

AGRICULTURE BUSINESS PLANNING

Chapter 2

Problem Formulation

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Well begun is half done” –Aristotle

Lecture Overview

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- Problem Formulation in Theory: Concepts
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- Why is a good problem formulation important?
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Introduction to this chapter: Previous Chapter 1 have introduced students to identify the problem by using problem tree approach in order to recognize the problems that are going to be solved. Next step is to formulate the problems. The ability to formulate the problems is the key to design a good solution.

This chapter 2 helps the students to formulate the problem occurred at agriculture field by following these steps ranging from the concept of problem formulation theory, define the good problem formulation, explain the importance of good problem formulation, practice to formulate the problems, apply the problem formulation to a case study at agriculture field. Further, the students are encouraged to make a conclusion and recommendations based on the problem formulated. Problem formulation aims to design new business strategy, create new innovation and increase the profit.

Problem Formulation in Theory: Concepts

Volkema (1987) Problem formulation often is referred to as the most critical phase in the planning, problem solving and decision making processes. Because problem formulation occurs in the early stages of these processes, it can affect the direction of all succeeding stages. Thus, solving the wrong problem (i.e., formulating the problem with incorrect presumptions concerning needs and opportunities) can result in significant monetary losses as well as problem solving ineffectiveness.

The process of defining the specific problem being addressed in. It involves articulating a question and defining how it may be answered. (e.g. by identifying the endpoints to be measured).¹

IGI Global defines the problem formulation as (1) The process in which a **problem** situation is described or modeled, (2) **problem** structure. It is the process of determining the constituent parts of a **problem**: its important factors and variables, and the interrelationships between them.²

What is a Good Problem Formulations?

Good problem formulation generated through the ability to identify the characteristics of problems as below:

- Reflecting on important issues or needs;
- Basing on factual evidence (it's non-hypothetical);
- Being manageable and relevant;
- Suggesting a testable and meaningful hypothesis (avoiding useless answers)³

⁴ A number of investigations have examined the factors that impact problem formulation. a clear criterion by which to establish successful problem formulation has not yet emerged. In fact, in many instances problem formulation success appears to have been approximated by evaluating a distal outcome of this activity—the production of solutions addressing the identified symptoms.

Why is a Good Problem Formulation Important?

The importance of good problem formulation is enabling the solutions reach the right addresses. Bringing solutions to real life is challenging because it costs time, energy and

money and so forth. Thus, a wrong problem formulation will put people to spend much valuable things.

How to Set up a Good Problem Formulation?

A good problem formulation can be achieved through these following steps:

1. Translate an initial problem symptom into a set of question
2. Identify the causes of the symptom⁴

The problem formulation is to build a well question. This course is about to build good question that have to be answered with business as the solutions.

Type of Problem Formulation

- Descriptive

The problem in the descriptive problem formulation is a problem with the independent variables only in one or more variables. Researchers will not make comparisons of one variable with another sample variable, but only look for relationships between variables.

- Comparative

In the type of comparative problem formulation, it is inversely proportional to the descriptive type, where the formulation of the comparative problem is a comparison obtained between variables without having to be described. In short, this type of problem formulation will compare one variable with another. Comparisons between variables can be made between 1 other variable or more than 2 or different samples and at different times

- Associative

The formulation of the problem using an associative model is formed from the relationship and also the comparison between variables. In short, this model is known as a mixed model. Making the problem formulation closer to several related questions, then these questions will be answered in the discussion of scientific papers.⁵

The type of problem formulations mentioned above are for research which are applicable to generate a good problem formulation to start a new business.

Purpose of Problem Formulation

Become an excuse:

The purpose of making the problem in the formulation of the problem is to become a reason for the need to do research. In the research, questions will be presented as problem formulations that aim to make readers understand the ideas and objectives to be achieved, even though they are brief.

Become a guide line:

The existence of the problem formulation functions as a limit for a researcher in conducting his research. Research certainly has time, energy and cost limitations, so that with limitations in problem formulation, researchers can focus on answering existing problems. In theses and papers, this process becomes a guide in answering research results in the discussion or content chapter.

Specifies the data type:

Determination of the problem formulation aims also as a reference for researchers to choose analysis tools and data analysis techniques. The existence of the problem formulation will make the researcher easier to take the research instrument in the form of the variables to be tested and become the research limitation.

Make it easier to determine the sample:

The existence of a problem formulation will make it easier for researchers to take the population and research samples. This is because the large population with limited time, cost and energy needs to be narrowed down to the various criteria that exist in the problem formulation. Dividing the population into several sections with their respective characteristics and criteria makes research more focused and focused on the problem.⁵

Problem Formulation Practice: Case Study

The case study being presented in this part is the research discussed at the Chapter 1 (Problem Tree- The Competitiveness of Indonesian White Jasmine).

Step 1:

Identifying the problem characteristics:

Problem Identified:

The demands for white jasmine flower is increasing and the production keep decreasing. Indonesian white jasmine flower is able to fulfil only 20% of domestics market demand. The decreasing of the production is occurred by many reasons such as the decreasing of land for white jasmine flower cultivation driven by the land conversion to other commodities such as mango and others fruits; the lack of soil suitability for the flowers driven by the salination increasing; and the lack of interest of the younger generation to become white jasmine flower farmers who prefer to be a factory employee.

The problem identified above meets all the characteristics of which the problem will be good formulated. The information is reflecting on important issues or needs namely the demands of white jasmine flower keep increasing whereas the national production is not able to fulfil all the demands. The information was gathered by doing observation with the farmers. The problem is manageable by suggesting to the government to impose a new policy to protect the production input costs and output price. The protected production input costs and output price will help the farmers to keep cultivating white jasmine flowers and stop converting the lands.

Step 2:

Set up the problem formulation:

The problem formulation below is based on the information from step 1.

1. Translate an initial problem symptom into a set of question
 - How much is the need for Indonesian white jasmine flowers in the country in one year?
 - What is the average production of Indonesian white jasmine flowers in one year?
 - Is domestic production able to meet demand?
 - What causes the decreased production of white jasmine flowers?
 - What is the government's policy to address this problem?
2. Identify the causes of the symptom

The Symptom is the reduction of land cultivation. The causes are:

 - The white jasmine flower land cultivation converted to another commodities
 - The increasing of soil salination
 - The lack of younger generation to be farmer particularly to cultivate white jasmine flower.

References

¹ <https://www.efsa.europa.eu/en/glossary/problem-formulation>

² <https://www.igi-global.com/dictionary/problem-formulation/23504>

³ <https://prothesiswriter.com/blog/how-to-formulate-research-problem>

⁴ Baer, M., Dirks, K. T., Nickerson, J. A (1977). *A Theory of Strategic Problem Formulation* (Vol. 55, pp. 3562–3574).

⁵ <https://notesread.com/example-of-problem-formulation/>

Volkema, R. J. (1987). Problem formulation: Its portrayal in the texts. *Journal of Management Education*, 11(3), 113–126. <https://doi.org/10.1177/105256298701100312>