

Vinculación universidad empresa. Innovación para la diversificación de mercados en cacao

Business-University Links. Innovation for the diversification of cocoa markets

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Resumen

Actualmente en nuestro país las empresas con capital nacional presentan una fuerte desventaja económica respecto a las empresas transnacionales principalmente por el capital, las tecnologías de la información y las economías de escala; la brecha se hace aún más grande cuando las empresas no se dedican a la transformación de productos sino solo a la comercialización o cuando las empresas presentan procesos productivos que les permiten ofertar productos que solo son materia prima para otras industrias del sector. Este artículo permite mostrar un caso de éxito en el sector de alimentos en México en donde una empresa del ramo de cacao que produce materias primas para la industria de alimentos como son: chocolate, cocoa, licor y manteca de cacao puedan diversificar sus operaciones mediante el desarrollo tecnológico y la innovación para generar productos con mayor margen de utilidad al no ser insumos primarios de toda la industria de alimentos como es el caso de las coberturas de chocolate para los segmentos medio y alto lo que permiten tener un margen de utilidad más interesante.

A través de la elaboración de un plan tecnológico se pudo analizar y determinar la viabilidad de la implementación de una planta piloto para la elaboración de cobertura de chocolate, mediante la adición de un proceso productivo a lo que ya venía desarrollando la empresa; así mismo se

desarrollo el estudio de mercado, el cual ayudó a la detección de los nichos de mercado potencialmente viables para el proyecto, determinación de quienes producen a nivel nacional cobertura de chocolate de mediana y alta calidad, los principales exportadores de ésta así como los principales demandantes. El monitoreo tecnológico sirvió para seleccionar las mejores tecnologías para la incorporación del nuevo producto y desarrollo del proceso, permitiendo no solo de ésta manera la diversificación de productos de la empresa sino también la reconfiguración de la cobertura que el mercado demanda en diversas presentaciones.

La cobertura de chocolate de mediana y alta calidad, de más de dos presentaciones comerciales obtenida como resultado de ésta implementación de un plan tecnológico actualmente es comercializada con los principales demandantes de éste sucedáneo a nivel nacional y utilizado por éstos en sus procesos productivos y productos.

Como conclusión puede observarse cómo la tecnificación e innovación dentro de las empresas les permite seguir siendo competitivas en éste entorno global en el que actualmente se encuentran sumergidas, sin significar esto el abandono de su esencia como empresa sino la apertura de nuevas oportunidades que potencialmente existen dentro de éstas pero que muchas veces los empresario o altos directivos temen explotar.

Palabras clave: Innovación, vinculación, diversificación.

Abstract

At present in our country with national capital companies present a strong economic disadvantage with respect to transnational corporations mainly by capital, information technology and economies of scale; the gap is even larger when companies are not dedicated to processed products but only to marketing or when companies have production processes that allow them to only offer products that are raw material for other industries.

This article allows you to show a case of success in the food sector in Mexico where a company in the industry of cocoa which produces raw materials for the food industry such as: chocolate, cocoa liquor and cocoa butter so they can diversify their operations through technological development and innovation to generate products with higher margin of utility not to be primary

inputs in the food industry as it is the case of the covers of chocolate for the middle and high segments which allows to have a more interesting profit margin.

Key words: Innovation, linking, link, diversification

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Introduction

Cocoa has been a grain of great historical importance in our country, In addition to be appreciated globally not just for its flavor but for the multiple nutritional benefits as folic acid, antioxidants, serotonin, and anandamide (substance capable of generating a sense of natural pleasure), according to Naranjo (2011), this has led to that in many countries it is considered a luxury product. Therefore it is not strange that the demand for this product, this presenting an increase in recent years Naranjo (2011), which from different formulations as presentations may be accessible to the public in general.

The expansion of the use, cultivation and marketing of cocoa has given way to a new market, which is governed by the taste of the consumer, making your domain not only the Americas, but also of the Asian and African continents; Despite its expansion during the past 20 years this could change due to the problems currently facing cocoa at global level, as shortages of seed, prices, diseases and supply & demand (González 2009). Currently occurs in countries that are at an optimum climate located within the range of 10 degrees North and 10 degrees south of the Ecuador. Currently, are eight major producing countries in the world: Ivory Coast, Ghana, Indonesia, Nigeria, Cameroon, Brazil, Ecuador and Malaysia, those who represent 90% of the world production of cocoa. In 2010 Mexico occupied the 11th. place in the production of cocoa beans contributing to the 1.2% of world production, While in 2005 it occupied fifth place, which puts it at a disadvantage in relation to other countries (FAO 2010)

Cocoa overview

Until today 18 different species of cacao, which are distinguished by the size of plant growth, the shape of its leaves, the size and color of the fruit, seed shape, size and nutritional qualities are known.

At present three main types of cocoa are sold:

- The criollo cacao, with high quality and excellent now lost control of the market weakness to weather conditions as their own tree diseases, so it is overvalued by the market by 20% on the regular price.
- The stranger cocoa, low quality is the most cultivated due to increased resistance to diseases, pests and weather conditions, about 95% of world cocoa production is of this type.
- The type Trinitarian cocoa, considered a hybrid from the combination of the stranger and Creole; However, despite being a strong and productive tree, its quality is declining, so it is below the Creole but above or equal to the outsider.

According to Gonzalez (2005) to define the price of cocoa, the international market as classified according to their importance in two types:

- The ordinario.- cacao cacao is the outsider, but for its poor quality is only used for the production of cocoa butter and products proportions of cocoa processing.
- The fine or flavor cocoa. They are cocoa beans Criollo and Trinitario, because the high and medium quality is used to rescue certain flavors when mixed with the stranger, making real chocolate and sweets and confectionery chocolate flavor, as in the case of the chocolate.

Problems facing cocoa

Currently the main problem facing the international cocoa market has to do with supply and demand for it, because as demand increases the importance that has taken the cocoa supply is decreasing due to environmental and political factors as She mentioned above.

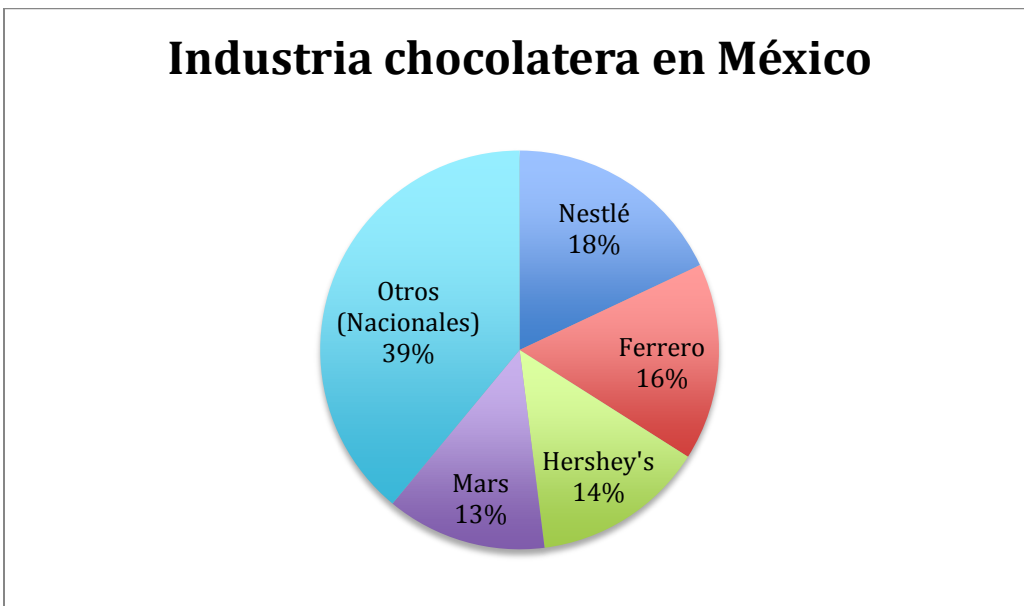
In the case of Mexico has been affected due not only to factors such as climate, age of the trees

and disease but also a very dominant economic and cultural factor in the population, since cocoa is considered a luxury product because It is not essential for the population and staple food.

Because of this phenomenon the cocoa production is detected mainly in Latin America, Africa and Asia (Moran 2010) the consumption and production of products derived therefrom takes place mainly in Europe and the United States.

Besides cocoa beans, from seeds can be obtained intermediates: chocolate, cocoa paste, cocoa powder and liquor. The consumption of cocoa products, such as candy or substitutes, has increased significantly since twenty years, growing at an average annual rate of 2.5%. While a European consumes four kilograms of chocolate per year, the average Mexican consumes 400 grams per year is only 10% of what they consume Europeans.

In Mexico, consumer chocolate fifth level Latin America, the chocolate market is led by four foreign companies, which represent 61%, as shown in the following chart:



Fuente: Elaboración propia en base a datos del FAO (2010)

The main cocoa producing states nationwide are Tabasco, Chiapas, Veracruz and Oaxaca. It is in the area of Soconusco (Tabasco and Chiapas), where 99.6% of domestic production occurs.

Situation in Mexico

In 1991 it enters into force the Free Trade Agreement (FTA), to date the Mexican market is immersed in increased competition due to market liberalization. It is for this reason that companies use different strategies and levels of technological development to survive in the market.

In the cocoa and chocolate industry, both domestic and international companies have different levels of technological development, from machinery introduced to the country over 40 years (obsolete) makes up machinery, equipment and modern plants with ISO 9002 certification.

As a result of this globalization, the environment has become more competitive; so companies have emerged partial substitute products or derivatives total cocoa bean, specifically talking about the cocoa butter, which use vegetable oils and fats, such as coconut and palm oil, for the production of "chocolates" .

According to Mexican Official Standard NOM-186-SSA1 / SCFI "products and services. Cocoa products. I. Cacao. II. Chocolate. III. Derivatives. Sanitary specifications. Trademark ", the definition of chocolate is:

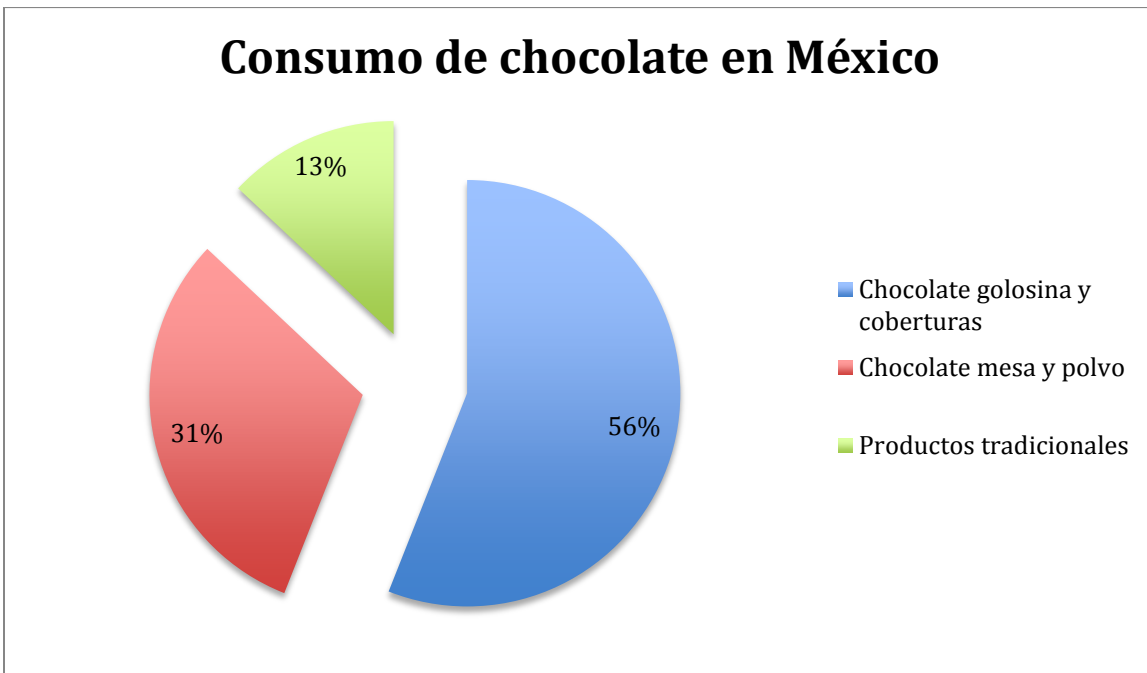
"Homogeneous product made from the mixture of two or more of the following ingredients: cocoa mass, cocoa butter, cocoa added sugars or other sweeteners and other optional dairy products such as food additives and ingredients, being within the different varieties".

When a product of this nature does not comply with the minimum and ingredients according to the standard amounts, it can not be called chocolate, they are known as substitutes or "chocolate flavored".

The chocolate flavor coverage is made from sugar, cocoa powder and vegetable fat, thereby offering the consumer the experience of chocolate and chocolate without being more affordable. Besides being a strategy to reduce costs, substitutes are used for "chocolate" that will not melt against high temperatures, ie, has a more favorable physicochemical behavior for a supply chain

compared with real chocolate: which it melts at 36 ° C, while coverage can withstand temperatures up to 50 ° C, then facilitating the logistics of finished products, reducing costs by having fewer losses during transport.

Also, in the specific case of Mexico, the inflows of the general population as well as the purchase and consumption habits directly influence the consumption of cocoa, as shown in the graph, through:



Source: own calculations based on FAO data (2010)

According to the Food and Agriculture Organization (FAO, for its acronym in English) the average annual consumption of chocolate is 950 grams, yet an average Mexican consumes annually about 400 grams of chocolate compared to Switzerland twelve kilograms of eight kilograms of Ireland and Germany and five in France.

Company Background

It is a Mexican company that is within the chocolate industry, established since 1948 serving the production and marketing of cocoa, which has a market share in recent years amounts to 85% in

the national territory and 15% in abroad.

Currently it has a presence in 11 countries and its main products are:

- Alkaline natural Cocoa

Natural cocoa -Manteca Deodorized

-Licor Cocoa paste or different formulations of grain

-Cocoa Grain of different origins.

As part of its philosophy, seeks to remain a pioneering company that meets market needs, and with the vision to be the leader in the national and international market; that is why in their corporate strategies is continuous improvement, in order to incorporate technology that allows it to be competitive and maintain market presence chocolate in a globalized market. The competitive advantage over any other company in the industry is being one of the two foragers cocoa Mexico, avoiding middlemen in the price of cocoa, reducing costs and selecting the best quality cocoa.

In this sense, has gone into the search for new niches that allow them to expand their horizons, and to be a company with national and international presence has the skills to identify opportunities and business opportunities.

Such is the case of the chocolate within the industry processed foods, which you have full knowledge the urgent need in Mexico is 200 thousand tons of which 110 tons are coverage of high and medium quality.

It also has different varieties of cocoa, which will produce a wide range of chocolate coatings with the development of the proposed prototype.

Background GTI Lab

Laboratory in Management of Technology and Innovation was created with the purpose of increasing knowledge generation and innovation of the Autonomous University of Querétaro (UAQ); with the firm intention of linking the productive and technological projects in a scheme of triple helix, ie Industry-Government-Academia, the University through this multidisciplinary

space operates within different areas based on items ranging from consulting, technology management, technology transfer operating in a scheme as proposed Leydesdorff (2000) in their model of the triple helix.

Using a system based on the concepts of science and technology model to achieve innovation and increase knowledge, this multidisciplinary interaction, where teachers, researchers and students from different areas and levels interact to develop projects of different disciplines together generated with industry through various modalities and governmental announcements, generating benefits not only to these actors but reaching a more important background, society.

The laboratory, founded by four researchers of the University, operates since 2009 and holds the own revenues generated on projects linking schemes triplex since its inception to date, without funds or budget of the University.

Entailment

Provided by management and technology organizational activity for the definition and implementation necessary for achieving the objectives and goals of the company, in terms of quality, competitiveness, effectiveness and value addition technology.

Through linking the university with this company successful participation in federal funds from the National Council of Science and Technology (CONACYT) in its call Incentives Program for Innovation (PEI) in their mode Proinnova it was held, being elaborated the project development and implementation of a pilot plant for the production of chocolate coating plant, through appropriate technology management.

By participating in these forms of financing, through linking the company with Higher Education Institutions (IES) has gained access to financing sunk nearly \$ 18'000,000.00 pesos for the installation of pilot plant and the testing for the determination of the different formulations of chocolate coating.

Results links

Trends in confectionery products in Mexico, competitive landscape, prospects and scenarios: as a result of the linkage and studies by the Autonomous University of Queretaro several results that were grouped into four different categories that are obtained for the company. Here are the results for each category based on the study developed in conjunction with surveys, databases and interviews are as follows:

Market trends:

- 1) Growth similar to 7 or 8% moderate market in 2014, the tendency to some health trends deceleration shown in part due to decrease in sugar products.

- 2) better performance in the category of Countlines is expected, which according to Collins dictionary are consumer products sold in individual packages to customers and benefited from an increase in product availability.

- 3) Seasonal Chocolate, which people love to offer as gifts with performance improvements.

- 4) Products chocolate with a slight increase in terms of value, approximately 10% less than it was in 2103 in part because of the campaign against obesity.

- 5) During the year 2012 cocoa prices were lower than in 2011, mainly in the first half of the year, when they reached their highest point in April with a price of US \$ 3.472 per ton. The price of cocoa for December 2012 was US \$ 2431 and continued to decline in early 2013. Sugar also followed a similar pattern. This situation eased the pressure on the finances of manufacturers, giving them the opportunity to maintain moderate prices increased 2%, which was lower than the inflation rate.

- 6) The first choice of Mexicans are chocolate bars with regular milk with a shared value of 45%. The second are filled bars, including orange, mint and strawberry, among others. It is

expected that dark chocolate is kept in third place with a share of 18%, because the usually bitter taste of black chocolate deters most Mexicans; However, this segment has the highest growth potential, due to the increasing number of people are better informed about their nutritional value and antioxidant attributes. Finally, the white chocolate with only a share of about 11%.

7) A long tradition of marshmallows with chocolate coating, and these products constitute the largest proportion of sales of other products of chocolate confectionery. The most famous brands are paletón La Corona, Ricolino Paleta Payaso and Ricolino Bubulubu, all owned by Barcel Mexico; and La Rosa Palette Sweets and Chocolates de la Rosa.

8) Was identified that the main competitors of chocolate products are packaged foods, baked goods and snacks or sweets. The chocolate confectionery is a treat, bought on impulse, and consumers are other inexpensive options in the same outlets where chocolate items that directly compete with the offers.

Panorama competition:

1) It is expected that only five companies to maintain a shared value of more than 10% according to Euromonitor figures for 2014 are expected to be Effem and Nestlé multinational leaders in 2013 to 21% and 20% of value of shares respectively. Each has a number of well-known brands that have been present locally for decades, as Larin, Carlos V and Nestle Crunch and Snickers, M & Ms and Milky Way to Mars. Hershey expected to Mexico is third, with a share of 16%, offering its iconic products of Hershey Kisses with other lines Hershey. Which with only 3 brands give a total of 57%.

2) The company with the highest growth in 2013 is Effem. Countlines brands Milky Way, Snickers, Twix and 3 Musketeers make the Mexican subsidiary of Mars the leader in this category.

3) constant marketing campaigns as the case of M & M queen 2012 and 2013 organized the campaign "Vote for your favorite M & M", so that each character of M & M opened a

Facebook profile and to gain popularity votes in the M & M website where you can find music videos, wallpapers and more about these characters. This campaign began in Australia, and was later replicated in the US and other countries, including Mexico. They are the best strategies to keep the business.

4) 63% of sales are international companies Nestle Mexico, Mexico Ferrero, Hershey Effem Mexico and Mexico.

5) As for domestic producers, major companies are Barcel Mexico and Chocolates Turin, ranked fifth and sixth in 2013.

6) As for the new products developed during the year 2012 Mexico launched Smooth Bubbles Hershey Hershey, a chocolate 40g having small air bubbles in it.

7) bagged Selflines / Softlines, PepsiCo Mexico launched Sonric's shots, which are confectionery covered with chocolate. They are available in two flavors: coffee (cappuccino and mocha) and desserts (flan, strawberry ice cream and caramel). Sonric's shots won the "Confectionery" award at the first edition of the "2012 Best New Product". This contest is organized by the magazine Kena and free newspaper Metro.

8) Barcel Mexico launched Ricolino Chocoretas Barra, a tablet with mint flavor. The product was an extension line Ricolino Chocoretas, which are small balls with a layer of chocolate mint hard.

9) In 2012, Nestle Mexico launched campaigns to promote their brands Carlos V and Granny. Carlos V campaign was called "King for a Day" and included 73 million prize wrappers. Some of the benefits include free music downloads, video games, Xbox 360, iPods, video cameras, bicycles and mobile phones, but the main prize was to become king for a day, traveling in a limousine and to Mx \$ 50,000 to spend on a toy store.

10) The promotion Granny was called "Granny gives your Sunday." It was conducted from September 2012 to January 2013, which are the months when such tablets are an increase in seasonal sales, because Mexicans use these to prepare chocolate milk. The reward can be a prize tag Mx \$ 1,000 or Mx chance to win \$ 20,000 in a raffle.

11) Nestlé also organized promoting Valentine's Day with Merca 2.0 magazine called "Say it with chocolate," in which participants had to send an email explaining how they show they love. The winners received a teddy bear and a basket of chocolate Nestle.

12) In the Christmas season Ferrero Rocher conducted a marketing campaign called "Ferrero Rocher Christmas lights" with the Mexican Ximena Navarrete celebrity as brand ambassador, who turned on the lights of a Christmas tree made of chocolates Ferrero.

13) To encourage the consumption of chocolate, the "Salon du Chocolat 2012", where several manufacturers and distributors of cocoa and chocolate were present was organized.

14) On the side of the packaging, Nestle Crunch renewed his wrapper, which now seems as if broken and displays the product inside. Nestlé also launched a version of its Countlines 8g Tin Larin, called TinLarin Mini.

15) With the exception of the low chocolates sugar and chocolate for diabetics and assorted standard box, which are regarded as high quality products, most of the articles of chocolate can be considered as standard, with few options Price . No activity corresponding private label.

Prospects:

1) It is expected that the chocolate confectionery increase in volume CAGR of 6% during the forecast period, as it expects only a moderate impact on the trend of health and wellness, so chocolate confectionery grow a little slower than at the end of the review period, but not at the point of driving down, as with other types of confectionery.

- 2) Threats to growth in chocolate products could be increased awareness programs against eating sweets, and price increases, which could come from increases in commodity prices, or approval new taxes. Opportunities to counter this trend could be the development of stronger campaigns on the benefits of black chocolate.

- 3) Although it is expected that the chocolate confectionery sugar intended for diabetics remain in your niche, you must maintain high growth during the forecast period, as compared to other category of chocolate mature confectionery, this is a segment relatively Again, with room for growth.

- 4) According to forecasts, chocolate for diabetics increase in constant value CAGR of 11% over the next five years.

- 5) Unitary price movements will depend largely on global variations of essential raw materials, namely, cocoa beans and sugar prices. However, the category as a whole is expected to see slight decreases in unit prices during the forecast period, with limited variation between categories.

- 6) The chocolate confectionery continue to compete with other categories of impulse, like, confectionery, sweets and salty snacks and bakery products. However, there is no clear trend in terms of an expected change between these categories.

- 7) Traditional Grocery Retailers are expected to remain the main distribution channel for chocolate confectionery in 2013, it is expected to be passed by chains of modern supermarkets at the end of the forecast period, with a share of 46% for Modern supermarket chains versus 45% to traditional grocery retailers. This behavior will be driven by the accelerated modern retailers have shown in recent years, theft of various traditional channels volume growth.

- 8) In addition to highlighting the benefits of black chocolate, companies might start

developing enhanced with functional ingredients such as fiber and omega 3 to make chocolate confectionery more attractive for people concerned about health formulas. However, if these products can not be offered at a price similar to standard chocolate, it is likely to remain a niche, like chocolate for diabetics.

Scenarios for the company:

- 1) Perform production on demand on specific formulation and serve major players currently have a presence in the market, focusing on one or two large-volume customers.
 - a. Advantages: Little change on the line, standard formulations, does not require much marketing
 - b. Disadvantages: They are captive to a single customer, the cancellation could literally stop the production line.

- 2) Perform production of various formulations tested and improved formulas to supply market demand coverage, confectionery, candy making and others looking for a continuum of customers (over 10) who buy similar products but with special formulations.
 - a. Advantages: When many clients one stand alone does not control and profit margins are higher.
 - b. Disadvantages: The administrative burden and production line is much higher, there is the need to deal with many customers.

- 3) Develop a unique product that can be marketed through agreements with convenience stores and penetrate the segment of marketing Countlines options in two ways:
 - a. Products developed by the maquila scheme on a generic or private label for marketing by the chains of convenience or retailers.
 - b. Developing a "self" identifying a new brand identity that AMCO could develop

and even sell that allows identified as manufacturer.

These results allowed the company had sufficient to expand its product range and enter markets that had not explored elements.

Also, it not all translated into economic and social benefits, but also in academic benefits as from research and participation of teachers, researchers and students performed two theses, scientific articles and papers.

Conclusion

In conclusion, we can see how the application of technology management through schemes of triple helix is a good tool to increase the competitiveness of companies to seize resources and knowledge to those who do not have access but was involved in this scheme, Less noticeable but equally important in the long term are the strengths that the company builds with linking and usually result in improved competitiveness.

Moreover, companies benefit not only to the scheme are triple helix, as a result of the project the Autonomous University of Queretaro benefited as both researchers and students can be directly involved with real problems being experienced today in the companies, allowing that they are in a better position to identify and respond to the technological needs of enterprises, others that the university could also improve infrastructure which will serve for future projects.

Another sector that also benefits and also part of the scheme of the triple helix is the government, since when the company diversified its market boost the local economy and therefore the creation of wealth and its distribution through new jobs and other mechanisms, which ultimately can be seen reflected in improved quality of life throughout a community.

Working under the scheme of the triple helix many collective benefits are obtained and in turn each party gets own benefits. However, one must be very careful that these benefits are not exclusive to one part at the expense of other companies or institutions. The essence of the

relationship between universities and companies is collaboration openness, the more winners there society as a whole will be seen benefited, therefore it is the obligation of all parties to contribute to measure each in what I can to the development of projects in bonding.

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