

Economic sustainability for a textile plant with cultural designs in the department of Chuquisaca**Sustentabilidad económica para una planta de textiles con diseños culturales en el departamento de Chuquisaca**

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Abstract

The idea to create a plant for processing textiles is creating and Textile Company with artisanal designs and cultural identity own of Chuquisaca which could generate economic movement in the department, satisfying the necessities that could emerge in the market segments; because the textiles are the prized cultural expression and is possible to know the history of each culture.

Business, cultural design, textiles**Resumen**

La idea de crear una planta de transformación textil está creando una empresa textil con diseños artesanales e identidad propia de Chuquisaca que pueda generar movimiento económico en el departamento, satisfaciendo las necesidades que pudieran surgir en los segmentos del mercado; porque los textiles son la expresión cultural preciada y es posible conocer la historia de cada cultura.

Negocios, Diseño cultural, Têxtiles

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Introduction

The market study includes the analysis of the demand and supply of textile clothing for the personal use of families who purchase the product made from raw materials existing in the country and with designs of cultural identity, which gives it as one of the advantages.

Textile products are a manifestation, a clear and tangible sample of the history of each culture. The textiles are made with the characteristic materials of each region and each place, the fibres, the shape of the yarns, the technologies used for spinning, the fabrics produced, the dyes used for dyeing, the dyeing techniques, the importance and language of the colours, the figures of the weaving, the uses of the fabrics, clothing, ritual fabrics, industrial fabrics, fabrics for the home, all of this shows the ability of the people and their life.

Now for the creation of such an enterprise a marketing plan is needed which should have a structure that prevents the omission of important information and ensures that it is set out in a logical manner. A properly prepared marketing plan produces a lot with a relatively small amount of concentrated effort. For example, it serves as a map, informs new participants of their role in the realisation of the plan and the achievement of the objectives, helps in assigning responsibilities and tasks, helps to realise future problems, opportunities and threats, as well as describes the market environment, including competitors, economic conditions, technological situations, social and cultural factors as well as the resources available to the company, among others.

The product that concerns the present research is the commercialisation of textiles with cultural identity produced in the Department of Chuquisaca and specifically in the city of Sucre, which are products of mass consumption and are becoming more and more popular. This product that is presented are fabrics with cultural designs such as images of the Jalq "a zone or the Tarabuco Zone, these fabrics will be used to manufacture different garments for the consumption of the population of Sucre and at a national level.

Weaving

Weaving is done using a loom and two sets of threads, called warp (or foot) and weft respectively. The warp threads run along the loom, while the weft threads run in a transverse direction. The weft is supplied from the sides of the loom from bobbins which are changed automatically or manually when the yarn runs out. The loom shuttle passes the weft yarns through the loom, interlacing them perpendicularly with the warp.

By changing the number of warp threads and altering the sequence in which they are lifted or lowered, different patterns and textures are achieved. During weaving, a temporary protective coating known as a primer protects the warp threads from damage.

Dyeing and printing

Cotton can be dyed in different ways: fabrics can be dyed after weaving (piece dyeing), loose fibres can be dyed in a vat (raw dyeing) and, finally, the yarn or filament can be dyed before weaving (yarn dyeing).

The main method for printing patterns on cotton is roller gravure printing; in this process the pattern is engraved on copper rollers (one roller for each colour) and the depressions in the rollers are filled with printing paste; the fabric is then passed over the rollers.

Finishing process

In addition to dyeing and printing, the fabric is given other finishes to improve its appearance and qualities, such as treatments to improve the crease resistance of textiles such as cotton that do not have the elasticity of wool or silk. The latest developments in crease-resistant finishes are durable iron-on or permanent press finishes; in addition to achieving crease resistance, these finishes provide permanent creases.

Various chemical treatments can also improve shrinkage, stain and soil resistance. Other finishing processes protect against thread slippage or damage caused by mould, moths or fire.

Market research methodology

For the market study, both primary and secondary sources are taken into account.

The primary sources are exploration, observation and surveys directed at the population of Sucre, because this is where the largest number of people with medium and high incomes are to be found, who can normally buy the product more frequently.

Supply will be determined through the production data of companies in the department or nationally, and demand will be determined through the survey applied to the population of Sucre who require new products made in the city of Sucre.

Supply and demand projections will be made using growth rate or trend techniques according to the behaviour of the data.

Population

Data from the National Institute of Statistics (INE) was taken into account, which projects a population of 74,210 families in the city of Sucre for the year 2012, of which 59,293 families belong to the urban districts 1, 2, 3, 4 and 5, which will be used to carry out the respective surveys.

Number of men and women		
Municipality	Men	Women
Sucre	112716	124764
Total		237480

Table 1 Number of population in the municipality of Sucre

Delimitation of the target market

The target market for the research of this project is the population of the city of Sucre. Survey

A survey will be carried out among 382 families in districts 1, 2, 3, 3, 4 and 5 of the city of Sucre. In order to carry out the survey, a structured questionnaire was designed with closed and multiple-choice questions, so that the families surveyed have several options of answers according to their tastes and preferences.

Data processing

The data processing was carried out through the following steps:

First, the survey data was tabulated by creating a database in Microsoft Excel 2010. Afterwards, the corresponding analysis was carried out according to the results obtained.

Demand analysis

For the study of the demand, the project is based on the flow that exists in the market where families buy clothes for common use.

Current demand

In order to calculate the current demand, certain tools will be used to obtain the estimated data according to the surveys that will be carried out with the families of the city of Sucre.

Survey results

The results obtained from the surveys carried out on the representative sample are presented below.

Question 1		
15-20	15	4%
21-25	21	5%
26-30	77	20%
31-35	107	28%
36-40	68	18%
41-45	22	6%
46-50	41	11%
51-55	33	9%
Total	384	100%

Table 2 Average age of most frequent shoppers

Question 2		
Bolivian	93	21%
Brazilian	55	12%
Argentina	86	19%
Chilean	81	18%
Mexican	67	15%
Others	71	16%
Total	453	100%

Table 3 Most preferred industries

Question 3		
Quality	189	27%
Brand	121	17%
Resistance	167	24%
Presentation	106	15%
Price	75	11%
Other	38	5%
Total	696	100%

Table 4 Textile preference

Question 4			
Definitely	Yes	77	21%
I would buy			
Yes I would buy		152	41%
Indifferent		60	16%
Would not buy		39	10%
Definitely	No	44	12%
Would Buy			
Definitely			
Total		372	100%

Table 5 Well-known brands in the Sucre market

Supply - demand analysis

The analysis of supply and demand was carried out using certain formulas in order to calculate the existing demand and supply.

Obtaining projected demand

The following formula is used for the projection of demand:

$$D_n = D_o (1 + I)^n \quad (1)$$

Where

D_n = Future demand?

D_o = Current demand 1,329,330.00

I = growth rate of consumption GDP (INE) 2.41%.

n = number of years 10 years

Replacing it we have

$$D_n = 1,329,330.00(1+0.0247)^{10}$$

$$D_n = 1.361.367$$

Study of the offer

Several factors that determine the textile market in the city of Sucre are taken into account, such as the brands that are on the market, the amount of production, and the projected supply is established by means of a statistical formula.

Current supply of textiles

Countries	%	Total offer
Bolivia	5,43%	72.183
Argentina	9,20%	122.298
Brazil	9,53%	126.685
Chile	12,50%	166.166
Colombia	10,17%	135.193
Uruguay	8,67%	115.253
Venezuela	12,13%	161.248
Ecuador	13,40%	178.130
Paraguay	9,20%	122.298
Peru	9,90%	131.604
Total	100%	1.331.058

Table 6 Supply of textiles Sucre

At present, the current supply of textiles in Sucre comes from different countries, where we can see that only 5.43% are Bolivian and the rest are from different countries such as Argentina, which supplies 9.20%, and other countries such as Chile, Colombia, Uruguay, Venezuela, Ecuador and others, as detailed in the table above.

Projection of the textile supply

To make the supply projection, the following formula is taken into account:

$$O_n = O_o (1 + I)^n \quad (2)$$

Where:

O_n = Future supply

O_o = Current supply

I = supply growth rate (NSI)

n = number of years

1.331.058

1,25 %

10 years

Replacing we have:

$On = 1,331,058(1+0.0125)^1$

$On = 1.347.696$

Effective offer	Years	%	Projected supply
1.331.058	1	1,25%	1.347.696
1.347.696	2	1,25%	1.364.543
1.364.543	3	1,25%	1.381.599
1.381.599	4	1,25%	1.398.869
1.398.869	5	1,25%	1.416.355
1.416.355	6	1,25%	1.434.060
1.434.060	7	1,25%	1.451.985
1.451.985	8	1,25%	1.470.135
1.470.135	9	1,25%	1.488.512
1.488.512	10	1,25%	1.507.118

Table 7 Projected supply of textiles

The projection is made taking into account the growth of the current supply of textiles in Sucre, taking into account the 1.25% growth rate, with this data the projected supply for 10 years is obtained.

Market balance

Year	Demand	Demand	
		offer	unmet
2013	1.361.367	1.347.696	13.670
2014	1.394.176	1.364.543	29.633
2015	1.427.775	1.381.599	46.176
2016	1.462.185	1.398.869	63.315
2017	1.497.423	1.416.355	81.068
2018	1.533.511	1.434.060	99.452
2019	1.570.469	1.451.985	118.484
2020	1.608.317	1.470.135	138.182
2021	1.647.078	1.488.512	158.566
2022	1.686.772	1.507.118	179.654

Table 8 Market balance

The market balance is determined by existing and projected supply and demand.

By subtracting the demand from the supply, the unsatisfied demand is determined. According to the market balance, a comparison of demand and supply shows that there is a current unsatisfied demand, which will grow in the next 10 years, showing that there is a higher demand for textiles.

Summary of results

- The lack of local production of textiles becomes an opportunity to expand the production of this type of product in order to satisfy the existing demand, and the preservation of cultural identity, the idea of the project is to produce textiles with cultural designs.
- Textiles' main competitors come from other countries.
- In the department of Chuquisaca there are no textile companies, which gives us an opportunity to enter the market with the idea.
- According to the market research it has been determined that there is an unsatisfied demand for textiles, which becomes more noticeable for the population as the years go by, which gives us an opportunity to cover the unsatisfied demand in Sucre and the possibility to open other national and international markets.

Conclusions

In the department of Chuquisaca there is enough raw material for the transformation into fabrics, because every year the amount of cotton production is growing.

According to the market research it has been determined that there is an unsatisfied demand for textiles with cultural designs and an interest in consumption.

The size of the textile company is established in relation to the production, there is unsatisfied demand and technological production capacity.

The location is optimal as there is adequate space for the development of the plant in the airport area because it has all the necessary conditions for its implementation. The textile production process helps to generate economic movement. The investment to implement the plant is Bs. 1,727,505.00. The fixed investment is Bs. 973,850.00, the deferred investment is Bs. 696,512.00 and the working capital amounts to the sum of Bs. 57,233.00.

The economic-financial analysis of the project has determined that the NPV of the textile plant with cultural designs is Bs.134,406.33 and the IRR is 18.28%, which makes the project economically and financially viable.

The benefit-cost ratio is 2.94 units, demonstrating the convenience of investing in the project. Therefore it can be established that the Project is Economically and Financially Feasible.

Recommendations

To carry out the investment because the net present value (NPV) is greater than zero and the internal rate of return (IRR) exceeds the discount rate, therefore it is recommended to invest in the project.

It is recommended to elaborate a strategic control that explains in detail how the project will be implemented.

In the medium term it can be recommended to expand the production of the company to supply the unsatisfied demand at national level.

In order to make the project profitable, it is important to achieve the proposed income and to keep the cost structure in line.

To carry out complementary market studies to look for new target markets in the interior of the country.

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