

Innovation and Networks Collaboration in the Competitiveness of a Localized Agri-food System (LAS) of Artisan Bread

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Abstract

The objective of the research was to examine the role of innovation and collaborative networks on the competitiveness of the Localized Agrifood System "San Miguel Tecomatlan" (SMT-LAS) located central Mexico and formed by a concentration of Rural Agro-industry that produce artisan bread. SMT-LAS has its competitiveness in comparative and competitive advantages, the first are given by factors of location, the seconds have to do with the ability to efficiently use its resources and add value over time. These are strategies that derive from the innovative and entrepreneurial capacity of the actors in the SMT-LAS. We find product innovations, process, organization and market, which allow the system to cope with the changes and demands of the environment. Moreover, the existence of a dense network of relationships has led to the creation of a favorable environment for individual and collective learning.

Key Words: Rural Agro-industries, México, Artisan Bread.

Introduction

In the past three decades, the intensification of the globalization process and the evolution of the neoliberal economic model have generated substantial changes in the food industry: a) the dominance of transnational companies food is unquestionable; b) market segmentation increases; c) arise consumers with new demands in terms of quality and food safety; d) supermarket chains subjugate distribution channels; e) fast food chains compete with artisanal products (Boucher, 2012). This situation, outlines a panorama of great challenges for Rural Agro-industries (AIR¹), if taken into account its small production scale and location in areas with high rates of poverty and marginalization.

¹ Small units engaged in processing of agricultural products, characterized by the use of traditional technology, rudimentary equipment, adapted facilities, use of family labor, and local-regional marketing.

Localized Agri-food System (LAS) are models of organization of agrifood activities formed by concentrations of AIR. These link various individual elements (i. e. food, people, knowledge, resources, institutions, networks of relationships) forming an entity with its own structure. These are systems that articulate food production chain with specific territories, namely, with historically and socially constructed spaces, where individuals configured and appropriated of space, governed by guidelines and values that give meaning to their lives in society (Muchnik, 2012).

The competitiveness of the LAS is determined by their ability to activate specific resources, this is, those anchored territorially and hardly found elsewhere (Boucher, 2012). Competitiveness involves both comparative and competitive advantages (Barroso y Flores, 2006). The comparatives, in the case of LAS, are related to the ownership of productive factors explaining specialization in certain food products.

The competitive advantages have to do with the ability to use or mobilize resources in order to give added value. Essentially, they represent the incorporated elements that add value to agricultural production and empower the long-term profitability. They are consistent with permanent efforts to introduce innovations (Albuquerque, 2008; Barroso y Flores, 2006; Caravaca, *et al.*, 2005).

The competitiveness of a LAS it relates to processes of technological, organizational and institutional innovation (Pomeón y Fraire, 2011). Thereby, the insertion and permanency of LAS in current markets, depends on its ability to mobilize territorial resources, in a rational and efficient manner. In this sense, diverse research has highlighted the role of the processes of interaction of actors and innovation as factors affecting competitiveness (Méndez, 2002; Caravaca *et al.*, 2005). Innovation, understood as the ability to generate and incorporate knowledge (Caravaca *et al.*, 2005) facilitates response to changes in the environment, allowed the appellant adaptation.

Innovations can affect four factors: 1) Product, when there are changes in the characteristics or the use to which the goods or services are intended; 2) Process, means changes in production methods; 3) Organization, refers to changes in the organizational form of the AIR and can affect both the internal aspect (i. e. downsizing, worker training) as external (i. e. work in conjunction with other actors); 4) Market, consists of changes in aspects of promotion and marketing of goods and services offered (Álvarez, *et al.* 2008).

As a collective phenomenon, innovation is promoted by interpersonal ties. The combination of heterogeneous knowledge is the basis of the innovation process, because the interaction of actors triggered creativity and allows the generation of new ideas that could not have arisen in isolation. So that, a dense network of collaboration allows the combination of different types of knowledge whose origin involves a variety of factors from different places and backgrounds (Santos y De Gortari, 2011; Mattes, 2012).

Collaborative networks are the basis for building innovation processes. The continuous interaction promoted attitudes of trust that facilitate socialization and distribution of new knowledge, especially the kind of tacit (know-how) by nature more difficult to communicate. Further, interaction supported by the trust reduces transaction costs and uncertainty (Boschma, 2005).

In this sequence, this research considers as object of study, the “San Miguel Tecomatlan” LAS (SMT-LAS) located in central Mexico. It is sustained in a concentration of AIR that produce artisan bread; its distinction is the territorial anchorage (More than 100 years of production) and consumption in local-regional markets (López y Fraire, 2013). Is a LAS that has remained over time and has adapted to the changing environment. In brief, the question that addressed research was: What is the role of innovation and collaborative networks on competitiveness of the SMT-LAS The objectives were: a) characterize the SMT-LAS; b) examine the role of innovation and collaborative networks on competitiveness of the SMT-LAS.

Methodology

To fulfill the objectives, methodology was divided into three stages. The first considers fieldwork through semi-structured interviews with key players of the SMT-LAS (i. e. agribusiness producers, input suppliers, intermediaries, support agencies), with the aim of identifying, interaction networks, innovation processes and knowledge transfer. In addition, questionnaires were applied in 36 AIR representing 30 % of total. The questionnaire was divided into four sections: 1) general information, 2) characteristics and technical-productive innovations, 3) marketing, 4) coordination with other actors in the SMT-LAS.

In the second stage, it characterized the SMT-LAS, following the methodology of Boucher and Reyes (2011), which considers four analytical stages, however, by the characteristics of the research only diagnosis phase was used. The historical construction of the SMT-LAS was examined, the characteristics of AIR, competitive and comparative advantages. In a third stage, innovation processes and collaborative networks in accordance with the model shown in Figure 1 are analyzed. The competitiveness of the system depends on the valorization of their specific resources through interaction networks and innovation. We considered innovations in products, processes, organization and market, which were evaluated depending on the age and size of AIR: 1) antiqueness, differentiating between "Resident AIR" (those with more than 10 years in the territory) and "New AIR" (those with 10 years or less in the territory); 2) the size of the AIR, distinguishing between "Familiar AIR" (those with exclusively family labor) "microenterprise-AIR" (those with hired labor).

Moreover, depth of innovation was examined: incremental or radical. An innovation is considered radical, when knowledge for its emergence is totally different from existing, and does obsoletes prior knowledge, for instance, the introduction of a new good that until that moment was not offered to consumers. On the other hand, incremental innovations are based on "knowledge to use", for instance, minor changes in the taste of food (Álvarez, et al. 2008). Finally, to analyze collaborative networks, we identified actors interacting in the SMT-LAS (agribusiness producers, suppliers, customers, non-governmental organization, and government agencies) and qualitative characterization of the relations between actors (economic, social, kinship, trust, cooperation or competition).

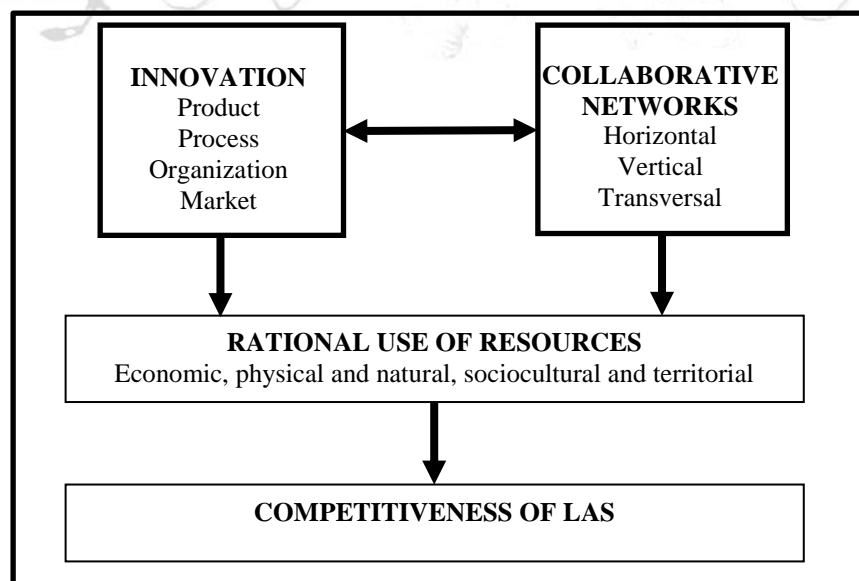


Figure 1. Analysis model of collaborative networks and innovation in competitiveness of LAS

Source: Caravaca *et al.* (2005), own modification.

Results and Discussion

Main features of the LAS “San Miguel Tecomatlan”

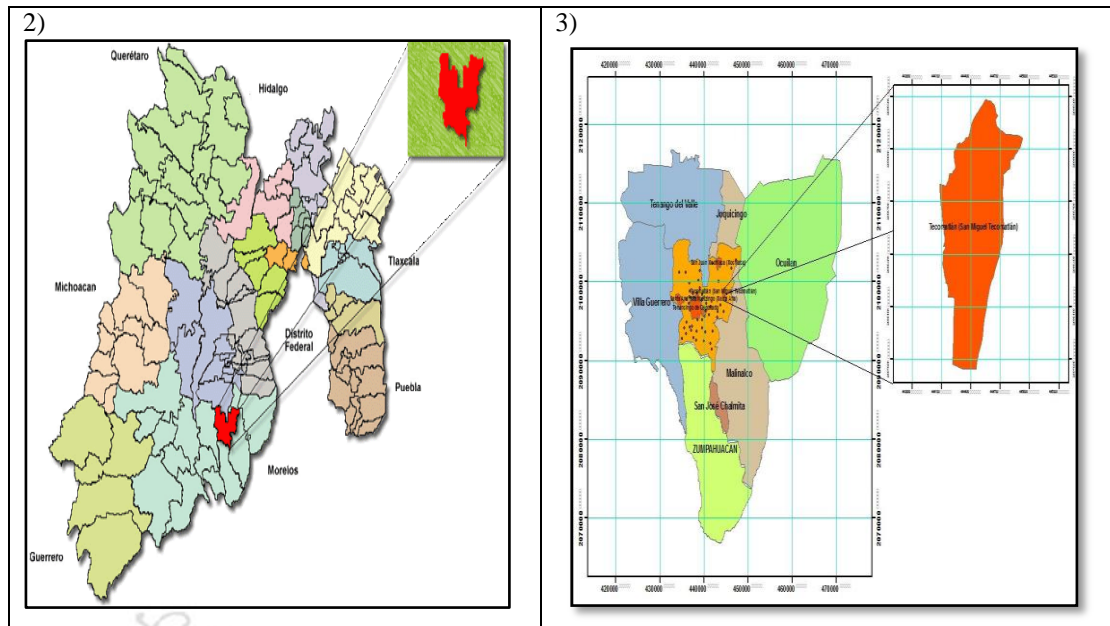
The SMT-LAS is located in the municipality of Tenancingo, south of the State of Mexico in the center of the Mexican Republic (Figure 2). It is estimated that making bread is performed from the mid-nineteenth century, Tenancingo at that time was the main producer of wheat in the State of Mexico (Castro, 2003). The availability of wheat flour in the territory favored the emergence of the first AIR. In decades after the Mexican Revolution (1920-1940) the remarkable wheat agriculture in the region gradually disappeared, replaced by floriculture and fruit production (avocado and peach). Notwithstanding, the AIR increased through the bread consumer acceptance. Since then, the wheat flour used in SMT-LAS comes from elsewhere in Mexico: Toluca City, Mexico City and the Bajío region (Guanajuato, Michoacán and Jalisco). Currently there 117 AIR in SMT-LAS (INEGI, 2012) employing more than 400 people. The AIR are located inside the house of each producer-baker, making bread is a family activity where parents and children participate. Generally, family father acts as a business leader and is responsible for purchasing raw material, coordinate and implement activities kneading, formed and baking of bread, in addition to marketing. The average age of bakers is 48 years with a standard deviation of 14.1, revealing the presence of young bakers who have taken over the family business or have started their own business.

The varieties of bread products made in SMT-LAS are derived from ingredients and similar procedures: a mixture of wheat flour, water, vegetable shortening, yeast and sugar; It is passing through a process of kneading, fermented, divided, weighed, and formed; rest, cutting and cooking. There are five main varieties: “cocoles”, “tortas”, “pan de muerto”, “mestizo” and “carreta” (Figure 3). Among the peculiarities of bread we can mention the absence of chemicals (preservatives, colorings and flavorings), a long shelf life and baked in ovens made from stones, bricks and “adobe²”. In the tradition of consumption among the population of region, it is known as “Pan de Teco”. Its consumption is mainly local-regional, although some bakers manage to sell in neighboring states (Morelos, Mexico City, Michoacan and Guerrero). Due to variations in the production of bread among different AIR, the exact amount of bread made in the SMT-LAS is not known, however, derived from interviews with key actors, a weekly consumption of 21 500 kg of wheat flour is estimated.

Figure 2. Location of SMT-LAS



² Mass of mud (clay and sand) mixed with straw, molded in the form of brick and sun-dried.



Source: INEGI, 2015; 1) State of Mexico at the national level; 2) Municipality of Tenancingo at the State level; 3) SMT-LAS at the municipal level.

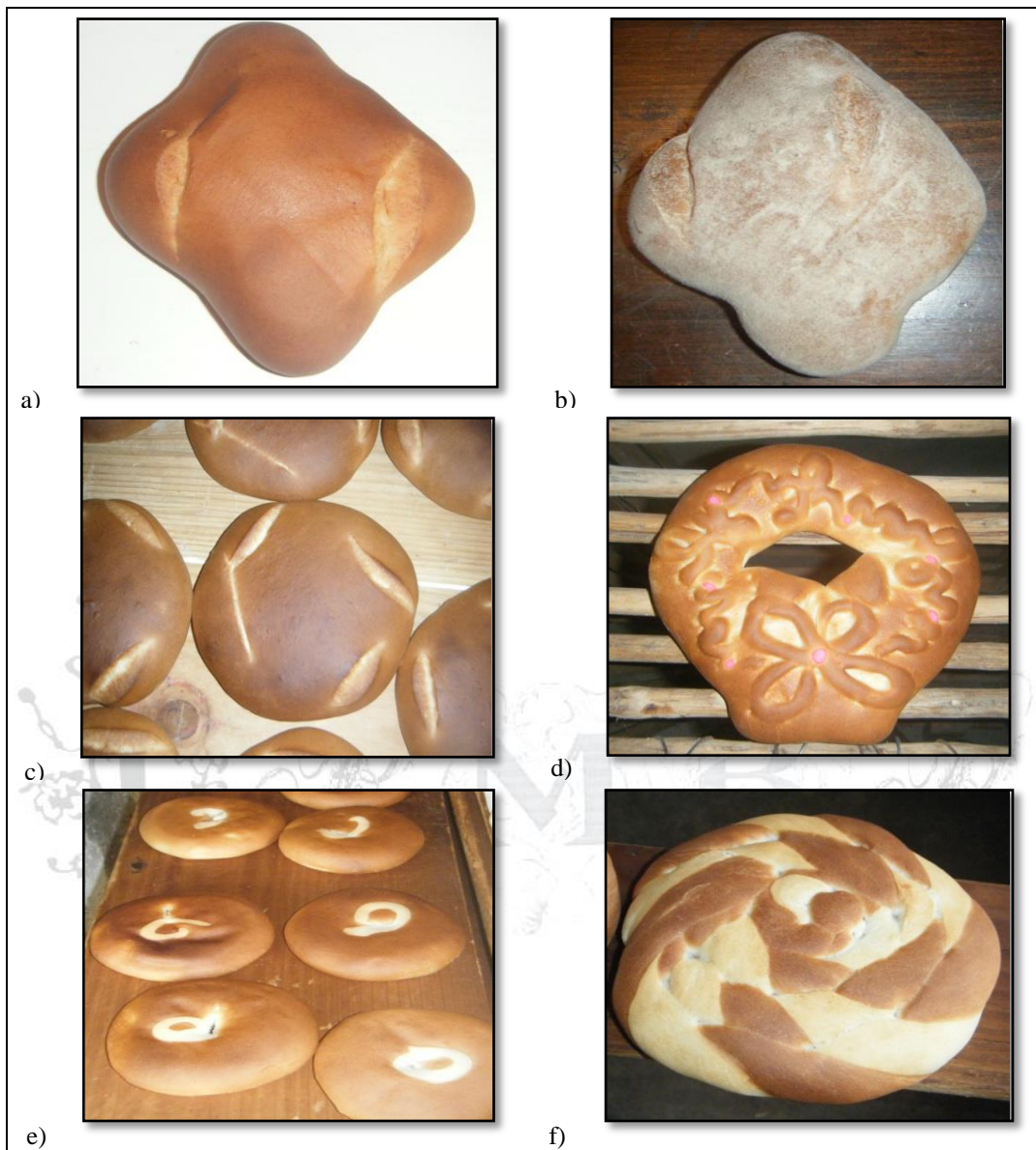
Competitiveness in the SMT-LAS

Competitiveness in the SMT-LAS is based on comparative and competitive advantages. The comparative advantages have to do with the possession of specific productive factors explaining specialization in the production of bread. A determining factor is the space, punctuated by the physical proximity of SMT-LAS with marketing centers (120 kilometers from Mexico City, the main center of consumption in the country and 50 kilometers of Toluca, capital of the State of Mexico), it is providing advantages in terms of distance / time and distance / cost. In addition to this, the road network facilitates access to markets, in the region it has free federal highway # 55 Mexico-Taxco, its importance lies in connecting the cities of Toluca, Taxco and Mexico, along with neighboring municipalities: Ixtapan de la Sal, Tonatico, Villa Guerrero, Tenancingo, Tenango del Valle. Road infrastructure, allows the acquisition of raw materials, inputs and equipment.

Another advantage is linked to the presence of a know-how rooted in the territory, that is, a set of tacit knowledges on production processes and marketing bread. They are knowledges generated through time, by recursive trial and error. They are hardly codifiable therefore their transmission is based on personal interaction face to face. In this regard, are a specific resource that are not available elsewhere. The know-how in SMT-LAS is transmitted generationally and condenses gradual learning processes about consumer preferences.

The geographical concentration of AIR is also a competitive advantage that favors interactions between actors of the SMT-LAS (intentional or unintentional). In the 0.8 km² that comprise the LAS 117 AIR are located, a high density when compared to reports Correa (2004) cited by Muchnik (2006) in clusters of AIR dedicated to the production of sour cassava starch in Colombia and cheese making in Ecuador 0.03 and 0.04 production units / km², respectively. The spatial proximity produces externalities that can be both beneficial: availability of labor and suppliers, access to innovations without cost (by observation) as harmful: tensions and conflicts between actors.

Figure 3. Variety of bread made in SMT-LAS



Source: own elaboration. a) “Cocol” natural flavor; b) “Cocol” anise flavor; c) “Torta”; d) Pan de “muerto”; e) “Carreta”; f) “Mestizo”.

In contrast, competitive advantages are related to the ability to use or mobilize resources, give added value to the production of bread and allow long-term profitability. These advantages derived from the ability to generate innovations in product, process, organization and market. Bread of SMT-LAS has remained over time, as a food recognized by the population of the region, involves tradition and identity. Nevertheless, innovation has been required to increase production example is the use of gas ovens and kneaders. In addition, the introduction of innovations allows to detect opportunities and respond to the challenges of the environment.

Innovation in the SMT-LAS

It was found that 83.33% of AIR are resident and only 16.67% are considered as new. From the total of enterprise-residents 53.33% is familiar type and 46.67% microenterprise type. In the new AIR 83.33% is considered familiar type and 16.67% microenterprise type. To examine innovation factors, we considered that AIR carry out innovations in product when they make bread in more than five different flavors (diversification). Process innovation: 1) when AIR use "kneader" in the work of kneading to replacing manual work and 2) when AIR use gas as fuel for the bakery oven to replace firewood. Organizational innovation when AIR are involved in the Artisan Bakers Tecomatlan Association. Finally, market innovation when AIR use own transport to marketing activities replacing leased transport (Table 1).

Table 1. Factors Innovation by AIR Type

Type AIR		Factors innovation (% AIR)				
		Product	Process (kneader)	Process (gas)	Organization	Market
Resident	Family	37.5	75.0	75.0	12.5	43.8
	Microenterprise	42.8	92.8	92.8	35.7	50.0
New	Family	80.0	100.0	60.0	20.0	60.0
	Microenterprise	100.0	100.0	100.0	0.0	100.0

Source: own elaboration

Due to product innovation involves changing flavors of bread is considered incremental type, AIR are gradually adapting the flavors according to consumer acceptance or rejection. The new AIR are the most prone to this type of innovation, however, AIR residents (especially microenterprise type) also make modifications to the flavors to compete in the market. Product diversification allows companies to offer a basket of goods that meets the multiple needs of the consumer. We identify more than 10 different flavors of bread being the most popular: chocolate, butter, orange, strawberry and anise.

Process innovations are considered radical type, because they are modifications that have substantially altered the production process and product characteristics. First, the introduction of kneader has reduced labor costs and has increased production levels. Although new AIR are the most prone to this type of innovation, a high percentage of resident so does. Similarly, the use of gas as fuel in place of firewood made more efficient production process, however, it has also modified the organoleptic characteristics of bread.

Organizational innovation is also considered radical because the formal organization between AIR involves significant changes in business administration, for example, for joint work, attend meetings or coordination for purchase of inputs and sale of product. A small percentage of AIR presents organizational innovation, particularly micro enterprises-residents; experience in the business and the availability of capital may be the factors that allow them to solve new collective projects. In this regard, the Association of Bakers has had significant achievements: financing for equipment purchases and construction of bakery ovens, joint purchase of wheat flour and block sales to supermarkets. This allows producers of bread respond to adverse environmental conditions: increased costs of raw materials, new consumer trends, competition from large companies.

Finally, market innovation is seen as radical, have own transport allows to AIR sell their products more easily, find new retail locations, at different times and reducing freight costs. The microenterprises-AIR residents and new have high percentages in use own transport, situation is related to their greater availability of capital. On the contrary, Familiar AIR residents do not perform this type of innovation, limiting their sales to the local level and the dependence on intermediaries.

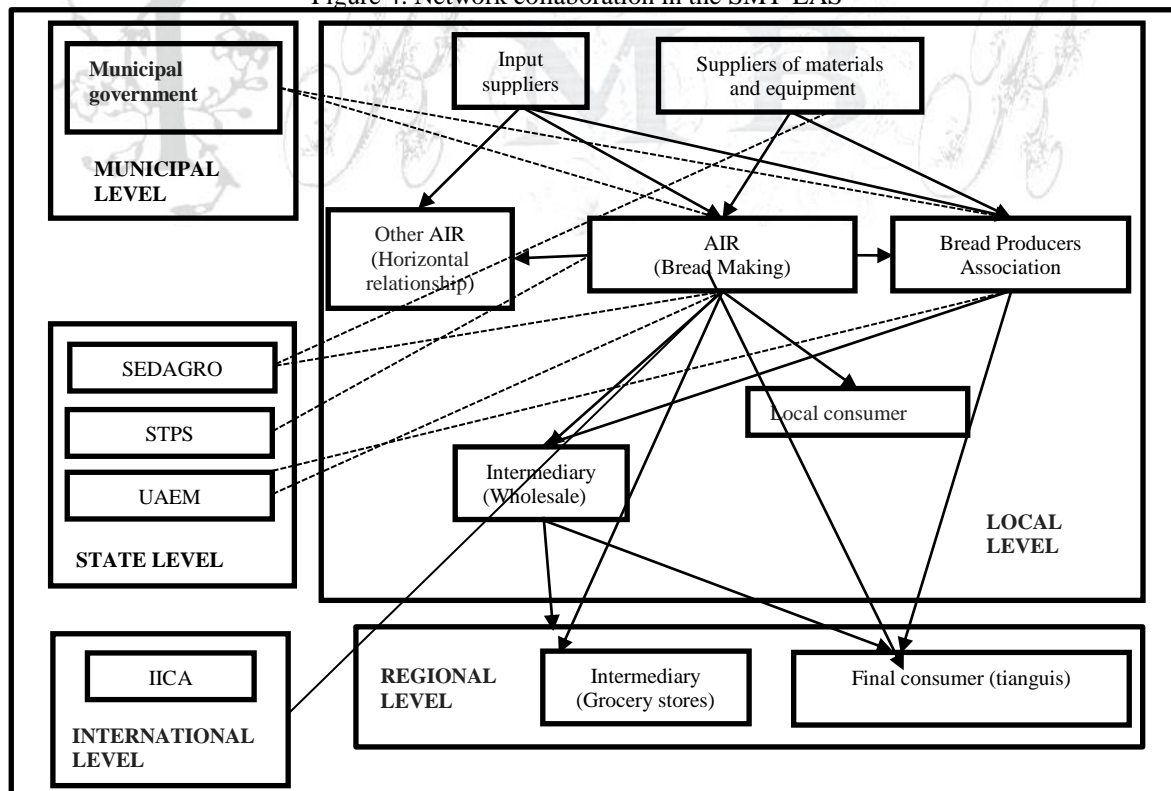
Collaborative Networks in SMT-LAS

The interactions of actors support the SMT-LAS structure, the horizontals are held between producers-bakers, verticals with suppliers of raw materials and inputs (backward) and with intermediaries or clients for the sale of products (forward). Not forgetting the transversals, with external actors: government institutions and universities (Figure 4). These links are channels where circulates information, knowledge and ideas that promote productive and commercial learning.

Horizontal relationships are characterized by attitudes of distrust and indifference, in this tenor 42% of bakers considers its relationship with other bakers as a competition and 32% think that their relationships are a "good neighbor" that is, they do not consider other bakers as competition, but neither perform acts of cooperation of any kind. To a lesser extent, informal collective actions were detected, 12% of bakers said that exchanges information about the business (prices of raw material and finished product) with other producers, in addition, 14% carried out loans of equipment, materials and raw materials, showing the existence of a network of informal cooperation which promotes confidence and participation in communication, resulting in spills knowledge "word of mouth".

Formal collective actions which are essential for the development of a LAS (Boucher, 2006), are detected through the Artisan Bakers Association. This is a group created in 2008, with significant achievements during the first two years of operation. However, currently it has an intermittent performance by problems between partners and debt with a supplier of flour. This type of organization is relevant because it promotes constant interaction and involves rules and routines shared that reduce uncertainty and enhance the flow of knowledge (Torre y Rallet, 2005).

Figure 4. Network collaboration in the SMT-LAS



Source: own elaboration. Based Caravaca y González (2003).

In vertical relationships, the production chain of bread is shaped by: input supply, production, marketing and consumption. The raw materials are obtained in the SMT-LAS, in stores dedicated to selling wheat flour, yeast, shortening, sugar and bags to pack. Firewood for bakery ovens is provided by persons engaged in logging in the region, for bakery ovens that use gas, there are companies that supply the fuel. Generally ovens are built by stonemasons of the locality. Equipment such as mixers, slicers and bascule, are purchased in specialty stores in the city of Toluca and Mexico City. Tools such as shovels, troughs, wooden tables, racks, are acquired in the municipality of Tenancingo.

Relations between bakers and suppliers are defined in 67% by agreements word; 22% of bakers purchase raw materials by credit signing a promissory note to eight days. In general, there are trusting relationships that go beyond an economic transaction, involving friendship, solidarity and reciprocity. Providers transmit information on prices of raw materials and all related with new ingredients, materials, equipment and market activity bakery. They are an affordable source of knowledge and a channel of communication between the SMT-LAS and its surroundings.

Marketing bread is done through two channels: direct to the consumer at tianguis³ (72%) and sales to intermediaries (19%). Tianguis with greater presence of bakers are located in the municipal centers of neighboring municipalities: Tenango, Xalatlaco, Santiago Tianguistenco, Ocuilan, Toluca and Metepec. Marketing through intermediary can occur in two ways: through grocery stores to "resell" the bread and through wholesaler intermediary who also sells at tianguis and stores. Relations between bakers and consumers are informal, dominated by attitudes of trust and loyalty, 71% of bakers have word agreements with consumers. In the tianguis, consumers recognize to bakers by the place of sale and the bread purchase depends on the quality. On the other hand, 28% of producers not related with buyers beyond the economic transaction and only 1% have sales through a written contract.

The transversal interaction with consultants, technicians, government officials and researchers, results in technical assistance, training, financing, links with experts, organization and participation in exhibitions. This involves transfer of knowledge, ranging from how to approach to ask for a subsidy, improved capabilities for managing production units to new technologies for the production of bread. These are processes that allow assimilation, integration and utilization of scientific and technological knowledge relevant to meet the changing demands of the food market.

The presence of government institutions in the SMT-LAS is limited, the Secretariat of Agricultural Development of the State of Mexico (SEDAGRO) has awarded funding to bakers to build ovens and buy equipment. The Secretariat for Labour of the State of Mexico (STPS) advised on the legal constitution of the Association of Bakers. Municipal government of Tenancingo through the Tourism Delegate Council provide financial support to attend exhibitions, for example, the annual exhibition in the Federal House of Representatives and fairs municipal. However, only 36% of AIR reported receiving support from these institutions.

The Autonomous University of the State of Mexico is linked to the SMT-LAS through research, there are currently four theses that address issues related to the production of bread. Finally, in 2012 some bread producers participated in a project sponsored by the Inter-American Institute for Cooperation on Agriculture which sought to promote territorial development in the municipality by creating a municipal committee artisans (López y Fraire, 2013).

Clearly, the network of interactions between actors SMT-LAS is marked by relations of competition and collaboration. Not only between AIR, but also with governmental, academic and economic actors. These ties are key to the dissemination, transfer and decoding of experiences, information and knowledge. Also these constitute the basis for the synergistic work in trying to solve collective problems.

³ Small market, which is installed periodically on the street.

Conclusions

Competitiveness and permanence in time of SMT-LAS are based on comparative and competitive advantages. The first are given by factors of location: accessibility to consumer centers, physical infrastructure, natural resources, AIR concentration. They are elements that determined the initial situation and have formed the basis for evolution. However, in an environment of intense globalization and trade liberalization, these advantages are not enough to competing in the market. Consequently, the SMT-LAS has continually sought the best possible use of their initial resources to move from comparative advantages to competitive advantages.

The competitive advantages have to do with the ability of SMT-LAS to use its resources efficiently and add value over time. These are dynamic strategies derived from the innovative and entrepreneurial capacity of enterprises and from forms of collaboration between the actors LAS that promote the dissemination of knowledge, collective learning and capacity to develop common projects that provide solutions to their problems. In SMT-LAS these strategies have targeted: to make the production process more efficient, reducing costs and increasing production capacity; to meet the diverse needs of the consumer via product diversification; to face the increase in commodity prices and current marketing trends, via collective buying and selling.

Innovation has enabled the SMT-LAS respond to a changing environment creatively and dynamically. Its actors have been able to identify, integrate and reconfigure knowledge necessary to give value to their specific resources. They have combined tacit knowledge (know-how) with scientific and technological knowledge. The existence of a dense network of relationships has led to the creation of an environment conducive to the emergence and spread of new ideas, which favors logic of individual and social learning. Collaboration and innovation networks, are dynamic elements that influence the competitiveness of SMT-LAS thanks to its ability to impulse the conversion and exploitation of specific resources.

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References

- Albuquerque, F. (2008). Innovación, transferencia de conocimientos y desarrollo económico territorial: una política pendiente. *ARBOR Ciencia, Pensamiento y Cultura*, CLXXXIV 732, pp. 687-700
- Álvarez, A., Rego G., Leira J., Gomis A., Caramés, R. y Andrade, M.J. (2008). Innovación turística: perspectivas teóricas y objetos de estudio. *Revista de Ocio y Turismo*. Núm. 1. pp. 19-50
- Barroso, M. & Flores, D. (2006). La competitividad internacional de los destinos turísticos: del enfoque macroeconómico al enfoque estratégico. *Cuadernos de Turismo*. Núm. 17, pp 7-24.
- Boschma, R. (2005). Proximity and Innovation: A Critical Assessment. *Regional Studies*. Vol. 39.1, pp. 61-74.
- Boucher, F. (2012). Reflexiones en torno al enfoque SIAL: evolución y avances desde la agroindustria rural (AIR) hasta los sistemas agroalimentarios localizados (SIAL). In: Torres, G. y Larroa, R. M. (Coord.) *Sistemas agroalimentarios localizados. Identidad territorial, construcción de capital social e instituciones*. México, Universidad Nacional Autónoma de México.
- Boucher, F. y Reyes, J. A. (2011). *Guía metodológica para la activación de sistemas agroalimentarios localizados*. IICA, CIRAD, REDLAS México-Europa. México: IICA
- Boucher, F. (2006): "Agroindustria rural y sistemas agroalimentarios locales. Nuevos enfoques de desarrollo territorial" Ponencia presentada en el III Congreso Internacional de la red SIAL "Alimentación y territorios" Baeza (Jaén), España, 18 – 21 de Octubre 2006

- Caravaca, I., González G. y Silva R. (2005) "Innovación, redes, recursos patrimoniales y desarrollo territorial" en *EURE*. Vol. 31, No. 94, pp.5-24.
- Caravaca, I. y González G (2003). Redes e Innovación Socio-institucional en Sistemas Productivos Locales. *Boletín de la A.G.E.* Núm. 36, pp. 103-115
- Castro, D. P. (2003). *Chayotes, Burros y Machetes*, El Colegio Mexiquense, México, 488 pp.
- Instituto Nacional de Estadística y Geografía INEGI (2015). Mapoteca Digital. Available in: www.cuentame.inegi.gob.mx
- Instituto Nacional de Estadística y Geografía INEGI (2012). Directorio Estadístico Nacional de Unidades Económicas.
- López, J. y J. A. Fraire (2013) Activación territorial con enfoque de sistemas agroalimentarios localizados (AT-SIAL): Tenancingo, México. Instituto Interamericano de Cooperación para la Agricultura (IICA), 88 pp.
- Mattes, J. (2012). Dimensions of Proximity and Knowledge Bases: Innovation between Spatial and Non-spatial Factors. *Regional Studies*. Vol. 46.8, pp.1085-1099.
- Méndez, R. (2002). Innovación y desarrollo territorial: algunos debates teóricos recientes. *EURE*. Vol. 28, Núm. 84.
- Muchnik, J. (2012): "Sistemas Agroalimentarios Localizados: desarrollo conceptual y diversidad de situaciones" En: Torres, G. y Larroa, R. M. (Coord.) *Sistemas agroalimentarios localizados. Identidad territorial, construcción de capital social e instituciones*. México, Universidad Nacional Autónoma de México.
- Muchnik, J. (2006): "Sistemas agroalimentarios localizados: evolución del concepto y diversidad de situaciones" Ponencia presentada en el III Congreso Internacional de la red SIAL "Alimentación y territorios" Baeza (Jaén), España, 18 – 21 de Octubre 2006
- Poméon, T. y Fraire J. (2011). SIAL: un enfoque para el desarrollo territorial. *Cuaderno de trabajo 5*. Instituto Interamericano de Cooperación para la Agricultura (IICA).
- Santos, M.J. y De Gortari, R. (2011) Tejiendo apoyos: capital y conocimientos para las microempresas rurales. En De Gortari, R. y Santos, M.J. (Coords.) *Aprendizaje e innovación en microempresas rurales*. México, D.F. UNAM.
- Torre, A. y Rallet, A. (2005). Proximity and Localization. *Regional Studies*. Vol. 39.1, pp.47-59.