

Are You Making Good Decisions?

Carlos E. Claudio
Graduate Student
Industrial Engineering Department
Polytechnic University of Puerto Rico
email: claudio@pfizer.com

ABSTRACT

Due to the wide array of choices that modern society has at its disposal, decision making has become an integral part of our daily routines. Because of that, most of the time, the potential repercussions associated with any given decision are underestimated. On the other hand, the conscious ruling of one alternative over another can become a perplexing and gruesome experience. Actually there are several web sites and professional associations dedicated to the study of the decision making process. Several sociologists have studied the personal and technical traits that define successful decision makers. This paper will take you from the worst kind of decision making (preempted decision making), through a practical guide for decision making, to the best kind of decision making (team oriented decision making). By following the processes described in this article, you will be able to make the most out of your daily decision making process.

I- RELEVANCE OF DECISION MAKING

What will be my attitude today? [1] This question is not as trivial as you may think; in fact it is a major cornerstone of the success or failure that you will experience today. After we get up each morning, everything we do is directly affected by our attitude. If we leave this very important decision to our subconscious self, it may very well lead us nowhere near our dreams and expectations. Thus deciding my attitude for today is totally relevant to leading a healthier, happier life.

II- PREEMPTED DECISIONS [2]

Preempted decision making is influenced by territorial games, also known as "turf wars" at work. In such games, whoever gets to make the decision first, wins. No consideration is given to the company or the individual being affected.

How many times have you been in a meeting where the absent person gets assigned duties? It isn't uncommon to start the meeting, and "suggest" that Y

takes care of X task, "on a preliminary basis". The morning after, people who were at the meeting actually will think that Y is uncooperative if he/she does not go along with the decision and performs the assigned duty. This is a common territorial game known as occupation. Occupation of decision-making authority means making the decision before anyone else. Good decision makers must be aware of this strategy in order to recognize and avoid it. This kind of decision making affects the enterprise as a whole, limiting its capabilities and that of its members. Sadly, this is a reality which we face in today's corporate America.

III- DECISION MAKING TECHNIQUES

This article will examine in detail two techniques as described by Schermerhorn, and Kepner-Tregoe.

A- SCHERMERHORN'S APPROACH [3]

Schermerhorn's approach to decision making consists of the following 5 steps:

- **Identify and define the Problem:** The definition of the problem must not be too broad or too narrow. You must aim for the root cause, not the symptoms. In order to be effective and increase productivity, problems must be prioritized by order of importance. Last and definitely not least is the fact that the problem must be solvable. Otherwise the entire decision making effort becomes a non-value added and frustrating experience.
- **Generate and evaluate Possible Solutions:** Gather all relevant information to analyze the pro's and con's of each alternative. Completeness and truthfulness of the information is paramount to the success of the process. Get the right people involved in the decision. For implementation purposes it is extremely advisable and advantageous to have the "right" people participating in the decision making process. The "right" people are mostly the ones that will have to live with the chosen solution, and whose daily activities are affected by the decision. Consider

each solution's side effects. What can happen after you choose the solution? Sometimes secondary effects are beneficial. These must be analyzed primarily to look for ways to further enhance their effect and extend their benefits towards all sides of the organization. Each solution should be evaluated in terms of its benefits, cost, timeliness, acceptability, and ethical soundness.

- **Choose a solution:** There are three models to follow when choosing a solution. The Classical model applies to repetitive kind of problems in well known environments. This is a low dynamics/high control scenario, where the optimal alternative can and should be pursued. The Behavioral model applies when only partial knowledge of the available alternatives and their "side effects" is available, yet a decision must be made. This model contemplates making a decision based on past experiences and sound assumptions. This is the most common type of decision making in the corporate environment. The Judgmental heuristics approach uses only the information readily available in memory. Works better when nimble decision making is necessary and there's always an opportunity to revisit the decision.
- **Implement the solution:** "Make it happen". Complications at this stage are often related to a lack of participation of the "right" people in the decision making process.
- **Evaluate the results:** If desired results are not achieved, one must go back and re-do the process. Continuous improvement is the name of the game.

B- KEPNER – TREGOE'S APPROACH [4]

Kepner-Tregoe's approach to decision making consists of the following steps:

- **State the decision:** Write a short statement on what we are deciding upon. The purpose of this is to help maintain focus on the decision. The decision statement must include a "choice" word. (E.g. choose, decide, select, etc.) We will develop an example for making a decision to select the best air conditioning alternative for my home.
- **Define objectives:** What outcomes do we expect from this decision? What do we want? Write short statements clearly stating your expectations. Avoid subjective expectations. Always look for quantitative or qualitative ways to evaluate your

objectives. Table I shows some measurable objectives for our example:

Table I: Stating the Objectives

<i>Objectives</i>
Less than \$ 2,100.00 in cost
Warranty period of 1 year
Local service available
Maximum warranty period
Energy efficiency
Maximum operation simplicity
Minimum cost
Minimum implementation time

- **Separate the objectives into "musts" and "wants":** A "must" objective is one that you cannot live without, they have three defining characteristics: Mandatory, Measurable, and Achievable. All other objectives that fail any one of these characteristics are a "want" type of objective. "Wants" are as important as the "musts", though they serve a different purpose. "Musts" decide which alternatives get in the game, "wants" decide who wins. Each objective will be identified with an M for a "must", and a W for a "want". Each objective go through the questioning process of: Is it mandatory? Can we measure it? Can we achieve it? Table II shows the objective separation into "musts" and "wants" for our example. Care should be taken not to make the "musts" to point to a specific or already known alternative. This will negatively affect the outcome of the decision, bringing into it too much subjectivity. The main idea is to keep the process as objective as possible to make the best balanced choice.
- **Weigh the "wants":** Now each "want" must be assigned a value (weight) from 1 to 10 of relative importance when compared against each other. This is where subjectivity comes into play. If your biggest concern is to minimize the initial cost, then that objective should be assigned a 10. Every other objective will be assigned a number comparing it to this one. Returning to our example, we have the following:

Table II: Classifying the objectives

Less than \$ 2,100.00 in cost	M
Warranty period of 1 year	M
Local service available	M
Maximum warranty period	W
Energy efficiency	W
Maximum operation simplicity	W
Minimize cost	W
Minimize implementation time	W

Table III shows that the most important objective is energy efficiency, second most important is simple operation, and so on. Also please notice that the “musts” have no weight. That’s because “musts” are go/no go filters. And will be scored that way.

Table III: Weighing the “wants”

<i>Objectives</i>		<i>Weight</i>
Less than \$ 2,100.00 in cost	M	
Warranty period of 1 year	M	
Local service available	M	
Maximum warranty period	W	5
Energy efficiency	W	10
Maximum operation simplicity	W	8
Minimize cost	W	7
Minimize implementation time	W	6

- **List the alternatives:** State the alternatives from which you will choose from. Notice that we are looking at alternatives after objectives; this helps maintain the process objectivity. How many times

have we restricted our choices because we are concentrating on the alternatives in front of us instead of exploiting the full potential of what we really want out of the decision? In our case, we have two existing window units and we will be considering the following four alternatives:

Alternative 1: Purchase new units, same as existent.

Alternative 2: Retrofit/repair existing units.

Alternative 3: Replace both units by one CHW unit.

Alternative 4: Replace both units by one multi-split.

- **Screen the alternatives:** Any alternative that does not comply with a “must”, has to go. Choose your “musts” carefully; watch out for the trap of a lot of “musts” that will bias the decision process! (i.e. restrict you to only one viable alternative) Table IV reflects the scoring for our example, please note that once an alternative fails a “must” objective it has to be discarded and no further action is required.

In our example, alternatives 2 and 4 failed the “must” objectives. Alternative 2 does not provide any warranty and alternative 4 is too expensive. Notice how close alternative 4 is to the “must” limit, yet it’s over so it has to be eliminated.

- **Compare alternatives against the “wants”:** The next step is to score the objectives for each surviving alternative (in our case 1 and 3) on how well it complies with the “wants”. Give specific data to justify the weight. In our example the highest the EER, the more efficient the unit is. Therefore, the unit with the highest EER gets a 10, the other will get from 1 to 9 depending on how far they are from the first. Refer to table V.

The score gets multiplied by the weight to get a weighed score. This is shown in the right column. Add the scores for each alternative. Rank the alternatives from higher to lower scores. In our example Alternative 3 is the highest score. The next step consists of analyzing risk by considering adverse consequences.

- **Risk assessment:** This is achieved by stating what might go wrong in an IF, THEN format. In our example we have: IF alternative 3 has hidden costs, THEN we might go over our budget.
- **Make the decision:** Once we have identified the possible adverse reactions, the decision can be made.

Table IV: Decision Making Example using Kepner-Tregoe's Approach

Decision Statement: Select the best A/C alternative for my home									
		Alternative 1		Alternative 2		Alternative 3		Alternative 4	
		Purchase new units same as existent		Retrofit/repair existing units		Replace both units by one CHW unit		Replace both units by one multi-split	
Objectives		Data	Score	Data	Score	Data	Score	Data	Score
Less than \$ 2,100.00 in cost	M	\$2,000	go	\$1,500	go	\$1,995	go	\$2,100	no go
Warranty period of 1 year	M	1 year	go	No warranty	no go	1 year	go		
Local service available	M	Yes	go			Yes	go		

Table V: Decision Making Example using Kepner-Tregoe's Approach

Decision Statement: Select the best A/C alternative for my home								
		Alternative 1				Alternative 3		
		Purchase new units same as existent				Replace both units by one CHW unit		
Objectives		Weight	Data	Score	Data	Score	Data	Score
Less than \$2,100.00 in cost	M		\$1,000	go	\$1,995	go		
Warranty period of 1 year	M		1 year	go	1 year	go		
Local service available	M		Yes	go				go
Maximum Warranty Period	W	5	1 year	5	25	1 year	5	25
Energy Efficiency	W	10	4.5 EER	7	70	6.0 EER	10	100
Simplest operation	W	8	4 buttons	10	80	6 buttons	7	56
Minimize cost	W	7	\$1,000	10	70	\$ 1,995	5	35
Min. Implementation time	W	6	6 weeks	3	18	2 weeks	10	60
TOTAL weighed scores					263			276

The question here is: Are we willing to accept the risk to gain the benefit of this alternative? This concept is known as choosing the best balanced choice. In our example although alternative 3 has a higher score, we are not willing to risk going overbudget and therefore the best balanced choice will be alternative 1.

These techniques attempt to provide a systematic approach to decision making. In today's dynamic environment, decision makers must make use of the tools but not get overpowered by them. The tools are there to facilitate our work, and provide guidance in our daily decision making. Such tools are useless if implemented in the absence of sound judgement and ethical values.

Figure 1 depicts a decision maker full of doubts. This is not a desirable situation in any event, therefore systems should be set up at the organizational level, as well as at the individual level to facilitate the decision making process. In our next section we will review the preferred decision making technique, which takes advantage of group dynamics. This approach mandates the direct involvement of all stakeholders.



Figure 1: Doubtful decision maker

IV- TEAMWORK AND DECISION MAKING [5]

In all approaches to Decision Making, it is imperative to include the "right" people at the "right" time. This is naturally accomplished in environments where teamwork is practiced every day. Team decision making is a specifically designed process aimed at obtaining consensus from all members of the team once the decision is made.

Advantages to this approach include smoother implementation of the chosen decision, improved overall performance, and flexibility to modify the final decision as required to achieve continuous improvement.

Although this is the best approach to decision making, it can be improved by having clear and common guidelines.

Gordon Lippitt (1978) has valuable advice on team decision making. According to him, there are eight important criteria for an effective process:

- 1- Clear definition of the problem
- 2- Clear understanding of who has the responsibility for the decision.
- 3- Effective communication for idea production.
- 4- Appropriate size of group for decision making.
- 5- A means for effectively testing the alternatives
- 6- A method for building commitment to the decision.
- 7- Honest commitment of the leader to the group decision making process
- 8- Pre-agreement on the methods and procedures used.

By following the processes described in this article, you will be able to make the most out of your daily decision making process. This will provide personal satisfaction and renew a sense of self-control, which will empower you and/or your direct reports to enhance your journey through the never ending process of continuous improvement. Happy trails!

REFERENCES

- [1] Lundin, S., C., Paul, H., Christensen, J., "Fish!" book, 2000, pp 99-102.
- [2] Simmons, A., "Territorial Games, Understanding & Ending Turf Wars at Work", book, 1998, pp 52-53.
- [3] Schermerhorn, J., R., "Management 7/e", book, 2002, pp. 76-79.
- [4] Kepner, C., H., Tregoe, B., B., "The New Rational Manager: An updated edition for a new world", book, 1997, pp 77-99.
- [5] Varney, G., H., "Building Productive Teams: An action guide and resource book", book, 1989, pp 83.

OFRECIMIENTOS ACADÉMICOS EN LA UNIVERSIDAD POLITÉCNICA DE PUERTO RICO
 OFICINA DE ADMISIONES Y PROMOCIÓN / TEL. (787) 754-8000 EXT. 283, 289, 310, 469

PROGRAMAS DE BACHILLERATOS

Bachilleratos en Ciencias en:

- ↳ Ciencias de Computadora
- ↳ Ingeniería Eléctrica
 con énfasis en:
 - ↳ Electrónica
 - ↳ Potencia Eléctrica
- ↳ Ingeniería en Computadoras
- ↳ Ingeniería Mecánica
- ↳ Ingeniería Industrial
- ↳ Ingeniería Civil
- ↳ Ingeniería Química
- ↳ Ingeniería Ambiental
- ↳ Agrimensura
 (Incluye Tasación de Propiedades, Sistemas de Información Geográfica y Sistema de Posicionamiento Global-GPS.)

Bachilleratos en :

- ↳ Arquitectura
- ↳ Administración de Empresas
 áreas de interés en:
 - ↳ Contabilidad
 - ↳ Mercadeo
 - ↳ Sistemas de Información
 - ↳ Gerencia
 - ↳ Gerencia Industrial
 - ↳ Gerencia de Construcción
 - ↳ Finanzas

↳ *Centro de Educación Profesional y Adiestramiento (CEPA)*

- ↳ Educación Continua

↳ *Centro de Educación a Distancia (CEDUP)*

- ↳ Cursos en-línea de Bachillerato y Maestría
 (pueden tener requisitos presenciales)

ESCUELA GRADUADA

Programas Graduados en Ingeniería:

- ↳ Maestría en Manufactura Competitiva
 áreas de interés en:
 - ↳ Productos Farmacéuticos
 - ↳ Dispositivos Médicos
 - ↳ Gerencia de Calidad
- ↳ Maestría en Ingeniería de Manufactura
 áreas de interés en:
 - ↳ Automatización Industrial
 - ↳ Procesos Farmacéuticos
 - ↳ Gerencia de Calidad
- ↳ Maestría en Ingeniería Civil
 áreas de interés en:
 - ↳ Estructuras
 - ↳ Geotecnia
- ↳ Maestría en Ingeniería Eléctrica
 áreas de interés en:
 - ↳ Procesamiento de Señales Digitales
 - ↳ Sistemas de Comunicaciones

Programas Graduados en Gerencia

- ↳ Maestría en Ingeniería Gerencial
 con énfasis en:
 - ↳ Gerencia de Manufactura
 - ↳ Gerencia Pública
 - ↳ Gerencia Ambiental
 - ↳ Gerencia de Construcción
- ↳ Maestría en Gerencia Ambiental
- ↳ Maestría en Administración de Empresas
 áreas de interés en:
 - ↳ Gerencia General
 - ↳ Gerencia de Empresas Internacionales
 - ↳ Sistemas de Información Computarizados
 con énfasis en:
 - E-Commerce
 - Base de Datos

INSTRUCCIONES PARA COLABORADORES EXTERNOS

1-Aunque la mayoría de los artículos que aparecen en la Revista de la Universidad Politécnica de Puerto Rico (UPPR) los provee nuestra facultad y estudiantes, la revista acepta colaboraciones de otras fuentes.

Envíe los manuscritos a:

Dr. Miguel A. Riestra
Presidente de la Junta Editorial
Universidad Politécnica de Puerto Rico
Apartado de Correos 192017
San Juan, Puerto Rico 00919-2017
email: mriestra@uppr.edu

2-Somete sólo artículos que no se hayan publicado, o sometido para publicación, en otras revistas. La información sin embargo puede haberse presentado en foros, simposios o congresos técnico-profesionales, pero no haber aparecido en las memorias de esas actividades.

3-Los manuscritos deben estar impresos a doble espacio en papel de 8 1/2 x 11 pulgadas y estar acompañados con un disco magnético en un formato compatible con MS Word, los que pasarán a ser propiedad de la UPPR.

4-Todo artículo deberá estar acompañado de un resumen (“abstract”) en inglés y en español de 15 a 25 líneas.

5-Las tablas y las ilustraciones deberán estar identificadas y enumeradas en orden consecutivo.

6-Para las referencias siga el manual de la American Psychological Association.

7-La Junta Editorial se reserva el derecho a publicar, editar los textos y hacerles las correcciones de estilo que entienda necesarias. No se devolverán manuscritos sometidos para publicación.

La suscripción es de \$10.00 anuales (moneda de los Estados Unidos de América) incluyendo franqueo, para Puerto Rico y los Estados Unidos. Para otros países la suscripción es de \$20.00. Los ejemplares sueltos, el número corriente o anteriores, si estuvieran disponibles, se pueden obtener por \$7.00, incluyendo franqueo, cada uno. Escriba a la dirección anterior.



UNIVERSIDAD
POLITÉCNICA
DE PUERTO RICO

TABLA DE CONTENIDO

Virginia Dessús Colón

- **TUNOMÁS HONEY DE JIM SAGEL: REAPROPIACIÓN Y PRESERVACIÓN CULTURAL DEL MUNDO CHICANO**

Jorge L. Lizardi Pollock

- **PENSAR EL ESPACIO, CONSTRUIR IDENTIDADES: REFLEXIONES EN TORNO A LA MEMORIA Y EL PATRIMONIO ARQUITECTÓNICO DEL CARIBE**

Modesto Iriarte Jr.

- **PROPAGACIÓN DE RADIOFRECUENCIAS A TRAVÉS DEL ESPACIO INTERESTELAR**

Iris Miranda

- **CHANGING BEHAVIORS: RE - CONCEPTUALIZATION OF A TUTORING CENTER**

Alfredo Cruz

- **A HYBRID DETERMINISTIC/GENETIC TEST GENERATOR TO IMPROVE FAULT EFFECTIVENESS AND REDUCE CPU TIME RUN**

Eric Nieves Segarra

- **POWER ELECTRONICS RESEARCH EXPERIENCE FOR UNDERGRADUATES**

Carlos E. Claudio

- **ARE YOU MAKING GOOD DECISIONS?**

SEGUNDA ÉPOCA

Volúmen II

Núm. 1- abril 2004

NON PROFIT ORG.
US POSTAGE PAID
SAN JUAN, P.R.
PERMIT NO.837