

## **CONDUCTING A FEASIBILITY STUDY ON THE EXPANSION OF THE STARTUP**

### **COMPANY “PRINCE DES CHAMPS” IN TOGO**

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#### **Executive Summary:**

In this project, a team of UC Davis students worked with a small business owner in the country of Togo to identify and encourage avenues for business growth. The company, Prince des Champs, currently operates as a middle-man for the local rice market in Kpele, Togo. As a result, they are able to package and brand the rice. The aim of this project was to analyze the business and determining what types of growth the owner was interested in, in order to provide useful recommendations. The canvas business model methodology as well as a financial sensitivity analysis were performed.

In these findings, the business is forecasted to expand per the owner's request, which requires her to gain funding for necessary investments. With this capital, the business is able to internalize several costly operations that are currently being outsourced. It would also be able to produce a better product, handle more product, and gain more sales. This product would be revolutionary on the Togolese food market due to its fine quality, small price, and regional locality. In return, this would increase the demand for local rice, and provide farmers the incentive to increase their production.

The documented organization of business activities and financial opportunities is critical in the process of applying for loans or grants. This project was able to provide the owner with this documentation in the business model and financial sensitivity analysis.

## **Introduction :**

Kpele, Togo located in West Africa, has an agrarian based economy. Rice is one of the staple foods in Togolese diet, consumption per person in Togo is estimated to be 21 kg milled rice per person and year (1). Although the production of rice in Togo has increased the past years (*Figure 1*), local producers cannot compete with imported rice due to its superior quality and more attractive packaging. Thus, local farmers are struggling to make ends meet.

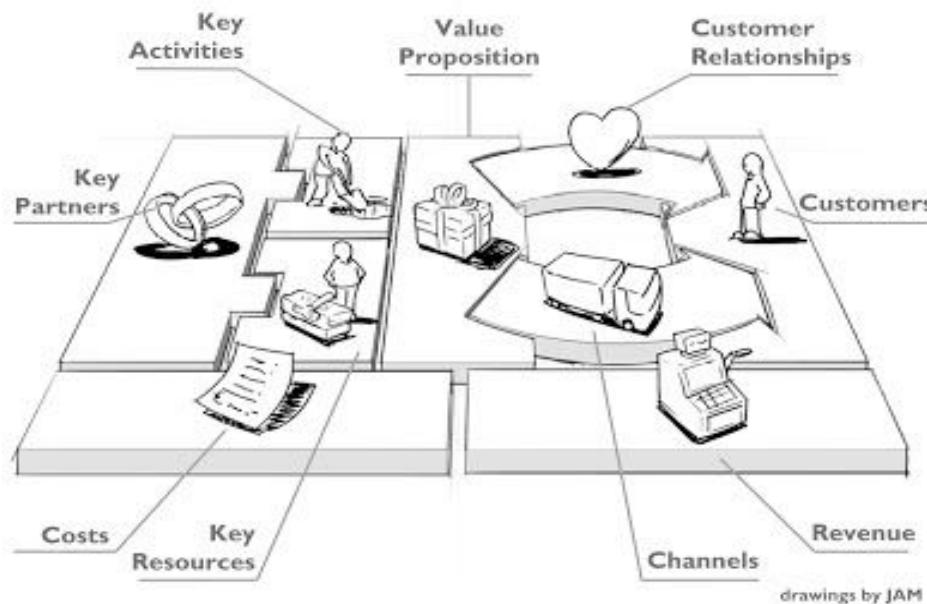
Victorine Dawanou, is a start-up entrepreneur, seeking to scale and improve her business. By running a startup rice brand entitled ‘Prince des Champs’, she hopes to increase the marketability of local rice. Most of her experience is in phytosanitation, where she has worked with the Plant Protective Service to monitor exporting crops. She holds a Bachelor's degree in agriculture and is a 2018-19 Mandela Washington fellow.

A team of three UC Davis students specializing in agriculture, materials science and engineering, are conducting a feasibility study and acting as business consultants to their client to help develop a business plan for a more competitive and profitable rice processing startup facility. The main target goals that have been identified for this project are increasing the quality of rice processing, use an investment of USD 25,000, increasing annual sales by 10 times, expanding market size and number of employees, and acquiring processing equipment. Using the Osterwalder canvas business model, a simple model was developed to assist in focusing the startup’s target goals in order to effectively achieve the desired ideal state for the startup company. A sensitivity analysis was also carried out to provide insight into the economic outcomes of the startup.

## Methodology

### Osterwald Canvas Business Model

A business model is a tool that allows for increased focus and clarity for what a business is trying to achieve. It also identifies individual components that comprise a business and gives a visual on how these sectors interact. This analytical technique was used to assess the feasibility of the Pince des Champs expansion. Four of the nine segments that were chosen to make the business model for this rice startup are key partners, channels, key activities and value proposition. These categories of the business model proved to be the most crucial to the success of the company.



Osterwalder's Business Model Diagram

Having established a 'current to ideal state' framework to assess the startup, the four categories have thoroughly been analyzed for startup with respect to this framework.

The key partners in the current state of the startup involve the farmers, rice processors (milling and packaging), transportation, and wholesale retailers. The client's ideal state would eliminate the rice processors as a key partner as the company would internalize the rice processing.

Similarly in key activities, where the current state consists of rice harvesting, rice processing (milling and packaging), transportation and selling, the client's ideal state eliminates the rice processing as a key activity for that startup would be doing that processing itself. In the channels portion of the business model the same trend is observed. The current state of the channels consists of the rice harvesters, rice processors and the wholesale market sellers. Ideally with the startup the rice processor channel would be internalized by the startup, thereby reducing the number of channels from three to two. And finally the value proposition of the startup offers customers local rice at a better quality and an increased income for local farmers.

### Financial Sensitivity Analysis

A financial sensitivity analysis was performed in order to analyze the economic feasibility of the expansion. This documentation is obligatory to prove that the company can make money with the inquired investments. Microsoft Excel is a common program used for finance and was used for this analysis.

To build the economic model financial information was obtained by doing an extensive research on production costs. Some of this information was provided by the client to specifically include in the model. The information can be found in Appendix B1.

In addition, the following assumptions were made:

- All the rice produced is sold.
- The discount rate was established in 5%.
- All the investment is used in acquiring machines and equipment.
- The production rate is evenly distributed throughout the year.
- There's no economic growth.
- Inflation will have the same effect on revenues and expenses.
- The project's life was established in 5 years.

The results of the economic analysis are shown in figures 2 and 3. The NPV of the project is \$46,858 and the client would be getting income from year 1, as shown in figure 3.

The internal rate of return (IRR) was found to be 27% and the Q (relation investment-benefit) is 1,87\$/ \$ invested.

Due to the uncertainty of most of the parameters considered during the economic analysis, a sensitivity study was performed in order to determine the most critical parameters where the client needs take the most critical decisions.

The results showed that the model is highly influenced by the annual production rate of the company. Therefore, if annual production is reduced below 220,000 kg/year the expansion is not economically feasible anymore.

Recommendations for the startup involve:

- Applying for grants or loans in order to implement the business plan developed for a successful expansion of the rice startup 'Prince des Champ'. With the money she will receive the startup can acquire processing equipment, which gives the company financial freedom to hire several employees to operate the equipment and transport the product
- Marketing for advertising the startup's rice is also recommended in order to increase the local community's knowledge about locally produced rice and its increased quality of production. This can be done digitally through various social media outlets such as facebook, instagram, websites, etc. Visual advertising in the community is also a suggestion such as newspaper, billboards, posters, etc.
- Using an IRRI Quality assessment kit in order to identify rice quality will provide useful insight into the current quality of the local rice. This will assist in improving the quality of the rice as specific flaws will have been identified and can be used to strategically improve the quality to meet the needs of local consumers.
- A needs based assessment conducted in the community is also recommended in order to understand the local community's take on local rice versus asian rice. Gaining a better understanding of the local perspective through town halls, interviews, market analysis, etc., the goal is to learn from the Togolese people on how local rice can be of higher value. Looking at available resources and

customer purchasing criterion will allow for effectively planning and implementing the business plan.

## **Next Steps on the Project**

Acquiring the rice processing equipment, along with strict quality control will help increase the quality of the local rice for this company to sell. However this is only the beginning stage of introducing this product to the market. Prince Des Champs will be able to control the price of this fine local rice and will need to be cautious in doing so. The business owner will also be faced with several other crucial financial decisions such as how many employees to hire. The financial spreadsheet that was made in this project can be used to determine many of these decisions.

The business owner has also expressed concern on the packaging used by her company. According to her, the aesthetics of the bag do not compete well with the imported rice. Currently, the company acquires the packages from Ghana and China for .30 USD per bag. Reducing this cost would help the company, especially with the desired expansion. This presents an opportunity for designing a new 5kg rice package that can be acquired for cheaper and has a better design for marketing. This would be a great project for the D-Lab II course to work on, as there are several students with experience in design and material science.

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## Appendices

### Appendix A: Figures



Figure 1. Rice Paddy production in Togo, Source: FAOSTAT

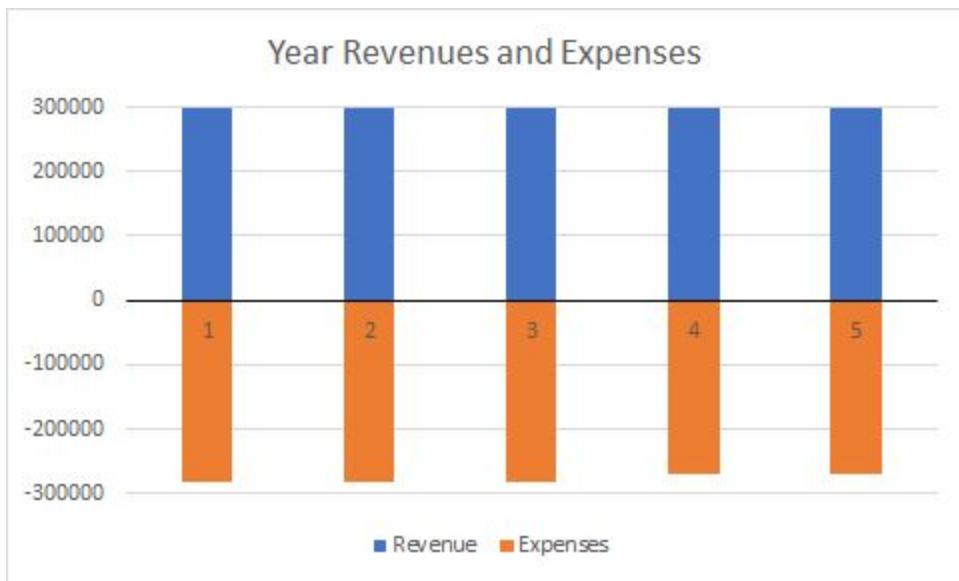


Figure 2. Yearly revenues and expenses for each year of the project's life.

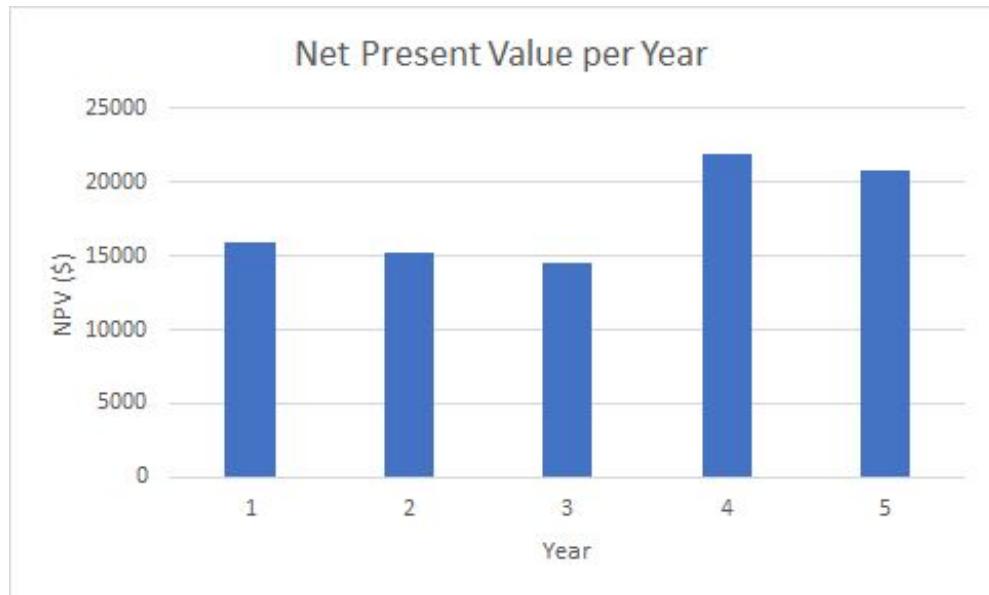


Figure 3. Net Present Value (NPV) for each year of the project's life .

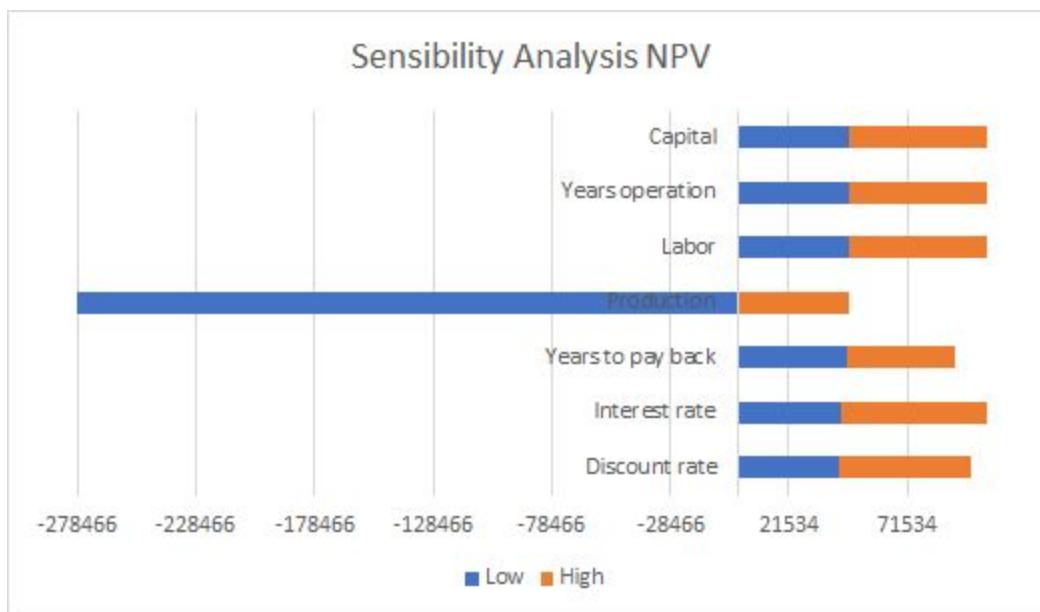


Figure 4. Economic sensitivity analysis

## Appendix B: Financial information

<b>Yearly Income</b>			
Production rate	Production rate	Price	Total
Selling price	250,000 kg/year	1.2 \$/kg	300,000 \$/year

<b>Yearly Expenses</b>			
	Units per year	Price	Total (\$/year)
Rice	250,000 kg/year	0.4 \$/kg	100,000
Transportation	250,000 kg/year	0.4 \$/kg	100,000
Package	50,000 bags/year	0.3 \$/sac	15,000
Water	0.1 m <sup>3</sup>	0.65 \$/m <sup>3</sup>	0.065
Electricité	400,000 kWh/year	0.86 \$/month connection 0.86 \$/month electric-meter loan 0.19 \$/kWh	48,075
Workers	5 persons	0,51 \$/h	7,344
Maintenance			2,000
Other			1,000
<b>TOTAL</b>			<b>273,364</b>

<b>Investment</b>
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	<b>Prix unitaire</b>
Machines and Equipment	25,000 \$

<b>Loan and financial parameters</b>	
Total amount	25,000 \$
Interest rate	9%
Years	3
Discount rate	5%