primary material (e.g. surpluses in peach production) and entered the fertilizer market by producing organic fertilizers from organic residuals. The second company, CGMG, was traditionally an association of growers of Chios gum (comes from a tree that produces natural gum only in southern part of Chios island). In the past few years, CGMG focused on business innovation, particularly, on the dimension of offerings and platform. Based on Chios gum, CGMC developed a wide range of new products other than gum (e.g. bakery products, gourmet products, beverages, cosmetics and pharmaceuticals). CGMG innovated across the dimensions of presence and customer experience by creating their own stores (called mastiha shops and mastiha corners) in most big cities in Greece, in the Athens international airport and in international cities such as New York and Paris. The stores developed were of high appeal and design creating a very positive experience for the consumer.

### *Evidence from the dairy sector*

The dairy sector is one of the most innovative sectors worldwide (CIAA, 2006) and this is the case in Greece where innovation is largely based on the dimension of offerings. The dairy sector is of high importance for the Greek food industry due to the increased consumption of dairy products by Greeks. In the past five years, the traditional large companies have been losing sales to the small, countryside-based companies (ICAP, 2007). Competition is therefore very tough. Many companies were also penalized by the Hellenic Competition Authority with large fines, as a result of price fixing behaviour and anti-competitive practices. The companies that were analysed in this paper were Delta and Olympos. Delta is the dairy part of the biggest Greek food company Vivartia (one of the largest in Europe) and the biggest producer of milk products with a market share of approximately 40%. The company tends to innovate based mainly on the dimension of offerings by creating new products (e.g. functional products: milk with less lactose, new flavours for existing yoghurts etc.). Olympos started as a small, local dairy company located in Central Greece and has managed to become the second most important player in the Greek milk market. The company focused on the dimension of offerings by developing new products (e.g. based more on package changes than technology).

### *Evidence from the meat sector*

The meat sector is one of worst performing sectors in terms of innovation (CIAA, 2006). The meat market in Greece has sales of approximately 320 million euros and in comparison to other sectors, it is dominated to a great extent by Greek companies. The sector is concentrated and five companies hold nearly 70% of the market share (Hellastat, 2007). The companies that were considered in this paper were Nikas and Creta Farm. Nikas is market leader and operates since the early 1970s, initially as a traditional family-owned business. Innovation focused on the dimension of offerings with the company creating new products and

packaging. A latest innovation of the company came along the dimension of brand. The company extended its brand in 2007 by entering a completely different market, the traditional Greek pastries. Similarly to Nikas, Creta Farm started as local Cretan company in the late 1970s, but has become one of the leaders in the Greek market with a turnover that rocketed from 5 million euros to 67 million euros between 1995 and 2003. Much of the success of the company is due to important innovative activities that the company undertook, particularly in terms of offerings (e.g. new packaging) and in terms of customers. Innovation along the dimension of customers was achieved by focusing on customers who favoured the consumption of health and diet cured meat. Subsequently, the company distributed a very low fat cured meat range, which was the result of developing a specialized pig variety which had hardly any intramuscular fat. The last five years, the company produces and distributes a cured meats range and instead of using animal fats it uses extra virgin olive oil. The company innovated also along the dimension of processes, by becoming a completely vertically integrated company including the pig reproduction unit, the animal feed production unit, the slaughterhouse, the cutting unit and the packaged meat unit. This enabled Creta Farm to achieve greater efficiency and higher quality.

#### *Evidence from the bakery sector*

The Greek bakery sector is very concentrated and four companies enjoy nearly 70% of the market (Eurotoday, 2007). In the past few years, the traditional bakeries opposed the establishment of the “bake off” corners which sell bakery products inside supermarket stores. Despite this, sales are increasing and the share of industrialised bread (bread that is manufactured and it is not made from traditional bakeries) is expected to reach 10% in 2009 (Eurotoday, 2007). The companies selected were Katselis and Karamolegos. Katselis is the leader in the market with a share of approximately 40%. Significant part of the innovation

activity of the company comes along the dimension of offerings with the development of new products (e.g. four functional bread products for 2006). In addition, the company innovated across the dimension of presence by developing 32 retail outlets across Greece, and also across the dimension of platform by developing a coffee and snack chain in ten cities. Karamolegos started as a family-based company in the 1970s, and has become the second most important player in the market with a market share of approximately 20%. The company sells 70% of its products (both branded and private labels) through big retail chains. The company, in an effort to increase its market share, started to focus on innovative activities across the dimension of offerings. This included the launch of new bakery products (e.g. a new “functional” bread containing b-glycane or new packaging).

Table 3 presents each company based on the dimensions of business innovation including the relevant key abbreviations: offerings (Off), platform (P), solutions (S), customer (C), customer experience (CE), value capture (VC), processes (Pro), organizations (Org), supply chain (SC), presence (Pre), networking (N), and brand (B).

Table 4. Overview of innovation strategies from Greek food manufacturing companies

Company	Subsector	Dimension of Business Innovation											
		Off	P	S	C	CE	VC	Pro	Org	SC	Pre	N	B
Almme	Fruit processing	✓	✓					✓					
Chios Gum Mastic	Fruit processing	✓	✓			✓					✓		
Vivartia	Dairy products	✓											
Olympos	Dairy products	✓											
Nikas	Meat products	✓											✓
Creta Farm	Meat products	✓			✓			✓					
Katselis	Bakery products	✓									✓		
Karamolegos	Bakery products	✓											

Based on the table, it is evident that in general companies have a rather traditional and partial view of innovation by focusing on a limited number of innovation dimensions. In particular,

all eight companies are innovating across the dimension of offerings. Particularly in the case of dairy companies, both of them are focusing only on that dimension. A potential explanation is that the dairy sector is a rather static and saturated market and therefore companies are not willing to take market risks to innovate across other and more “unknown” dimensions of business innovation. On the contrary, companies from the other sectors seem to emphasize additional dimensions. The case of the two companies from the fruit processing sector can be a good example of the potential of the sector for further developments.

## **Conclusions**

The Greek food companies have a poor innovative performance that is related to the size of the companies, to managerial inefficiencies, to a more conservative business mentality and to low levels of clustering (SEVT, 2006; CIAA, 2007). Undoubtedly, firm size remains a major factor in determining whether or not companies invest in innovation activities and in the type of innovations that require significant investments (e.g. offerings, presence). However, size constraints are not always the most important barriers. Voudouris et al (2000) revealed that some Greek companies, called “hidden champions”, had achieved outstanding results and the main reason was that they had adopted innovations along the whole value chain (i.e. in the production process or in the provision of services, in marketing, in logistics). The more innovation is followed, the more the broader view of innovation is taken by companies by focusing on other value creation activities. This paper investigated innovation in the context of the Greek food manufacturing industry. The review of the literature revealed that in the food industry, innovation is mainly related to new product development, as well as research and development activities. However, given the specific characteristics of the sector and its intrinsic difficulties, it would be valuable to approach innovation not only in terms of how successful companies are in developing new products or processes, but to identify in what

ways new value is delivered. Based on this, the paper adopted the business innovation model by Swahney et al. (2006) with the aim of identifying innovation strategies by the Greek food industry. The paper examined eight companies (most of them market leaders) from four different food subsectors. Insights from the companies suggest that they seem to focus on the dimension of offerings by developing new “radical” products or by focusing on “incremental” innovations.

The goal of the paper was not to generalize conclusions for the Greek food manufacturing sector, but to bring into discussion what is the right way to approach innovation in the sector, as a result of its specific characteristics. In that sense with respect to managerial implications the paper provides an alternative approach for the food sector. Managers working for manufacturers and retailers could invest on other innovation dimensions. This would be of particular importance not only for SMEs, but also for larger firms where resources are also scarce and the outcome of traditional innovation practices is rarely translated to new value for the customer. A limitation of the study is that only a small number of companies and sectors were explored. In addition, most of the analysis was based on published secondary data, therefore it is likely that critical and confidential innovation data have not been included as they were not published. Future work should focus on developing and selecting appropriate innovation indicators and to provide a complete framework for the identification of the innovative strategies of food companies. In addition, more food subsectors should be explored, with reference to the dimensions of innovation.

## **References**

Abernathy, W. J., Utterbach, J. M. (1978). Patterns of industrial innovation. *Technology Policy*, 81, pp. 40-47.

- Avermaete, T., Viaene, J., Morgan, E.J., Crawford, N. (2003). Determinants of innovation in small food firms. *European Journal of Innovation Management* 6 (1), pp. 8-17.
- Caloghirou, Y., Kastelli, I., Tsakanikas, A. (2004). Internal capabilities and external knowledge sources: complements or substitutes for innovative performance? *Technovation* 24, pp. 29–39.
- Christensen, C. M. (1997). *The Innovator's Dilemma*. Harvard Business School Press.
- CIAA, (2007). The competitiveness of the food and drink industry, [http://www.ciaa.be/documents/brochures/Benchmarking\\_report\\_update\\_2007.pdf](http://www.ciaa.be/documents/brochures/Benchmarking_report_update_2007.pdf)
- Cyert, R. M., March, J. G. (1963). *A Behavioral theory of the Firm*, Prentice- Hall, Englewood Cliffs, NJ
- Daft, R.L. (1978). A Dual-Core Model of Organizational Innovation. *Academy of Management Review* 21, pp. 193-210.
- Doukidis, G., (2004). The contribution and competitiveness of food retailing, Eltrun Working Paper Series, WP 2004-005, Athens University of Economics and Business (in Greek).
- Drucker, P. (1998). The Discipline of Innovation. *Harvard Business Review*, 76 (6), pp.149-157.
- Earle, M.D. (1997). Innovation in the food industry. *Trends in Food Science and Technology*. 8 (5), pp. 166-175.
- Eurotoday, (2007). Developments in the bread and grain sector (*In Greek*). <http://www.euro2day.gr/articles/141641/> (accessed 06/11/07).
- Fagerberg, J. (2004). Innovation: A Guide to the Literature, in Fagerberg, Jan, David C. Mowery and Richard R. Nelson: *The Oxford Handbook of Innovations*. Oxford University Press, pp. 1-26.
- Francis, M. (2006). Incremental NPD Cycle Time Performance: The UK FMCG Industry, Cardiff Logistics and Operations Management Working Papers, LOM/06/0018.

- GGSC, (2007). Consumption and purchasing behaviour of Greeks (*In Greek*), Available at: [http://www.efpolis.gr/\\_database/docuploads/sitefile-9562.pps](http://www.efpolis.gr/_database/docuploads/sitefile-9562.pps) (accessed 05/11/07).
- Greek Retail, (2005a). Innovation: consumer and business prosperity (*In Greek*), Available at: <http://www.greekretail.gr/articles/1528/index.html> (accessed 03/09/07).
- Greek Retail, (2005b). Innovation in the Greek food industry: current trends (*In Greek*), Available at: <http://www.greekretail.gr/articles/1503/index.html> (accessed 03/09/07).
- Harvey, M. (2000). Innovation and competition in UK supermarkets. *Supply Chain Management: An International Journal*, 5 (1), pp. 15-21
- Hellastat, (2007). Cured meat market in Greece (*In Greek*), Available at: <http://www.epr.gr/release/118083> (accessed 01/10/2007).
- Henderson, R. Clark, K. (1990). Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms. *Administrative Science Quarterly*, 35, pp. 9-30.
- ICAP, (2007). The dairy sector in Greece, Report, (*In Greek*).
- IOBE, (2006), The Greek Food and Drink Industry, Annual Report (*In Greek*).
- Knight, K. (1967). A Descriptive Model of Intra-Firm Innovation Process. *Journal of Business*, 40 pp. 478-496.
- Manthou, V., Matopoulos, A. and Vlachopoulou, M. (2005). Internet-based applications in Agri-Food logistics: A Survey on the Greek canning sector. *Journal of Food Engineering* 70 (3), pp. 447-454.
- Marketing Week (2007). Special Report: Consumer behaviour of emigrants in Greece (*In Greek*), Available at: <http://www.marketingweek.gr/article.asp?articleId=6004> (accessed 03/09/07).
- Martinez, M.G., Briz, J. (2000). Innovation in the Spanish Food and Drink Industry. *International Food and Agribusiness Management Review*, 3, 155–176.

- Matopoulos, A., Vlachopoulou, M., Manthou, V. (2007). Exploring the impact of E-business adoption on logistics processes: empirical evidence from the food industry. *International Journal of Logistics: Research and Applications*, 10 (2), pp. 109-122.
- Miller, M. H. (1986). Financial innovation: The last twenty years and the next. *Journal of Financial and Quantitative Analysis*, 21 (4), pp. 459-471.
- OECD, (2005). Oslo Manual: Guidelines for collecting and interpreting innovation data, 3<sup>rd</sup> Edition, OECD/European Communities.
- Porter, M.E. (2001). Innovation: Location Matters. *MIT Sloan Management Review*, Summer, pp. 28-36.
- Rama, R. (1996). Empirical study on sources of innovation in international food and beverages industry. *Agribusiness*, 12, pp. 123–134.
- Salavou, H. and Lioukas, S. (2003). Radical product innovations adoption in SME's: The dominance of entrepreneurial orientation. *Creativity and Innovation Management*, 12 (2), pp. 94-108.
- SEV, (2007). The Greek industry in 2006. Report by the SEV, The Hellenic Federation of Enterprises (in Greek).
- SEVT, (2006). SMEs-NET National Assessment Report, Greece. Available at: <http://smes-net.ciaa.eu/docs/WP%205%20Deliverables/National%20Assessment%20Reports/Greece%20National%20Assessment%20Rpt.pdf> (accessed 17/07/09).
- SEVT, (2009). The identity of SEVT, The Federation of Hellenic Food Industries, Available at: <http://www.sevt.gr/site/content.php?artid=195> (accessed 17/07/09)
- Tidd, J., Bessant, J., Pavitt, K. (2005). *Managing Innovation: Integrating Technological, Market and Organizational Change*, 3<sup>rd</sup> Edition, John Wiley and Son.
- Von Hippel, E. (1988). *The sources of innovation*, Oxford University Press, pp. 136

Von Hippel, E. (2005). *Democratizing innovation*, The MIT Press, Cambridge, Massachusetts, pp. 143.

Voudouris, I., Lioukas, S., Makridakis, S., Spanos, Y. (2000). Greek Hidden Champions: Lessons from Small, Little known Firms in Greece. *European Management Journal* 18 (6), pp. 663–674.

Young, M. (1967). Innovation and Research in Education. *International Review of Education*, 13 (3), pp. 374-376.