

**Emilio García López**

Universidad Autónoma de Occidente,  
Sinaloa, Mexico

**Marcela Rebeca Contreras**

Universidad Autónoma de Occidente,  
Sinaloa, Mexico  
marcelac25@hotmail.com

**Ernesto León Castro**

Universidad Autónoma de Occidente,  
Sinaloa, Mexico

# The Decision-Making Process in the New Products Development of the Fishery Cooperative in the Community of Las Arenitas Eldorado, Sinaloa

**ABSTRACT**

**Objective:** Design a decision-making model for the development of new products in the fishing cooperative societies of the community Las Arenitas, Eldorado, Sinaloa.

**Methodology:** In accordance with the methodology used, it was classified as qualitative. A case study was carried out in the „Jose Luis Castro Verduzco” fishing cooperative located in Sinaloa, Mexico, where a series of open questions were applied to obtain the opinion of the manager and secretary about the decision making process.

**Findings:** The lack of clarity in the role of the actors in the decision-making process and their specific steps when developing new products was identified. Knowledge about the use of tools is limited, mainly due to the low levels of preparation of managers and members of the cooperative, as well as the lack of knowledge of the processes for the development of new products.

**Value Added:** The study allowed identifying the need for design a method that guides the manager and members of the fishing cooperative in the community of Las Arenitas Eldorado, Sinaloa, towards activities that generate added value in primary products and reduce uncertainty in the decision-making process for the development of new products caused by changes in the needs of the consumer market.

**Value Added:** The study allowed identifying the need for design a method that guides the manager and members of the fishing cooperative in the community of Las Arenitas Eldorado, Sinaloa, towards activities that generate added value in primary products and reduce uncertainty in the decision-making process for the development of new products caused by changes in the needs of the consumer market.

**Recommendations:** The use of a decision-making process is of vital importance for the administration since it contributes to assess, analyze and control situations to choose the best option for the company. Within this project the fishing cooperative has a lot of growth potential, for this reason the implementation of methods such as: The ordered weighted averaging operators OWA or multicriteria analysis for decision making in the development of new products.

**Key words:** Decision making, development of new products, fishing cooperative.

**JEL codes:** D70, J54, P13

## Introduction

In a dynamic and competitive environment where choosing an alternative between several options is a constant activity that does not always adapt to traditional decision-making models or changes in the markets, making this activity a decisive factor for the success of an organization is crucial (Bueno, 2004).

Deciding is a process that involves risk and requires systematic actions and analysis for the interpretation of opportunities or problems that may arise (Hansson, 2005). Michael Roberto (2004) points out that in order to obtain optimal business performance, an appropriate selection is necessary, due to the uncertainty that each alternative represents; in the same way, it is important to carry out an effective implementation of the strategy, whose task falls on the managers since they are usually in charge of making decisions.

A concern in the companies is the decision making focused on the new products development (Alcalá, 2003). An article can be processed in different ways, however, not all options generate the same result. Some procedures turn out not to be adequate and generate high production costs due to the lack of a guiding process. This is because in most cases the system is designed empirically, without considering the stages and the existing qualitative methods to reach to optimal solutions (Ahlstrand, Lampel & Mintzberg, 2001).

In the present investigation it was decided to analyze the decision making process for new products development in the fishing cooperative in Las Arenitas Eldorado, Sinaloa, using a qualitative methodology.

## Materials and methods

The study was carried out in the rural fishing community of Las Arenitas, considering the experience of the fishing production cooperative called José Luis Castro Verduzco. This cooperative was created in 1978 as a result of the separation of fishermen who were part of other fishing cooperatives in the community. Currently, it has 87 members and the main marine species that they catch are estuary shrimp, crab, shark and flake species.

The techniques and tools of information gathering are very important to inquire and collect information in this qualitative research, where descriptive data are analyzed: experiences spoken or written by people, the observation and behavior of the phenomenon under study (Hernández Sampieri, Collado & Baptista, 2003).

The second instrument used to collect information was observation, which according to Gómez and Roquet (2012) can be applied to any behavior or situation of the phenomenon, because it examines the facts of the context, requiring voluntary and intelligent attention, focused on the object of initial and terminal study, in order to gather information.

## Theoretical referents

Given that this research focuses on the analysis of decision making in the organizations, it will be necessary to suggest some processes that will serve as conceptual framework, in order to understand the decision-making process in the way that the following authors propose:

- Castro, E. L., & Contreras, M. (2013). Decision making in the financial management of the business enterprise. *Journal of Intercultural Management*.
- Daft, R. (2007). *Theory and organizational design*. México: Thompson Publishing.

Likewise, another subject of interest is the decision making in the new products development in organizations, therefore it is inevitable to propose some processes for new products development to understand the operation of the production process according to the following authors:

- Robert Cooper and Elko Kleinschmidt, in their research about *proceso del nuevo producto: pasos, deficiencias e impacto* published journal *Gestión de la innovación de productos*.
- Sheng-Li Chang, Chih-Yuan Chen and Shyh-Chyi Wey in their paper *Conceptualizar, evaluar y gestionar la falta de definición del front-end en proyectos de innovación/NPD*.
- Fred Langerak, Erik Jan Hultink and Henry Robben in their paper *El papel mediador del desarrollo de nuevos productos en el vínculo entre la orientación al mercado y el desempeño organizacional*.
- Jeffrey Thieme, Michael Song and Geon-Cheol Shin, in their journal *Características de gestión del proyecto y nueva supervivencia del producto*.

- Finally, in order to understand the situation of the fishing cooperatives, the changes in consumers' consumption behaviors, as well as organizational problems and administrative capabilities that slow down the growth of the society, the suggestions raised by the following authors need to be analyzed:
- María Blanco. Specialized trade in fish and aquaculture products: Present and future. In the magazine distribution and consumption.
- Flores-Crespo. Analysis of the relationship between cooperatives, culture and local development: the cases of Spain, India and Bangladesh.
- Estela Jaquez y Marcela Contreras. Cooperative organizations: the administrative process as part of the management.

## Decision making

The decision making, according to Daft (2007) is a process of identification and solution of a situation or problem in an organization through the selection and implementation of an option. Also Koontz and Weihrich (2012) define it as choosing an activity among several alternatives. According to Benavides (2004) the decisions do not have the same impact within the organization and are implemented in different ways. While Estrada (2015) mention that there are choices that are repetitive and routine, which can establish a process to make a decision. Chiavenato (2006) states that each decision involves the following elements: making decisions, objectives, preference, strategy, location and results.

The decision-making process follows a series of structured and defined steps that support the decision-maker in the search for solutions to different situations or organizational conflicts. It should be noted that to achieve the growth of an organization the elections have to be carried out with the support of the right tool since not all apply for the same situations or problems. It is important to point out that the existing models currently present variations in their structure depending on the author (table 1).

**Table 1. Decision making process**

Chiavenato (2006)	Robbins (2005)	Daft (2007)	Druker (2006)
1. Perception of a problem	1. Identifying a problem	1. Identifying a problem	1. Classifying of the problem
2. Analyzing and defining the problem	2. Identifying the decision criteria	2. Solution	2. Defining the problem
3. Defining goals	3. Assigning weights to criteria		3. Establishing conditions that must satisfy the answer to the problem
4. Searching for alternative Solutions or courses of actions	4. Developing alternatives		4. Deciding on what is right, rather than on what is acceptable, in order to meet field conditions
5. Selecting the most appropriate decision to achieve the objectives	5. Analyzing alternatives		5. Including actions to be carried out in the decision
6. Evaluating and comparing alternatives	6. Selecting an alternative		6. Setting the control to check the validity and effectiveness of the decision in relation to the current state of the facts
7. Implementing the selected alternative	7. Implementing alternative		
	8. Evaluating the efficacy of the decision		

Source: Castro & Contreras, 2013.

The decision-making process has become a factor of responsibility for organizations due to the complexity of the different scenarios that arise in the practice of the companies. That is why, when choosing, the decision maker has to identify and evaluate the alternatives to make the most convenient decision.

There are unstructured decisions that are considered as unscheduled, new and more complex for the organization. These activities are not constantly carried out and for this reason they do not have a methodology or structured process to deal with certain situations that deserve an adequate treatment to address reality in the best way. It should be noted that when a decision is made, one cannot go back in time, one just has to face the consequences.

## New products development

According to Krishnan and Ulrich (2001), the elaboration of products is a complicated process, sometimes expensive and risky. Munuera and Rodríguez (2012) mention that it is recommended to have a structured and systematized process to minimize risk in the decisions to achieve the desired product; in this sense, decision-making in new products development studies the activities and analyzes the choices from the origin of the idea of a new product to its commercialization.

Given the importance of having a process for new products development, several authors have generated models, which consist of a series of steps that facilitate it. Below there is a comparison of the stages considered by the authors in the new products development process (table 2):

**Table 2. Process of development of new articles**

Cooper & Klein-schmidt (1986)	Thieme et al. (2003)	Langerak et al. (2007)	Chang et al. (2007)
1. Generation of ideas	1. Exploratory phase	1. Pre-development stage	1. Ideas / Creativity
2. Projection	2. Concept development	2. Development stage	2. Preliminary assessment
3. Preliminary market analysis	3. Prototype development	3. Marketing stage	3. Innovation project
4. Preliminary technical analysis	4. Test prototype		4. Prototype design and test

5. Preliminary product analysis	5. Market development		5. Product test and validation
6. Preliminary financial analysis	6. Manufacture		6. Production
7. Market study	7. Marketing		7. Market launch
8. Product development	8. Technical development stage		
9. Internal product test			
10. Test with the consumer			
11. Market test			
12. Pre marketing			
13. Commercialization			

Source: Own elaboration based on various authors.

The activities that entail the new products development are complex because of the resources involved and the decisions that have to be made in the preparation of a product. This process sometimes generates benefits for the organization since it allows it to reach new markets segments. However, there are times when the costs are very high, compromising the future of the company (Munuera & Rodríguez, 2012).

Currently there are tools that allow companies to minimize costs in the new products development through the implementation of a structured process that enable analyzing the activities and decisions that are carried out (Evanschitzky et al., 2012).

## Research results

When analyzing the decision-making process in the fishing cooperative, according to the research, it was found that the actors in charge of the decision making are the following:

- The cooperative manager – the person who occupies this position is the highest authority within the fishing cooperative, he makes the programmed decisions.
- Fishing cooperative members –the people who form the group and usually they are related to all the decisions within the cooperative; because they belong to this society, they have the right to express their opinion and vote in assemblies of the organization (ordinary or extraordinary).

Considering the types of actors that take part in the decision making of the cooperative, it is possible to identify several factors that intervene in the process to decide the actions of the cooperative and the new products development, which generates a conflict in the fishing cooperative that limits its progress.

Although the cooperative manager occupies the position of the highest rank in the association and has the knowledge and ability to make decisions within the organization, this only happens when they are programmed decisions, because the solution to those problems was already submitted to a vote. When it refers to non-programmed decisions, the director has to consult the cooperative members to vote because they do not always agree.

In other cases, decisions are limited by the dates of calls that are managed by government agencies where projects are involved and the amounts of support to fishing cooperatives are requested considering the rules of operation and with the help of the accountant, since the fishermen and their managers have limited knowledge of management.

Regarding the decision-making process within the fishing cooperative, the following stages were identified:

- Problem identification – it is when the manager detects a need in the organization.
- Problem analysis – it is necessary to analyze the impact of the problem in question and search for relevant information to generate alternative solutions.
- Define objectives – after the detection of the problem it is necessary to set objectives that serve as a guide in the activities of the organization.

- Identifying the different alternatives – a problem can be solved in different ways, in this case the decision maker has to identify all the possible alternatives.
- Evaluating the alternatives – it is important to analyze all the possible solutions in order to find the best option.
- Implementation of the alternative – this stage is where the manager decides the activities that have to be done in the cooperative to implement the selected alternative.

Considering seven steps of the decision making process mentioned by Chiavenato (2006), in the fishing cooperative six steps of the author are followed, since in the cooperative selecting the alternative does not have to be the appropriate tool to analyze and evaluate the options.

In relation to new products in the fishing cooperative, it was found that throughout its history it has presented a lack of transformation of the captured product. The presentations that commercialize in the case of shrimp is the following: by size with head and without head, frozen or fresh, formal or informal markets, wholesale or retail. This limits its products to a small segment of consumers, as it does not adapt its product and service offering with new methods of preparing fish products that adapt to the new consumers' needs and different marketing channels, which would allow it to potentiate its consumption and not lose presence in the market.

According to the research, in the decision-making process for the new products development within the fishing cooperative, it was found that the decision-makers are the manager in conjunction with the members of the board of directors and the supervisory board, i.e. the members of the cooperative who participate in the decisions of the assembly. In a complementary way, the cooperative's accountant provides information that explains the needs and implications related to the new product development. Also, the governmental organisms like the National Commission of Aquaculture and Fishing are involved, since this dependency promotes the announcements of support for the cooperatives and their development.

Regarding the generation of new products, it was identified that there is no structured and systematized process for decision making, because in these activities different actors intervene and sometimes these are initiated by the people of the cooperative, the accountant or because the National Commission of Aquaculture and Fisheries that promotes the use of resources that need to be exercised. As Krishnan and Ulrich (2001) mention making new products is a complex and expensive activity, where related people have to analyze the activities and decisions to generate benefits for the organization.

In the decision-making process for the new products development, the following criteria were identified:

- Ideas and creativity –when the mentioned actors detect an opportunity to generate a product with the resources they possess.
- Preliminary evaluation – when they carry out the product valuation that they can develop within the cooperative.
- Project – it is a requirement that the cooperative must meet to manage a resource.

In accordance with the seven-step for decision-making process in the new product development mentioned by Chang et al. (2007), in the fishing cooperative only three steps are presented, since in the cooperative at the moment of selecting the most appropriate alternative, they carry it out empirically.

## Conclusions

In Mexico, 99% of companies are small and medium-sized enterprises. 80% of them fail within the first five years of operation, because they do not make the relevant changes in their processes or products to adapt to changes of the environment. It should be noted that SMEs generate 77% of employment at the national level. For this reason, it is important to maintain their operations within the markets based on the decision-making in the new products development.

This work has the purpose of identifying the decision-making process in the new products development in the fishing cooperative, with the objective of identifying areas of opportunity and aspiring to improve the process and the permanence of the organization.

The findings indicate that the decision-making process and the new products development in the cooperative is limited, mainly due to the low levels of preparation (education) of the cooperative's directors and members as well as the lack of knowledge of the processes for the new products development.

## References

**Ahlstrand, B., Lampel, J., & Mintzberg, H. (2001).** *Strategy Safari: A Guided Tour Through the Wilds of Strategic Management*. New York, NY: Simon and Schuster.

**Alcalá, G. (2003).** *Fisheries policies in Mexico (1946–2000): contradictions and successes in the planning of national fisheries*, 2. La Piedad: The Colegio de Michoacán AC.

**Benavides, J. (2004).** *Business Administration*. 2nd edition. New York, NY: McGraw-Hill.

**Bueno, M. C. (2004).** *Methodology for decision making*. Madrid: Delta Publications.

**Castro, E. L., & Contreras, M. (2013).** Decision making in the financial management of the business enterprise. *Journal of Intercultural Management*, 5(2), 63–71.

**Chang, S., Chen, C., & Wey, S. (2007).** Conceptualizing, assessing, and managing front-end fuzziness in innovation/NPD projects. *R&D Management*, 37(5), 469–478.

**Chiavenato, A. (2006).** *Introduction to the general theory of management*. Mexico: McGraw-Hill.

**Cooper, R. G., & Kleinschmidt, E. J. (1986).** An investigation into the new product process: steps, deficiencies, and impact. *Journal of Product Innovation Management*, 3(2), 71–85.

**Daft, R. (2007).** *Theory and organizational design*. México: Thompson Publishing.

**Estrada, M. R. (2015).** *Manejo de problemas y toma de decisiones*. Vol. 8. Colombia: El Manual Moderno.

**Evanschitzky, H., Eisend, M., Calantone, R. J., & Jiang, Y. (2012).** Success factors of product innovation: an updated meta-analysis. *Journal of Product Innovation Management, 29*, 21–37.

**Gómez, D. R., & Roquet, J. V. (2012).** Investigation methodology. México: Redthird millennium. Retrieved from [http://www.aliatuniversidades.com.mx/bibliotecasdigitales/pdf/axiologicas/Metodologia\\_de\\_la\\_investigacion.pdf](http://www.aliatuniversidades.com.mx/bibliotecasdigitales/pdf/axiologicas/Metodologia_de_la_investigacion.pdf).

**Hansson, S. O. (2005).** *Decision theory: a Brief Introduction*. Stockholm: Department of Philosophy and the History of Technology, Royal Institute of Technology (KTH).

**Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2003).** *Investigation methodology, 707*. México: McGraw-Hill.

**Koontz, H., & Weihrich, H. (2012).** *Administración: una perspectiva global. 12ª Edición*. Spain: McGraw-Hill Interamericana de España.

**Krishnan, V., & Ulrich, K. (2001).** Product development decisions: A review of the literature. *Management Science, 47*(1), 1–21.

**Langerak, F., Hultink, E. J., & Robben, S. J. (2007).** The mediating role of new product development in the link between market orientation and organizational performance. *Journal of Strategic Marketing, 15*(4), 281–305.

**Munuera, J. L., & Rodríguez, A. I. (2012).** *Marketing Strategies: an approach based on the management process*. Spain: ESIC.

**Roberto, M. A. (2004).** Strategic decision-making processes: Beyond the efficiency-consensus trade-off. *Group & Organization Management, 29*(6), 625–658.

**Thieme, J. R., Song, M. X., & Shin, G.-C. (2003).** Project management characteristics and new product survival. *Journal of Product Innovation Management, 20*, 104–119.