

Project: GÜICH BOX. “Application of VM to improve service in a University Cafeteria by adding value to its Serving cardboard box”.



UNIVERSIDAD
PANAMERICANA

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EXECUTIVE SUMMARY

Based on the knowledge acquired in the course of Value Engineering we were observing several products within our study campus, Universidad Panamericana (UP), that we could improve considerably. In the end we decided on a project which whether it is something simple, the impact we want to create is rather considerable.

This project consisted of adding value to the cardboard food box used by Güich, a local food franchise, specifically the one containing salads for the customers, as a container to hold food only while the client is consuming it. Our 4 ideas that we thought of implementing are:

1. Change for a better box material (food-grade)
2. Discount for using a Tupperware-like container
3. Plastify the interior of the box.
4. Cover made of a more resistant cardboard.

These ideas include 2 very important concepts, which for us was essential in solving during the project. The first is to reduce the use of cardboard by changing it for the own customer's containers, and stop polluting the environment, besides that this company could cut costs. Assuming that the company sells 35 daily salad and each box has a value of 0.6 pesos, about 12,600 boxes of salad per year, with a value of \$75,600.00 MXP.

The second was to solve the biggest complaints from customers who were poor quality cardboard. In a survey the results showed that over 70% would opt for other material for your salad because with all the flavor cardboard addition to the board is weakened by dressings lost.

Considering that more than 25% of people living at the Universidad Panamericana daily either staff, teachers, students, agreed that their salads were not the expected taste due to the mixture of cardboard with food. For this we proposed adding a plasticized cardboard carton isolate food.

We hope to present in the coming weeks this project Güich to take action on these issues. Although some ideas to implement entails considerable investment, the result we hope to achieve customer satisfaction and are sufficient to take action on the matter.

INTRODUCTION TO VALUE ENGINEERING

Value Engineering is a systematic methodology that began to develop during the time of World War II. At that time, primary materials, goods and services were becoming very scarce or difficult to obtain and massive productions had to turn to alternative substitutes for them.

Such alternatives often performed as well as the original means, at a lower cost. An engineer at General Electric Co., Lawrence Miles, was assigned the duty of creating a method to make this happen on purpose. He then developed Value Analysis, a methodology based on the analysis of functions.

Throughout the next years, this methodology was widely spread and in the mid-fifties it was commonly known as Value Engineering. In 1959 the Society of American Value Engineers (SAVE) was founded as a professional technical society in order to consolidate technology and promote this profession growth.

Today, in order to carry out a good Value Engineering study, a defined Job Plan is needed. This plan consists in a sequence of phases which vary depending on specific approaches. The SAVE International Value Methodology Standards consists on the following phases: Information, Function Analysis, Creative, Evaluation, Development and Presentation.

PRE-WORKSHOP STAGE

We knew that we had to find a good methodology to work in this project if we wanted to have promising results.

At the beginning of the project we established that we would be meeting at least twice a week and every time we met we talked about the research we performed since the last meeting. We also made some physical tests to figure out what details we needed to focus more our attention regarding the cardboard boxes of Güich salad.

INTRODUCTION TO THE PRODUCT

Value engineering will be applied to the specific case in which salads are delivered to customers, as a container to hold food while the client consumes it. Once it's no longer needed to store food, it is discarded.

The box comes in two sizes: the small, which is used for half a salad, and Big, which is used for a full order. The measures of both boxes are as follows:

Box size	Length (cm)	Width (cm)	Height (cm)
Small	15.2	12.1	6.3
Big	19.7	14.0	6.4



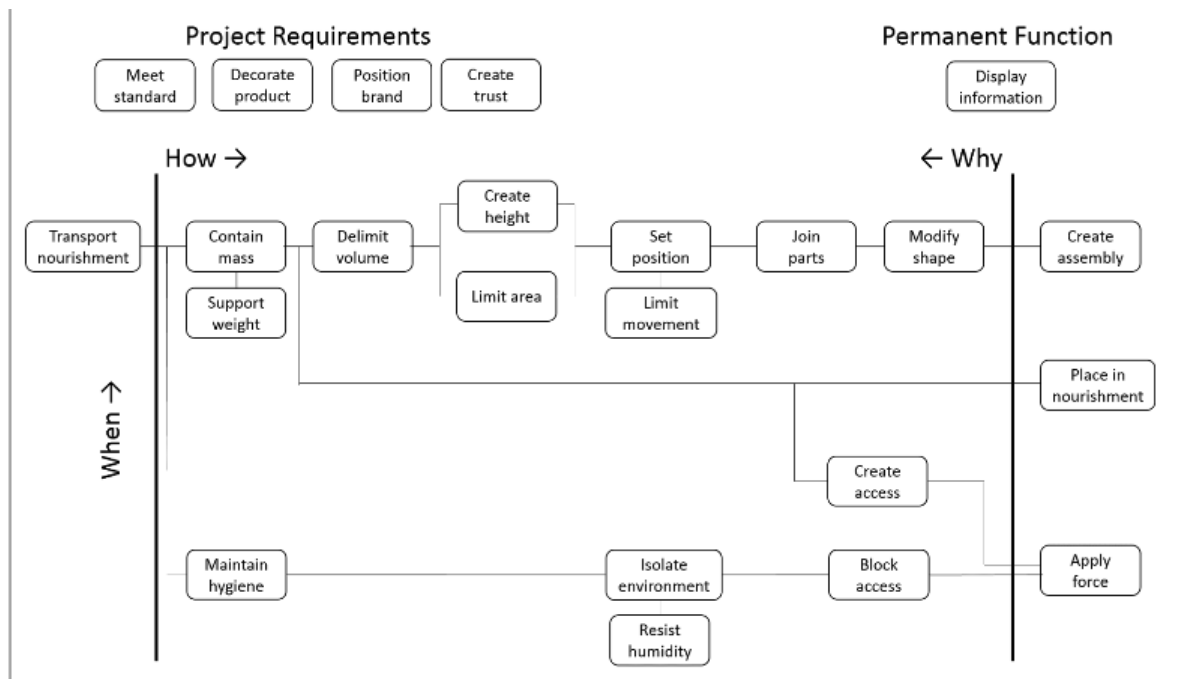
The box material is food-grade cardboard, "kraft" color with plastic film on the inside (which was eliminated in the most recent version) and can be recyclable in certain facilities.

PROJECT OBJECTIVES

1. Achieve an increase in the value of the final product offered by Güich using the application of Value Engineering.
2. Improving the box that carries food, mainly students, and their quality increases the quality of the food Güich offers, and the perception thereof increases.
3. The food is not affected in taste because of the container used.

FUNCTION ANALYSIS

In order to understand how to increase the value of the product, the VE team carried out a detailed study of the products functions, which are summarized in the FAST diagram below:



Then we assigned a cost to every function, as shown in this Cost To Function Matrix

WORKSHOP PROJECT:		Güich Box																		DATE:		14/11/2017	
Part or Operation	QTY.	Direct Cost	Contain Mass	Delimit Volume	Maintain Hygiene	Create Access	Modify Shape	Create Height	Limit Area	Limit Movement	Join Parts	Set Position	Resist Humidity	Isolate Environment	Decorate Product	Meet Standard	Support Weight	Block Access	Create Trust	Display Information	Position Brand		
Cardboard	1	\$2,50	80%	10%	10%					0%	0%	0%	0%	0%	0%	0%	0%	0%					
Foldings	8	\$0,20					60%	40%										0%					
Cuts	4	\$0,10				75%			25%														
Glue	1	\$0,50								30%	30%	40%											
Printout	1	\$0,30													0%				0%	75%	25%		
TOTALS	15	\$3,60	\$2,000	\$0,250	\$0,250	\$0,075	\$0,120	\$0,080	\$0,025	\$0,150	\$0,150	\$0,200	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000	\$0,000	\$0,225	\$0,075	
Direct Costs EXCLUDE all Fixed burden & Overhead, S,G,&A, Margin																							
Function-Percentage	100,00%	55,56%	6,94%	6,94%	2,08%	3,33%	2,22%	0,69%	4,17%	4,17%	5,56%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	6,25%	2,08%		

SUMMARY OF VE TEAM RECOMMENDATIONS

Based on the functions in which most of the functions reside, our recommendations were generated for each selected function: Contain mass (ideas 1 and 2) & Maintain Hygiene (Ideas 3 and 4). As seen in the table below, the first and most direct benefit would be an annual savings of \$19,998.80 (mxn), but there are other benefits that help increase product value by improving the perception of the company and the customer. Please note that all costs are estimated and shown in Mexican pesos (mxn).

Summary of VE Recommendations (Form TE-703-16)		
Project: Value Engineering on the Güich Box		
Idea No.	Description	Cost Savings
1	Change the type of cardboard, to a thicker one	-\$40,000.00
2	Discount for use of Tupper, does not imply any cost that is directly with the box that is used. \$ 3.80	\$119,998.80
3	Plasticize the inside of the box	-\$60,000.00
4	Cover of a more resistant cardboard that isolates the environment, included if the type of cardboard is changed.	-\$40,000.00
Annual net Savings		\$19,998.80
		All in \$MX

FUNCTION "CONTAIN MASS"

Idea 1:

Team Name		Value Engineering Recommendation (Form TE-703-12)		
UP Value		Project: Güich Box. Contain Mass Function		
Team I		Location: Universidad Panamericana.		Date: 21/11/2017
Idea No.	1	Idea Title	Box Material	
Estimated Cost Impacts				
Unit Cost	Material	Labor	Overhead	Total
Current	Simple cardboard	\$0.00	\$3.60	\$3.60
Proposed	Plastified food-grade cardboard	\$0.00	\$4.00	\$4.00
Percent reduction:			Savings per unit	-\$0.40
				111,11%
Unit Cost	Capital	Tooling	Expense	Total
Cost of change	\$4.00	\$0.00	\$0.00	\$4.00
Annual Volume: 100.000,00		Annual Savings: -\$40.000,00		
		Simple payback (yrs.) -10		
Description of Original Concept				
The original idea to fulfill the function of containing mass is a simple cardboard box. This box has specific dimensions made of a special cardboard to safely contain food.				
Description of Proposed Concept				
The concept that we propose is likewise a box, but with different materials. What we want to achieve is a box more resistant to salad dressings, in addition to maintaining freshness in food without sacrificing the quality of the materials and the price of the final product.				

FUNCTION "CONTAIN MASS"

Idea 2:

Team Name	Value Engineering Recommendation (Form TE-703-12)		
UP Value	Project: Gülich Box. Contain Mass Function		
Team I	Location: Universidad Panamericana	Date:	21/11/2017

Idea No.	2	Idea Title	Discount for use of Tupperware-like container
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Estimated Cost Impacts				
Unit Cost	Material	Labor	Overhead	Total
Current	Box	\$0.00	\$3.60	\$3.60
Proposed	Tupper/Container	\$0.00	\$0.00	\$0.00
Percent reduction: 0.00%			Savings per unit	\$3.60

Unit Cost	Capital	Tooling	Expense	Total
Cost of change	\$0.00	\$0.00	\$0.00	\$0.00

Annual Volume: _____ - Annual Savings: \$3.60 per non-used box
 *Does not imply any cost that comes directly with the used box
 Simple payback (yrs.) 0

Description of Original Concept

The only viable option is to take the food in the Guich cardboard box. Without the option of serving it in personal tupper-like container, it is suggested to make a symbolic discount of \$ 5 in a small box and \$ 10 in a large box

- UPDATE 16nov: Since 3 weeks they make 10% discount to those who bring their own container of drinks or food

Description of Proposed Concept

The idea is to offer a discount to people who show up with their tupper when they order their salad in the guich. With this idea what we want to achieve is the saving of material which would imply a great saving for the company, and those savings to be returned as discounts to the clients, since they would be doing a good thing for the ecology.

No money would be lost since it would be won in the sale of the salad, that is to say in the cost of sale in which the price of the box is included.

FUNCTION "MAINTAIN HYGIENE"

Idea 3:

Team Name		Value Engineering Recommendation (Form TE-703-12)	
UP Value		Project: Güich Box. Maintain Hygine Function	
Team I		Location: Universidad Panamericana	Date: 21/11/2017

Idea No.	1	Idea Title	Plastify the inside of the box
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Estimated Cost Impacts				
Unit Cost	Material	Labor	Overhead	Total
Current	Simple cardboard	\$0.00	\$0.00	\$0.00
Proposed	Plastified cardboard	\$0.00	\$0.60	\$0.60
Percent reduction: <u>60000,00%</u>			Savings per unit	<u>-\$0,60</u>
Unit Cost	Capital	Tooling	Expense	Total
Cost of change	\$0.60	\$0.00	\$0.00	\$0.60

Annual Volume: 100.000,00 Annual Savings: -\$60.000,00
 Simple payback (yrs.) -1,001669449

Description of Original Concept

As we know the cardboard is not strong enough to support several dressings; this has a negative consequence in the product since external agents can enter the salad, besides affecting the flavor of the food.

Description of Proposed Concept

To avoid these problems, we propose palstifying the interior of the box to avoid the wear of the cardboard due to the different dressings, besides that we would be preserving the flavor of the food for longer, guaranteeing freshness at all times.

FUNCTION “MAINTAIN HYGIENE”

Idea 4:

Team Name		Value Engineering Recommendation (Form TE-703-12)		
UP Value		Project: Güich Box. Maintain Hygine Function		
Team I		Location: Universidad Panamericana		Date: 21/11/2017
Idea No.	2	Idea Title	Cover of a more resistant cardboard that isolates the environment	
Estimated Cost Impacts				
Unit Cost	Material	Labor	Overhead	Total
Current	Actual box cardboard	\$0,00	\$3,60	\$3,60
Proposed	More resistant cardboard	\$0,00	\$4,00	\$4,00
Percent reduction: 111,11%			Savings per unit	-\$0,40
Unit Cost	Capital	Tooling	Expense	Total
Cost of change	\$4,00	\$0,00	\$0,00	\$4,00
Annual Volume: 100.000,00		Annual Savings: -\$40.000,00		
		Simple payback (yrs.) -10		
Description of Original Concept				
The cardboard used in the cover is not currently the most optimal for the function that has to meet.				
Description of Proposed Concept				
Suggested: SBS 1c / SBS 2c / Performa White / Triplex to fulfill the function of a more resistant cardboard.				

POST-WORKSHOP STAGE

After 3 months since we started researching this product and many updates made through those 3 months. We ended up with the information we expose in this final version of the project.

The goal of this written report is to explain the steps we followed to come with the conclusions we expose in the written report. So that the judges that evaluated our project knew the methodology we followed.

As a part of the project, we complemented it with a Power Point presentation. To present our project to the judges and explain in detail the different stages of the project.

TEAM FACILITATION

UP Value team is formed by three Industrial Engineering students who were taking a Value Engineering course. Throughout the development of our project, we had the assistance of two AVS certified facilitators, Óscar Sánchez Barba Acevedo (certificate nr. 1601011) and Paulina González Anaya (certificate nr. 201401053). They both are experienced instructors and guided us in the crucial stages of the method.