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Article

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International Journal of Business Science & Applied Management (IJBSAM)

Provided in Cooperation with:
International Journal of Business Science & Applied Management (IJBSAM)

Suggested Citation: Sakali, Paraskevi Christina; Skalkos, Dimitris (2016) : Innovative agrifood supply chain network: Leading to traditional, "back to the future" foods, International Journal of Business Science & Applied Management (IJBSAM), ISSN 1753-0296, International Journal of Business Science & Applied Management, s.l., Vol. 11, Iss. 2, pp. 24-33

This Version is available at:
https://hdl.handle.net/10419/190670

Innovative Agrifood Supply Chain Network: Leading to traditional, "back to the future" foods

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Abstract

The agrifood sector is faced with major challenges that arise from changes in the sector's economic and non- economic environments, to changes in consumers' lifestyles, from global increases in food consumption, to diminishing production base and now days from the not stable political and economic situation and the continuous global economic deceleration of growth. The challenges cannot be met by any individual enterprise but it requires concerted actions and coordination of initiatives within an effective food chain management. By utilizing basic concepts of innovation management techniques (IMTs), and developing an innovative management (M.I.) process we have applied innovation in two enterprises of the same traditional food chain for a three year period and evaluated the results based on the 12 different parameters developed by the innovation radar. The results show that the applied methodology had a major impact to the growth of both companies and the upgrade of their innovation capacity. In terms of the impact of the methodology within the food chain itself the success is evaluated based on the new, innovative, "BACK TO THE FUTURE" foods which were developed and promoted in the market by these companies and their close collaboration. Thus, we have developed a useful and valuable innovation practical tool available to managers of companies and to policy makers which can be used effectively for local development and regional growth of the agri food sector. Further research applying the methodology in agri food chains of other sectors such as dairy, meat etc., in bigger companies in the traditional and non-traditional sector is required in order to better evaluate its validity and effectiveness.

Keywords: food supply chain, agrifood, innovation, Innovation management techniques,, back to the future foods

1 INTRODUCTION

The food supply chain involves all industries collaborating to provide final consumers with foods. The scope of food supply chain extends from farms (farmers), as the first origins of food products, to fork (consumer), as the last point of consumption. However, it connects the following three industries in a supply chain context: the agriculture and farming industries as raw materials providers; the food processing industry which transforms raw materials into finished products, and the distribution industry which carries out the logistical responsibilities. "A supply chain is a network of materials, information and services processing links with characteristics of supply, transformation and demand" (Chen & Paulraj, 2004, p.132). The aim of supply chain is to resource raw materials, to transform them to final products and then to deliver them to final costumers/consumers through distribution/ retailing channels (Beamon, 1998). Supply chain operations in the food sector are currently under a transformation process, namely they are switching from commodity handling activities to added value operations that fulfil the consumers' preferences. Relationships between chain members are an important part of its success. Supplier -buyer relationships is a big part of supply chain management. Moreover, retailers and their initiatives played a significant role in the evolvement of supply chains in the food sector (Bourlakis & Weightman, 2004). During the last years many structural changes happen in the retailing sector, due to their size, multiple retailers have the role of the main gateway to consumers and also that of the gate keeper between producers and consumers (Hingley, 2005).

The management of food supply chains has to solve specific problems (which of course are greatly reduced by proper research during supply chain design). These are:

- Inefficient Supply Chain
- Infrastructure
- Low Technology Penetration
- Food safety
- 'Unorganized' sector
- Bureaucracy

Innovation in the food industry follows learning processes that depend on information access which is enhanced by inter-organizational relationships. An important feature of the new economy has been the emergence of a new focus of innovation at the level of inter-organizational collaborations, see e.g. Omta (2002), and Pittaway et al. (2004). In the food sector, firms are highly dependent on external sources of information for innovation. But on the other hand their access to information can be enhanced through inter-organizational collaboration in chains and networks (Soosay et al., 2008). Relationships between firms in a chain contribute to innovation (Soosay et al., 2008). Nowadays, quantitative studies have considered innovation by firms grouped at particular vertical stages of chains though have not considered relationships within the chain (e.g. Fischer et al., 2008). Relational links have been investigated by means of case studies in a limited number of individual chains (e.g. Aramyan et al., 2007, Soosay et al., 2008). The role of relationships among direct chain partners and in innovation has not been pursued in previous quantitative research. We examine as a central hypothesis that inter-firm relationships in chains positively contribute to the innovation capacity of the chain. At the firm level, access to internal and external resources has been shown to be key to the innovation capacity of a firm (Gellynck et al., 2007; Roy et al., 2004). However it is defined innovation capacity as the ability or propensity to innovate. Within a chain context, innovation capacity encompasses the entire innovation process occurring both within and among the member firms. We describe the innovation process using two types of causal indicators of innovation capacity building and one type of outcome indicator, namely effort, activities and results (Gellynck et al., 2007). We interpret indicators of effort as reflecting investment in human, financial, and, information assets. We define innovation activities as those in which effort is applied to enhance the probability or propensity for innovation. Finally, innovation results, whether tangible or intangible, follow as an outcome of applied efforts and activities. Tangible results include growth of market share and profit while intangible results refer to enhancement of the firm's stability, efficiency, and reputation (Gellynck et al., 2007). Furthermore, as the innovation process is a dynamic process with feedback, innovation results in feedback to affect future efforts by the firm (Soosay et al., 2008). Chain relationship quality (CRQ) between members contributes positive to both member and chain level innovation in two ways: it contributes to expansion of joint resources available to chain members engaged in innovation, and it enhances governance of the joint chain resources, the innovation process, and the distribution of the benefits of collaboration. This is in agreement with the proposition that collaboration is an alternative to vertical integration as an organizational form to coordinate innovation.

Some studies about innovation have been conducted. Such as the recent article related to the Greek food chain (Bourlakis et al., 2012). These studies are focusing on different levels of analysis on the dyadic system of supplier - customer (Omita, 2002; Roy et al., 2004), on the chain itself (Omita 2002; Soosay et al., 2008), or on the network level (Omita 2002; Roy et al., 2004). Innovation is measured in apparently different ways and under different names. Nevertheless, although some authors are referring to innovation generation (Roy et al., 2004), or to innovative or innovation capability, some others apply the concept of innovation competence, or investigate continuous innovation (Soosay et al., 2008), or refer to autonomous and system innovation, or explore successful innovations. Furthermore, all these studies explore the relationship of factors influencing the innovativeness of food enterprises. These factors are mainly related to features of the enterprise's environment, such as the characteristics of the chain network, contribution of the chain or network in terms of information source and degree of involvement in the innovation process, and market related issues, such as stability of demand or level of competition. However, in most of these studies the unit data collection is one focal enterprise rather than several members of a chain or network. Furthermore, only few of these studies focus in particular, but not exclusively, on the innovativeness of SMEs (Soosay et al., 2008). The level of research and development (R&D) expenditures in the agrifood industry, including traditional food, is rather low compared to total manufacturing (Barjolle and Sylvander, 2002). This is due to specific characteristics of the industry.

Analyzing innovation in the context of the traditional food industry is a complex task due to the strong links of the industry with the different sectors of the food chain. In many cases, food companies rely more on suppliers for technological innovations rather than on internal efforts (Gellynck and Molnar, 2009). For example, the industry has links with various non-food sectors such as chemicals, food technology. Packaging, machinery are areas where high levels of innovations are achieved. More over the sector is comprised of various subsectors with distinctive characteristics. Some of the major subsectors include traditional fruits and vegetables, dairy products, beverages, snack foods, flour and bakery products, confectioners, fats and oils. Even between subsectors significant differences seem to exist in terms of innovative performance.

Traditional manufacturing SMEs are these that are participating in the food chain producing traditional food products, used and defined according to four criteria:

1. The key production steps of a traditional food product must be performed within a limited geographical area, which can be national, regional or local
2. The traditional food product must be authentic in it recipe (mix of ingredients), origin of raw material, and / or production process
3. The traditional food product must have been available in traditional local use for at least 50 years
4. The traditional food must be part of the local gastronomic heritage

The case of traditional food products is not yet extensively analyzed from the chain perspective, with some noteworthy exceptions (Raynaud et al., 2005; Jordana, 2000). Furthermore, there is still a great need for research on innovations in traditional food products (Matopoulos and Bourlakis, 2011), taking into account the rather anonymous character of tradition and innovation. Recently, the trend of the tradition products is extremely important since their consumption is considered part of the Mediterranean diet; they include valuable nutritional properties, and are therefore appealing to the international market. For those reasons these products are indeed recently marketed worldwide, with a certain success.

So far, only few studies are published that focus particularly on innovations in traditional food products (Jordana, 2000). Innovations in the traditional food sector strengthen and widen the market for traditional food products in accordance to the emerging problems, such as poor imitations and changing preferences and eating patterns towards more manufactured foods and convenience (Trichopoulou, Vasilopoulou, Georga, Soukara, & Dilis, 2006). Innovations in traditional food mainly pertain to product innovations, such as packaging innovations and changes in product composition, product size and form or new ways of using the product (Gellynck & Kóhne, 2008). Process innovations are less common, given their impact on the authentic identity of the product and its production process. Feasible applications relate to improving the production process in order to assure quality and traceability. Finally, the implementation of market and organizational innovations can be valuable for traditional food products but their potential is not yet realized or recognized by all chain members in the traditional food sector (Gellynck & Kóhne, 2008). With our study we aim to investigate a three year application of process, organizational, product and market innovation on two companies of the same traditional food chain and evaluate the outcome results. The methodology that will be used is based on specific management innovation technique (IMT), the "Innovation Radar" which has been developed and used in companies in the USA (Sawhney et.al. 2006), and in Nordic countries (Andersen

and Wolcott, 2014) but never in companies of the food sector. The innovation radar is a new framework which displays the 12 dimensions of business innovation anchored by the offerings a company creates, the customers it serves, the processes it employees and the points of presence it uses to take its offerings to market, thus helping companies with restricted view of innovation not to miss the opportunities. Overall, our study shines light to the following two research gaps namely: the use of the innovation radar on food companies of the traditional sector, and the effect on the innovation of the traditional food chain measured by the product outcomes.

2 METHODOLOGY

The case study involved two companies, part of the food chain in Lemnos' island, namely the firm A, and the firm B. The first one is in the traditional dairy, bakery, and confectionery subsectors of activity, while the second is in the agricultural subsector either as producing or as trading company. The size, the sales, and the other characteristics of these two companies A & B differ significantly ranging from 65 to 5 employees and from 5 to 1 million euros' sales accordingly providing thus a wide range of business characteristics, important for the extraction of valuable conclusions on the effectiveness of the applied management of Innovation (M.I.) method.

Company A

Firm A is a 20-year-old company operating in various subsectors of the traditional food sector. The company owns two small manufacturing plants located in the same field, including a small dairy plant, and a small bakery and confectionery plant. The production processes are mainly hand made in both plants. The dairy production employees 5 workers, while the bakery – confectionery production employees 32 workers. The company covers two parts of the food chain, the manufacturing and the distribution-retail, promoting and selling its products primarily through its own network of 10 retail shops within the island. In the distribution process 4 workers (as drivers) are employed together with 20 salespersons. The management unit consists of 6 employees, including the two owners of the company. Today the gross sales of the company are 5.000.000 euros, 35% of which are from the dairy products, and 65% from the bakery and confectionery products (it was 4.000.000 euros three years ago). The dairy products consist of three traditional local types *kalathaki* (the main Lemnos' cheese product), *melichloro*, and *kaskavali* produced exclusively in the island of Lemnos. The bakery products include many different kinds of Greek traditional daily used products such as Greek biscuits, breads, cookies etc. The confectionery products include Greek pies, and chocolate cakes etc. The supply of raw materials for all products is primarily from the island and only when there is no availability part from the rest of the Greek market. The sales of the products up to three years ago were exclusively within the island. The company didn't have any product with exclusive production locally or nationally at that time.

Three years ago, when the M.I. process was put in place the company didn't exhibit any innovation parameters, based on any of the 12 dimensions of the innovation radar shown in Table 1 (Sawhney et.al. 2006). However, the progress of the company during the past three years of M.I. application is extremely successful, since it is innovating already in eight out of the 12 dimensions. The first year of the M.I. application the company adapted a flexible, operational 5-year business plan for its growth and development innovating thus in the dimension of organization (Org). In the middle of the year the need for a competitive marketing plan agenda led the company to hire an external marketing company for major changes, innovating thus in the process dimension as well (Pro).

Following these structural changes, the objective of the company, assisted by the M.I. process, for the second year was: a) the more professional appearance of its products to the market(s), in order to be able to "export" them outside the island, and b) the systematic efforts for the production of new, exclusive, traditional product(s) appealing to the Greek market and elsewhere. Thus, with the assistance of the marketer, the company changed completely its logo, and the packaging of all of its products. The new logo was formed based on a rare, small, beautiful plant that grows in the button of the nearby sea, which has an attractive, unique color, is extremely resistant to changes, and it is named *krinaki*. With these initiatives the company innovated in the dimensions of offerings (Off). In the middle of the second year the first transactions outside the island to delicatessen shops of the country's main land were completed, selling mainly cheese products, and selected bakeries. Thus the company innovated along the customers need dimension too (C).

Table 1: Innovation performance, based on the innovation radar, of the companies participating in the M.I. process

Company	Years of M.I. Application	Dimensions of Business Innovation											
		Off	P	S	C	CE	VC	Pro	Org	SC	Pre	N	B
Company A	0												
«	1							X	X				
«	2	X	X		X			X	X	X		X	X
«	3	X	X		X			X	X	X	X	X	X
Company B	0												
«	1			X					X				
«	2	X		X					X			X	X
«	3	X		X	X	X			X		X	X	X

The need for radical innovation leading to the new product development, namely traditional, exclusive product appealing to customers became from the first year of the M.I. process a necessity for both participating companies A and B. The strategy adapted was based on the search and use of rare, "forgotten" local raw agro-materials to be used for the production of innovative, end products. This could be achieved by the collaboration of companies A&B, part of the same bakery food chain, and it was implemented starting from the second year of the M.I. process with the cultivation of an old wheat, and the production with it of an exclusive, innovative, new bread named *"The Mavragani of Lemnos"*. With this initiative company A managed to innovate along with the dimensions of platform (P), supply chain (SC), brand innovation (B) as well as networking (N) with radical innovation achievement (product innovation) this time.

During the third year period the company managed to position its products more in the national market, in more delicatessen stores and two major super markets, with more than 300 retail stores in the chain. Thus, the company innovated finally at the presence dimension too (Pre).

The innovations in all the dimensions achieved continue since then with different innovative activities yearly. The increase of sales from 4.000.000 euros to 5.000.000 euros, retaining the same number of employees is the net result so far of the M.I. application presented above, which is extremely significant in view of the long-term economic crisis of the Greek economy. These innovative initiatives, indicate the dynamic the M.I. process generated into the company once it was applied successfully.

Company B

Company B is a 50 years old, very small company with 5 employees operating in the agricultural sector, producing and trading cereals, wheat, and barley, from and to the island. Up to three years ago the production activity was based on the cultivation of wheat, and barley using international seeds, for local use primarily, and on the trading activity bringing animal feeds to the island. The gross sales of the company were at 1.000.000 euros total. The level of innovation recorded at that time was extremely low at all dimensions. However, the entrepreneur's motivation for innovation, and the company's knowledge of the Greek market in terms of breeding processes, cultivation, existing seeds etc. was extremely significant and in depth.

The very first impact of the M.I. process was the formulation of a valuable, detailed five-year business plan with vision, strategy, and yearly actions, offering to the company the chance to innovate at the organization dimension first (Org). In order to expand its production capacity, the company initiated the collaboration with local farmers, via contract farming, signing agreements with them at the beginning of the season for the cultivation and the purchase of the produced products of specific agricultural, local products. The seeds were offered by the company in fall or spring, with the obligation to purchase 100% of the production produced in spring – summer, under the signed agreement. With this key-alliance with the farmers the company innovated at the dimensions of organization (Org), and solution (S), solving its long lasting problem of limited production capacity.

Based on increased market needs, the second year the company was able to move on with new agricultural products, associated with increased production supplied by the collaborating farmers. The

first such expansion of activity included an exclusive agreement with company A, stated above, for the cultivation of the *Lemnos' mavragani* wheat, used by company A for the production of the corresponding bread. This action initiated networking innovation (N) for company B. The company's capacity for expansion led to new directions namely to local, traditional, "forgotten" legume products too, the production of which was ceased for more than 30 years. During the second year the company started breeding and cultivating trails with the local legume genus *Lathirus Ochrus (Lemnos' fava)* of the family *fabacae*, adapting thus the dimension of brand innovation in the innovation radar progress (B). This legume was produced in the past as cheap food consumed by the middle class citizens, sustaining in life generations, during hard times of starvation and poverty. The initial trails were successful leading to organized, expanded production during the third year. With these actions the company initiated innovation in the dimensions of offerings too (Off).

The third year the *Lemnos' fava* (the new, "old" legume product) was produced in large scale, and was introduced successfully into the national market too, beyond the island territory. The market success was based upon the unique taste of the final food, and the memories the food ignited to the old generation of their young years when they were eating this exact food back then. This way the company managed to innovate in two dimensions at the same time that is customers (C), and customer experience (CE). The efforts for the promotion of products outside the island, even though at initial stages yet, are the first step for fulfilling the dimension of presence innovation too (Pre). An increase of 200.000 euros annually is the net result compared with the sales of three years ago, and it comes from the sales of these new products stated above.

3. RESULTS & DISCUSSION

We have recently developed a novel management of Innovation (M.I.) process which is indeed a valuable tool for wide use in almost all the food SMEs regarding size, sector of activity, and country of operation (Skalkos, 2012). It takes into consideration both the radical and incremental innovations, as well as closed and open innovation forms. It is a flexible application model which can be most useful now in the period of global and Greek crisis, as an effective tool for the survival, the sustainability, and the future of the companies affected mostly by the economic crisis and the shrinkage of the markets. The flexibility of the model is based on the fact that can be applied in every sector of business activity, every kind of companies, different places and time periods once it is adjusted in theory and in practice accordingly.

In this study we have tested the validity of the innovation model to the traditional food sector of activity by adjusting it respectively, and applying it to two selected small (company A) and very small (company B) companies for a 3-year time period. In this model the food chain from farm to fork is the business action line which supports the overall production and business capacity. The three-year intervention in these companies through systematic consultation resulted in significant progress on their innovation capacity. Using the scale proposed by the innovation radar, company A succeeded to innovate in 9, and company B in 8 out of the 12 dimensions as shown in Table 1. The radical innovation, end result of the process, is the new product development of the *Lemnos' mavragani bread*. The increased market demand over these years has risen the flour's production by 265%, and has supported the increased price by 20 cents per kilo, compared with the conventional bread. The nutritional properties found in the product, namely low level antioxidant, and antiatherogenic activities will strengthen more the added value of the product and its long lasting appeal among the local customers and beyond (Ableby et.al., 2014). The two companies are now designing together the production of more innovative, nutritional bakery products with the *Lemnos' mavragani wheat* which will be exported outside the island, will satisfy customers' needs and expectations more, and will provide more benefits for them and the local farmers. The overall results achieved in all levels of innovation: organizational, marketing, processing, and product prove that the M.I. research model proposed for the traditional food sector is valid providing tangible results on related businesses and products, within certain time period of application.

The 3-year pilot M.I application into the two selected traditional food enterprises, and the subsequent evaluation with the innovation radar proves the validity of the proposed model and point out to some very interesting remarks. . These are the following:

- The focus on innovation in the sector is not primarily in the single enterprise, but in the network the enterprises embedded in. This is in fact the conclusion derived for the food and other sectors of activities by other studies as well (Omta, 2004; Pittaway et al., 2004). Several recent studies have indeed pointed out that enterprises in the agrifood sector are highly dependent on external sources of information for innovation and hence have to open up their innovation process to their network (Enzing et al.; Sarkar and Costa 2008)

- New product development remains the major source of innovation, radical and incremental. Indeed, the new bread developed during the M.I. application was the major breakthrough of the overall companies' efforts.

- The implementation of the model, and its tangible results is not affected by the size of the companies, the subsectors of activity, the existing management, or the profile, and the culture of the entrepreneurs. The breakthrough of the model is based on the fact that is capable to put the companies into the right track of innovation, leading them to the production of new, unique products, increasing their gross sales and net profit.

- The key to successful implementation of the model lays to the experience and the proper training of the consultant who will undertake the development and the implementation of the M.I. plan for each company. He must have quite experience in order to be able to motivate the business structure, to bypass the obstacles to innovation, to reveal driving forces for innovation within the company, and to focus on the end results to be achieved. The character, the mentality, and the culture of the consultant are significant factors too for the end success of the M.I. application as well.

- The utilization of the traditional food products as the innovative, nutritional, appealing foods of tomorrow has not been explored up today. The reason is the low market image of these products up to now, and the focus of the big manufacturing companies to massive, easy, low cost productions. However, recently the value of the traditional, regional food is more and more realized due to:

a) the consumers' change to more authentic, real, local, innovative goods, caused by social media, and communication,

b) the new marketing (the marketing 3) which focuses on the hurt of the customer rather than its brain,

c) the economic long lasting crisis affecting the global market.

This work shows that the development of new, regional, nutritional, neglected foods, attractive to the market is a feasible strategic approach once every part and objective of the food chain is carefully prepared and implemented. Food chain is a major business sector in most economies especially those of the less developed regions (Kaditi, 2013). Therefore, the input of such an effort significantly contributes in a realistic way to both regional economic growth and public health promotion.

4. CONCLUSIONS

As a discipline, innovation management is, as mentioned, young compared to, for example, accountancy's more than 500 years of history or the science lab's 75 to 100 years. It is therefore not surprising that in spite of the massive focus on innovation management in business, at business schools, and in economics, it is still not executed and understood very well in many organizations. Another factor complicating our understanding of innovation management is that the term "innovation" has no shared meaning in the way that science or marketing have. In fact innovation has, for decades, been seen in the context of the research; just think about how often the two are presented as research and development or innovation (R&D) departments by organizations. But what exactly is innovation? Although the subject has risen to the top of the CEO agenda, many companies have a mistakenly narrow view of it. They might see innovation only as synonymous with new product development or traditional research and development. But such myopia can lead to the systematic erosion of competitive advantage, resulting in firms within an industry looking more similar to each other over time. Best practices get copied, encouraged by benchmarking. Consequently, companies within an industry tend to pursue the same customers with similar offerings, using undifferentiated capabilities and processes. And they tend to innovate along the same dimensions. But if all firms in an industry are seeking opportunities in the same places, they tend to come up with the same innovations. Thus, viewing innovation too narrowly blinds companies to opportunities and leaves them vulnerable to competitors with broader perspectives. In actuality, "business innovation*''* is far broader in scope than product or technological innovation, as evidenced by some of the most successful companies in a wide range of industries. Starbucks Corp., for example, got consumers to pay $4 for a cup of latte, not because of better-tasting coffee but because the company was able to create a customer experience referred to as "the third place"— a communal meeting space between home and work where people can unwind, chat and connect with each other

There are few reports on the innovation management techniques (I.M.T.) used to introduce innovation into companies such as the ones reported by Bakouros and Samara (2010), Hidago and Albors (2008), and Gupta (2011). We have recently developed and applied an I.M.T. with limited capacity at the organizational level for very small companies (Skalkos and Bakouros, 2011). The M.I. process which we have developed for food companies too is proven to be valid in this report based on its 3 year application and the results stated above. Therefore, it is a useful tool for innovation mamagers who are seeking for "on –hands" approaches and "practical tools". Managers don't have the

time to research available innovation tools or frameworks and systematically test them out as is the case of our reported project. The CEOs of the two participating companies have learned a lot from it and from meeting each other within the same project and such is the case with any other company and CEO who will decide to implement it. Another important insight is the educational aspect of introducing a new concept such as the innovation radar and business model innovation to companies managers. Yet it provides something different, conceptual ideas that are quite literally unrealistic and impractical, at least seemingly so in conventional terms. Managers with the application of the proposed model can learn by suspending their disbeliefs to entertain provocative ideas that can reshape their thinking. The proposed method turns for managers state of the art research and business concepts into a valuable managerial experience and tools since it is designed in an way that is meaningful for all parties involved.

Although there is still disagreement among economists and scientists about the notion of competition between nations, that systematic application of the proposed model to companies supports the view that company-level focused programs can change mind-sets for both innovation policies as well as outcomes. Sound evidence on the sources of technological and non-technological innovation, is found through firm-nalysis, which provides more details insight the country level analysis. Concerning policy makers and innovation programs some lessons from the application of the M.I. process include: (1) if the goal is to change the mind-set for what can be done and push boundaries, it makes sense to start with thorough research on "what is out there and what has already been done" and (2) start with a pilot project. Make sure that it is designed to be scaled up and make sure that the critical questions are evaluated for later documentation.

REFERENCES

Andersen, J.B., Wolcott, R.C. (2014) "The innovation radar and enterprise business system: Innovation in five Nordic countries and beyond" in Global innovation Science handbook, Gupta P., Truscko E (Eds), McGraw-Hall Education, ISBN: 978-0-07-179270-7, 581-602

Appleby-Efthymiadou S.M., Sakali A., Skalkos, D., Karantonis H.C. (2014) "The development of an innovative Lemnos' bread, exerting in vitro antioxidant and antiatherogenic activities", 3rd Intrnational ISEKI Food Conference, Athens, Greece, 21-23 May 2014.

Aramyan, L., Oude Lansink, A.G.J.M., Van der Vorst, J.G.A.J., Van Kooten, O. (2007) "Performance measurement in agri-food supply chains: a case study", Supply Chain Management: An international Journal, 12, 304-315.

Bakouros, Y., Samara, E. (2010) "Innovation management techniques: a strategic tool for SMEs in an innovative region", International Journal of Innovation Management, 2(2), 81-90.

Barjolle, D., Sylvander, B. (2002) "Some factors of success for origin labelled products in agri-food supply chains in Europe: market, internal resources and institutions" FAIR research project, Lemans, France.

Beamon, B. M. (1998). Supply chain design and analysis: Models and methods. International journal of Production Economics, 55(3), 281-294.

Beckeman, m., Skjoldebrand, C. (2007) "Clusters / networks promote food innovations", Journal of Food Engineering, 79, 1418-1425

Bourlakis M., Maglaras G., Aktas E., Gallear D., Fotopoulos C.,(2012) Firm size and sustainable performance in food supply chains: Insights from Greek SMEs, Int. J.ProductionEconomics152 112–130,2014

Bourlakis M., Weightman P.W.H. (2004)"Food Supply Chain Management", Blackwell Publishing.

Bourlakis M., Maglaras G., Fotopoulos C. (2012) "Creating a "best value support chain"? Empirical evidence from the Greek food chain", The International Journal of Logistics Management, 23(3), 360-382, 2012

Bourlakis M., Maglaras G., Gallear D., Fotopoulos C. (2012) "Examining sustainability performance in the supply chain: The case of the Greek dairy sector", Industrial Marketing Management 43 (56–66), 2014

Chen, I., & Paulraj, A. (2004). Understanding supply chain management: critical research and theoretical framework. International Journal of Production Research, 42(1), 131-163.

Enzing, C.M., Janszen, F.H.A., Omta, O.S.W.F. (2008) "The impact of the openness of the innovation process on the short term and he long term market performance of new products: evidence from mew product announcements of the Dutch food and drinks inudtsry", 8th International Conference

on Management in Agriffod Chains and Networks., Ede, The Netherlands, May 28-30, Wagenigen Academic Publishers.

Ferry Jie, Kevin A. Parton, Rodney J. Cox. (2013). "Linking supply chain practices to competitive advantage. An example from Australian agribusiness." British Food Journal. Vol.115. No 7. pp 1003-1024

Fischer, C., Hartmann, M., Reynolds N., Leat, P., Revoredo-Giha, C., Henchion, M., Gracia, A. (2008) "Agri-food chain relationships in Europe – empirical evidence and implications for sector competitiveness", in Mathijs, E., Verbeke, W., De Frahan, B.H. (Eds): 12th Congress of the European Association of Agricultural Economists (EAAE), Ghent, Belgium, August, 26-29.

Gellynck X., Kóhne, B. (2008) "Innovation and collaboration in traditional food chain networks" Journal on Chain and Network Science, 8(2), 121–129.

Gellyinck, X., Vermeire, B., Viaene, J. (2007) "Innovation in food firms: contribution of regional networks within the international business context", Entrepreneurship and Regional Development, 19, 209-226.

Gellynck, X., Molnar, A. (2009) "Chain governance structures: the European traditional food sector" British Food Journal, 111, 762-775.

J. Godfray,H. Charles, Ian R. Crute, Lawrence Haddad , David Lawrence, James F. Muir, Nicholas Nisbett, Jules Pretty , Sherman Robinson, Camilla Toulmin and Rosalind Whiteley, The future of the global food system, Phil. Trans. R. Soc. B (2010) 365, 2769–2777

Grunert, K.G. Jensen, B.B., Sonne, A-M., Brunso, K., Bynre, D.V., Clausen, C., Friis, A., Holm, I., Hyldig, G.,Kristensen, N.H.,Lettl, C.,Scholderer, J. (2008) "User-oriented innovation in the food sector: relevant streams of research and an agenda for future work", Trends in Food Science and Technology, 19, 590-602.

Gupta P. (2011) "Leading Innovation change – The Kottler Way", International Journal of Innovation Science, 3(3), 141-149.

Hidago, A., Albors, J. (2008) "Innovation Management Techniques and tools: a review from theory and practice" R&D Management, 38, 113-127.

HenkFolkerts and Hans Koehorst. 1997. "Insights from industry. Challenges in international food supply chains: vertical co-ordination in the European agribusiness and food industries." Supply chain management. Vol.2. No 1. pp 11-14

Jacobs, D., & Gallaher, D. (2004) "Whole grain intake and cardiovascular disease: a review" Current Atherosclerosis Reports, 6, 415-423.

Jordana, J. (2000) "Traditional foods: challenges facing the European food industry", Food Research International, 33, 147-152

Kaditi, E. (2013) "Market dynamics in food supply chains: the impact of globalization and consolidation on firms' market power", Agribusiness, 29(4), 410-425.

Ketchen, D.J., & Hult, G.T.M. (2007a). Bridging organization theory and supply chain management: the case of best value supply chains. Journal of Operations Management, 25, 573-580.

Matopoulos, A., Bourlakis, M. (2011) "Identifying innovation strategies: insights from the Greek food manufacturing sector", Int. J. Innovation and Regional Development, 3 (2), 159-173.

Mersiha Tepic, Frances Fortuin, Ron G.M. Kemp and OnnoOmta. 2014. "Innovation capabilities in food beverages and technology based innovation projects. British Food Journal. Vol. 116. No2. pp 228-250

Nikolaidis Y., Bakouros I., Skalkos D. "Innovative efforts of SMEs: exploring the barriers to successful implementation" Int. J. Innovation and Regional Development, 4(6), 509-535.

OECD (2005) "Oslo Manual – Guidelines for collecting and interpreting innovation data" Paris European Communities.

Omita, O.S.W.F. (2002) "Innovation in chains and networks", Journal on Chain and Network Science, 2, 73-80.

Pittaway, I., Robertson, M., Munir, K., Denyer, D., Neely, A. (2004) "Networking and innovation: a systematic review of the evidence", International Journal of management Reviews, 5-6, 137-168.

Raynaud, E. Sauvee, L. & Valceschini E. (2005), "Alignment between quality enforcement devices and governance structures in the agro food vertical chains" , Journal of Management and Governance, Vol 32, No 1, 99. 47-77.

Roy, S., Sivakumar, K., Wilkinson, I.F. (2004) "Innovation generation in supply chain relationships: a conceptual model and research propositions", Journal of the Academy of Marketing Science, 32, 61-79

Sanjeev Asthana.2009. "Supply chain connectivity and food distribution." Agro Enterprise without borders.

Sarkar, S., Costa, A.I.A. (2008) "Dynamics in open innovation in the food industry", Trends in Food Science and Technology, 19, 574-780.

Sawhney M., Arroniz I., Wolcott, R.C. (2006) "The twelve different ways for companies to innovate" MIT Sloan management Review, 47(3), 75-81.

Skalkos D., Bakouros, I. (2011) "Innovation management technique (IMT) for very small-enterprises: concept, development and application", Int. J. Innovation and Regional Development, 3(6), 573-603.

Skalkos D. (2012) "A novel innovation management process: for applications in fields such as food innovation", International Journal of Innovation Science, 4(4), 245-258.

Slappendel, C. (1996) "Perspectives on innovation in organization", Organizational Studies, 17, 107-129.

Soosay C.A., Hyland, P.W. Ferrer, M. (2008) "Supply chain collaboration: capabilities for continuous innovation", Supply Chain management: An International Journal, 13, 160-169.

Steven A., Melnyk, Ram Narasimhan and Hugo A. DeCampos. 2014. "Supply chain design: issues, challenges, frameworks and solutions." International Journal of Production Research. Vol. 52. No 7. pp 1887-1896

Trichopoulou A., Vasilopoulou E., Georga K., Soukara S., Dilis V. (2006) "Traditional foods: Why and how to sustain tem" Trends in Food Science & Technology, 17, 498-504.