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**APPLICATION OF THE INTEGRAL MODEL FOR**  
**OPTIMIZING THE PRODUCTIVITY IN THE**  
**TEXTILE-APPAREL SECTOR IN COLOMBIA**

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**ABSTRACT**

The Integral Productivity Model seeks to optimize the productivity from the managerial strategy. It's done by maximizing the economic value added beginning from the identification of the important attributes for the customer and the definition of the investment needed for its development, the determination of the optimal operation level, the use of the tangible and intangible resources really needed for a sustainable growth of the organizations.

The apparel textile sector generates in Colombia the 5% of the exports and the 20% of the industrial labor and it was chosen by the government among the 8 sectors to develop in the Program for Productive Transformation from the Ministry of Trade, Industry and Tourism.

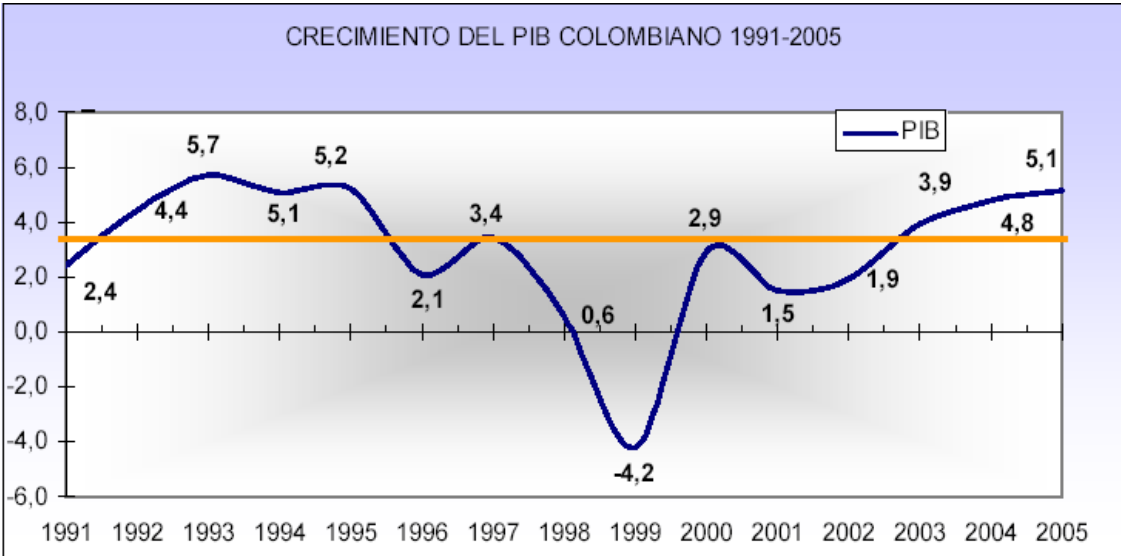
But this sector is going through a difficult situation because of factors as low value added business, smuggling, informality and a cost structure higher than its international competitors.

A drastic change of competitive and productive strategies is needed, among which is proposed the using of a prospective model as the Integral Productivity Model

**Key words:** Strategy, Value Proposal, Value Added, Integral productivity, Competitiveness.

### INTRODUCTION

Colombia, facing globalization and an increasing of competence, has as one of its major purposes the optimization of the productivity in all its economical sectors. If productivity is not optimized it wont be reached the competitiveness for products and services and the created opportunities would be lost.



## **Figure 1. Historical Behaviour of the GDP during the last 15 years**

Starting from the trade liberalization process begun at the end of the government of president Virgilio Barco and accelerated during the government of Cesar Gaviria, in which the 99.9% of the products passed to the regime of free import, it began a process of technological modernization and orientation to the productivity in the Colombian companies, forced to compete in their internal markets, because of the entrance of strong foreign competitors.

Labor reforms as law 50 of 1990, which reduced the severance costs between a 60% and 80% were produced. It was also produced the Resolution 49 of 1991 that eliminated the restrictions to foreign direct investment. This facilitated the entrance of foreign capitals to all the sectors and in particular induced the entrance of foreign banks.

The studies demonstrate that the reforms are associated to growths of the total productivity, which is derived from the reallocation of the resources from low productivity plants to high productivity plants. Additionally the trade liberalization strengthened the exit of many plants, due to demand shocks, specially of the non-exporter low demand plants which hadn't been exposed to the foreign competence before the trade liberalization.

Although the goals of economical growth in Colombia have been reduced, the Colombian economy has been growing during the last years, supported in the stability of the current government.

The orientation to the optimization of the productivity is a constant in the Colombian companies. Although many of them still don't have an export vocation they have felt the impact of the foreign competence and the entrance of multinationals to the country practically in all the sectors. This has forced them to diminish costs and making more efficiently their operations. However in many of them the productivity is increased, among other factors, as consequence of an investment in technology.

The integral model of productivity (Medina, 2007) analyzes how to seek the maximum results when the productivity is optimized, starting from the definition of better value proposals for the customer, analyzing the participations in the market and the seeking of the optimal operation level, defining the resources and the investment really needed.

### **The textile apparel sector in Colombia**

This sector is important for Colombia because it represents the 5% of the exports and supplies the 20% of the industrial employment and was chosen as one of the eight sectors to develop as a world class sector by the Ministry of Trade, Industry and Tourism inside the Program of Productive transformation, with an alliance between the public and private sectors. The exports of this sector have grown at a rate of 15%, very superior over the growth of the world market.

The world trends of the sector create opportunities for the Colombian market because the ethic topics begin to be important (topics as the protection to avoid the children labor and the awareness of the climate change). Also, the cost, velocity and price equilibrium in the

offered product and the subcontracting of tasks as the design. Colombia because of its diversity can be exploited for the development of green products based on natural fibers and its geographical position is favorable to get with velocity to the market of the region.

The Colombian design is recognized in the world and can be used to generate competitive advantages at the moment of create value added, a situation that doesn't occur when multures are worked.

But the national industry is highly threatened by the smuggling and the informality, the same happens with the import of low cost manufactured products, the dependence of unstable markets as Venezuela, the elaboration of multures, a non competitive cost structure and the entrance of multinational to compete for the internal market.

The costs are not competitive. The 60% of the raw materials from the sector are imported while the average cost of the labor force is higher than in other countries. Apart from that, the location of the production centers raise the price of the transport because are far from the ports.

In order to compete, Colombia must generate strategies to develop, attract and retain the highly trained personnel, ability to generate innovations in processes and products, create conditions to fight the informality and the smuggling, facilitate the investment in machinery and innovation and produce at proper cost levels.

In order to become in leader of the Americas, in this sector, the following strategies were proposed:

- Increase the participation in formats and categories of value added, position itself as producer with design and innovation. At least ten own brands have to be developed. Ten innovating raw materials must be patented and certified, besides offering value services as logistic management and collection designing.
- Excel for the opportunity in the delivery ensuring flexibility and reliability, speed up the international trade processes simplifying customs steps.
- Offer products with quality and good prices.
- Diversify markets to other countries of the region.
- Create researching and development nets.
- Strengthen the infrastructure, specially ways and ports.

In order to carry out this work, inside the Management Committee for the Implementation of the Productive Transformation it has been created the Sectorial Committee for the Textile, Apparel, Design and Fashion with four secondary committees: Industry Strengthening, Human Resources, Regulatory Framework and Substructure. They have begun to work since July 2009.

For developing this strategies is important to bear in mind the need for strengthen this sector in the country, following models as the Turkish or Peruvian, but also optimizing the productivity and quality of the companies. According to this aspect, is significant to check appropriate models that project the productivity creating value added to the customers. This model can be, among others, the Integral Productivity Model

The Textile-Apparel industry in Colombia presents productivity gaps facing other developed countries (25 centers for apparel and 28 for textiles versus 100 from United States).

The low productivity of the sector in Colombia is due to causes as: low capacity for production, companies dedicated to business formats of low value added (specially multures and non recognized brands), low investment in machinery, low investment in researching and development, weakness in market intelligence, international trade and processes standardization, high comparative costs of raw materials, public services transport and low foreign direct investment.

### **The concept of value and its relation with the Managerial Strategy**

The enterprise can be defined as a system aimed to create value for the customer. The problem that this model tries to analyze is the manner how this value can be created and the actions that must be taken to achieve it in a successful way.

The fundamental aspect is that the obtaining of value depends of the managerial system which must take the tangible and intangible inputs and transform them through the business processes into the best proposal for the customers.

The other strategic aspect is the analysis of what the customer really values. By the way there must be an analysis and comparison of attributes in order to know which ones must be used and the investments needed to achieve them.

## **THE INTEGRAL MODEL FOR THE OPTIMIZATION OF PRODUCTIVITY**

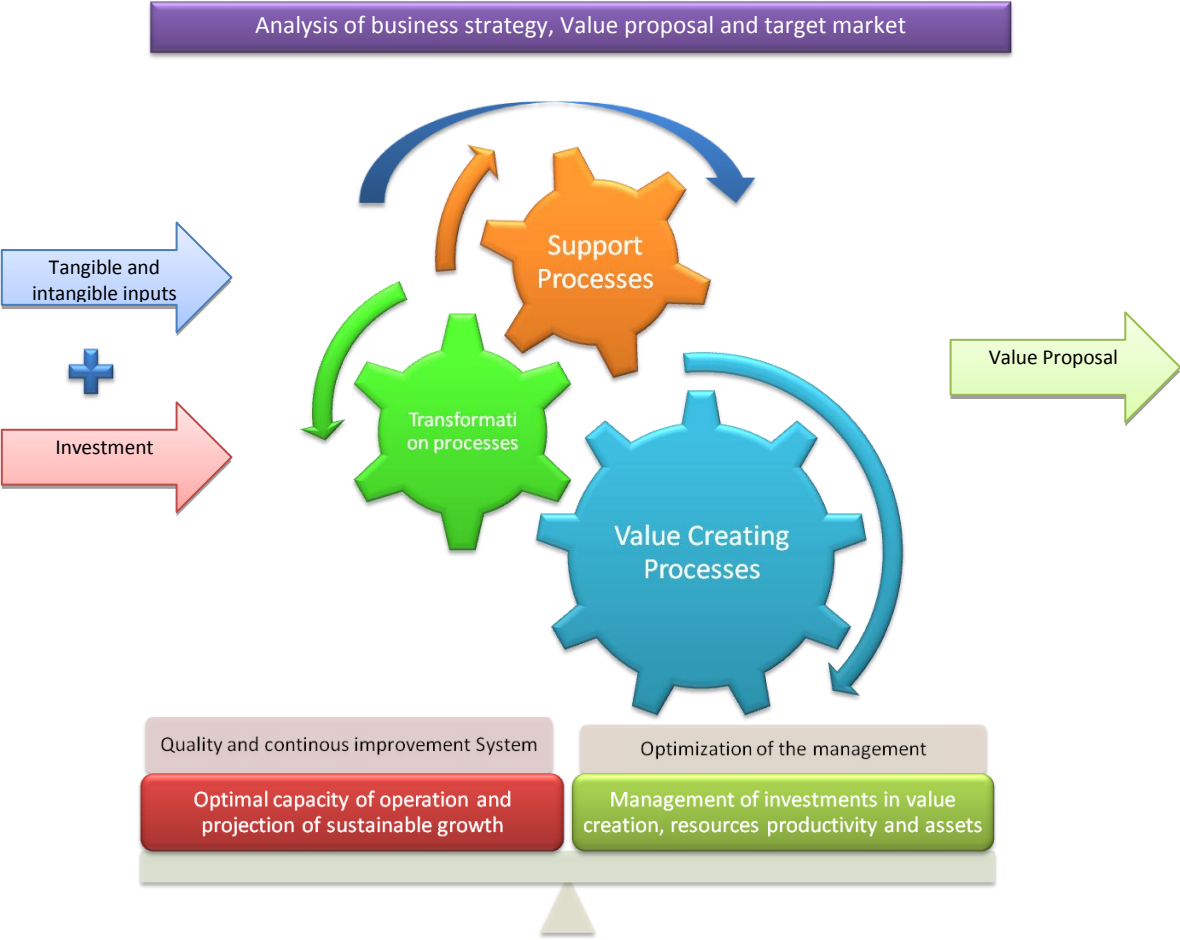
The model presented is, in essence, a methodology of management that integrates each one of the tangible and intangible inputs with the components of the value proposal in order to direct all the managerial resources to the goals achievement. Being the productivity optimization the result of the coordinated action of all the managerial processes.

Then, the model constitutes a methodology for managing the key factors for the optimization of the productivity and has the following aspects:

- Diagnosis of the value creating process and the value proposal for the customers.
- The investment needed to improve the value proposal.
- The definition of the capacity of optimal operation.
- The tangible and intangible inputs really needed
- The increasing of participation with the new proposal.
- The optimization of the efficiency and the increasing of productivity.
- The managing of the costs and managerial assets.
- The quality and continuous improvement in order to find deficiencies in the process.

The value proposal for the customer has some components inherent to the product or service (ex. Price, Design, Performance) and other complementary components (ex. Brand, Customer Service).

Hereby, the managing must be aimed to optimize the transformation processes of the inputs (costs) in a value proposal which permit better results.



Source: Medina, 2007

Figure 2. The Integral Productivity Model

## **ANALYSIS OF THE APPLICATION OF THE INTEGRAL PRODUCTIVITY MODEL FOR THE TEXTILE APPAREL SECTOR IN COLOMBIA**

Is important to underline that the mentioned strategies recognize the importance of changing the value creating model at the moment of seeking value added formats, changing the culture by the generation of fashion, the complete collection (which includes the design) and improving the quantity and the delivering opportunity.

This starting point recognizes the difficulty of the Colombian producer for competing with costs (specially because of the high price paid for the raw materials and the labor costs) and the strategy must be competing with products of high value added for which some segments of the market are willing to pay more, optimizing the components of production and apparel process logistics.

But also is true, as its stand out by Integral Model of Productivity that this change in the value proposal implies a change that involves considerable investments due to:

- Investment in marketing and commercialization in order to reach high class sectors with adequate products for the target.
- Investments in fashion creation, as formation of designers, design software, etcetera.

- Investment for own brands creation.
- Investment in researching and raw materials development.
- Investment in infrastructure.

If these investments are not supported in a good analysis which shows its incidence in the real profitability is possible that the program fails and it cannot be gotten a sustainable growth of the industry as it has been set.

The other important factor to bear in mind is that the development gotten in successful countries as Turkey, implies a change of thinking for the associability. Without it many of these programs cannot be developed. It is not just change a company but associate them in order to negotiate raw materials with lower costs and to respond to requirements like high production capability and adequate logistics in which velocity is a critical competitive factor. Also the flexibility in the generation of new models is very important for having success.

Because of this reason the author considers that the program designed for the sector must be complemented with the analysis of the necessary investments and the possible mechanisms of funding in order to make it achievable, and become in a sustainable growth model for the Colombian economy, as it stands out in the Model of Integral Productivity.

## REFERENCES

Heizer, J. y Render, B. 2001, *Dirección de la Producción, Decisiones Estratégicas*, México, Prentice Hall Internacional.

Kaplan, R. y Norton, D. 1997, *Mapas Estratégicos*, Barcelona, Gestión 2000.

Kaplan, R. y Norton, D. 2003, *El cuadro de mando integral*, Barcelona, Gestión 2000.

Keynes, I.M. 1986, *Teoría General de la Ocupación, el interés y el dinero*. Buenos Aires, Editorial Fondo de Cultura Económica.

Medina, J. 2007, *El Modelo Integral de Productividad*, Bogotá, Fondo de Publicaciones Universidad Sergio Arboleda.

Porter, M. 1980, *Competitive Strategy. Techniques for analyzing industries and competitors*, New York, the Free Press.

Ramírez, E. 1998, *Productividad base de la competitividad*, México DF, Limusa.

Smith, A. 2002, *La Riqueza de las Naciones*, Madrid, Ediciones Alianza.

Summanth, D. 1990, *Administración de la Productividad Total*, México, Mc Graw Hill.