



# Developing the Right Decision Framework

An Online Continuing Education Course for Engineers

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## Introduction

The goal of this course is to walk individuals through a process that can be used to evaluate products or projects within your organization. The approach described in the course has been used in numerous consulting engagements with Fortune 500 companies, the military, and government agencies and has provided those organizations with a sound, decision-science based approach to evaluating projects and products in their company.

The course provides an overview of the science associated with the step-by-step process. A more in-depth coverage of the decision science topics covered in this course and real-world examples are described in other courses by the author including “The Science of Common Sense: Best Practical Decision Science Methods,” “A Professional's Guide to Decision Science and Problem Solving: An Integrated Approach for Assessing Issues, Finding Solutions, and Reaching Corporate Objectives,” and other eBooks published by the Financial Times Press.

The course is divided into sections to segment the process so that you can perform the evaluation process. Section 1 discusses establishing goals and objectives for the organization. Section 2 involves the process required to develop criteria and metrics to meet the goals and objectives. Section 3 discusses the group evaluation of projects and products, and Section 4 describes the product and project evaluation process based on the techniques provided in the previous sections.

The goal of this course is to provide a structured framework to evaluate projects and products so that organizational decisions contribute to the accomplishment of the goals and objectives of the organization. This robust, analytical framework provides for defensible decisions within an organization.

## Section 1: Establishing Goals and Objectives

### 1.1 Management Support Required to Execute the Approach

A primary goal of the process is to drive the corporate objectives into a cross-functional analysis that best solves problems for the company as a whole. To accomplish this, senior management must establish or communicate the objectives and support the overall approach so that the appropriate executives, managers, and subject matter experts also engage in the process.

Identifying the goals and objectives of the organization requires upper management involvement in setting goals and communicating these goals to the decision-makers at all levels of the organization. Upper management is interviewed by facilitators to help determine a consensus of the corporate objectives. This involves discussing the corporate and departmental objectives and goals with all the business components, such as operations, sales, marketing, and finance.

To understand the problem, you must understand the decisions that must be made at each level. This includes defining the questions so that the answers are consistent with the corporate and individual goals. The answers to the following questions should support overall corporate goals.

How much should I produce a product in each of the product lines?

What research items should be funded?

What are my warehousing requirements?

How does my production affect my inventory requirements?

What should I plan to produce to meet customer demand?

How can I optimize scheduling delivery vehicles?

And, many others.

You must also determine what you can actually change and what you cannot change within the organization. For example, if an organization wants to determine products to keep in a product line, it is not likely that the flagship items should be removed from the product line without considering their impact on all products.

Fixed operating constraints that you cannot change may also exist. This may include any number of constraints on current operations such as plant capacities, warehouse space, and the number of resources available for spending in a given year. Usually, a whole range of operating constraints exists from manufacturing, warehousing, distribution, and other areas of the company that affect the decision latitude that can be made.

You need to define the operating constraints and the variables associated with the actual decisions to be made, such as things that can be rationally changed in the normal course of business operations. This may include things such as plant throughput, funding of programs, sales commission structures, and others. The idea here is to determine what decisions can be made or changed and what cannot be changed. Understanding the decision limitations within an organization defines the operating constraints of the decision process.

The result of this is the definition of the objectives and then the decisions to be made, and the metrics used to measure the success of the proposed decisions.

## **1.2 Solving the Right Problem**

The process of organizational decision making is complex because executives may have their own goals independent of the corporate goals. The challenge is to balance the individual objectives and goals with the corporate objectives and goals both in the short and long term.

Traditionally, decisions are made in a stovepipe fashion. That is, each functional area makes decisions that are best for it without regard to the needs of the other functions; for example, manufacturing is not concerned with marketing or distribution or finance. The reason for this is the reward system for each functional area focuses only on the efficiency of that system. That is, the plant manager or operations manager is rewarded for such things as utilization of assets, return on assets, throughput, quality, minimum labor cost, and scrap for the units produced. None of these factors measure marketing efficiencies or any other functions. Marketing, for example, is basically measured and rewarded for total sales and not on specific products or product mix. When each function goes its separate way and decisions are made that improve that single function, who is looking out for the company as a whole? It begs the question, “Who is running the company?” Is it running by default, where the strongest personality drives the company from their functional perspective? How, then, can you develop an overall plan for the good of the company where individual functions are sacrificed a little for the overall good. This may result in

manufacturing making products that don't fully utilize the production assets, where marketing doesn't maximize the total volume sales but sells an optimum mix of products that maximize customer service and maximize profitability. You can then see it would be much better overall if there were a combined reward system so that the overall good of the organization is achieved in place of individual goals in the short and long term.

This leads to the issue of how best to manage the many objectives and how to tradeoff between them so that the entire organization prospers now and in the future. To do this, you must first state what are the organization's goals and objectives. You must first specifically determine what these goals are in the short term and for the future and then set up metrics to measure how well you accomplished them. One way to do this is to ask some difficult questions. What are you trying to accomplish within the company? What are you trying to accomplish at each organizational level? Unfortunately, most firms do not spend time asking these questions, or if they do, they don't implement the answers into their everyday operations. Why does this happen in nearly all the corporations large and small and at every level? Although everyone's intentions are good in setting corporate objectives, the major problem is that with today's approach to management, the objectives are ill-defined and consequently impossible to implement. How then can you ensure the corporate objectives are implemented throughout the organization, and how can you measure their success? The primary reason corporate objectives are not implemented at the operations level (which is the only place they can make an impact) is that they usually are subservient to individual manager's objectives.

Thus you must ask, "How can we get there if we don't know where we are going?" More specifically, what are you trying to accomplish at the corporate level, at the functional level, and most important at the individual or action level? A great deal of effort goes into establishing a 5-year plan and identifying a number of corporate objectives with everyone pretending to agree, knowing full well the plan will be put on the shelf and promptly forgotten after the exercise is over. There is a much better way to develop a framework for improving operations.

### **1.3 Developing an Understanding of the Problem**

This phase of the process is focused on developing an understanding of what the organization wants to accomplish. In this process, you ask difficult questions and correctly interpret the answers that reveal the correct problems.

Answering these questions requires getting key individuals to look closely at what they each want to accomplish individually and companywide. This process takes thought and reflection by management. Starting this type of thought process makes management focus on its individual needs and then integrate them into the overall needs of the organization. Many times, individuals are not overtly aware of how solving their problems impact the other divisions within their company. Bringing these individuals together and addressing the problems forces them to look at their problems as total organizational problems.

## **1.4 Defining Goals and Objectives of a Company or Organization**

You can use a number of different methods and approaches to defining corporate goals and objectives, using formal and informal procedures. Doing this can provide the organization with a definition of its goals and objectives that represent its current thinking. These goals and objectives can then be integrated into the decision-making process so that decisions made with the decision model are structured to impact all levels of the organization and are quantifiable and defensible.

In establishing corporate goals and objectives, consider using management to get a group consensus. Available group decision-making techniques vary in degrees of formality, and you can use them to facilitate this process. Techniques range from simple brainstorming to more sophisticated methods. The end result should be a clear definition of what a corporation views as its goals and objectives. When defined, these goals and objectives can then be built into the decision process. Following is a sequence of steps that you can use to establish the goals and objectives of an organization.

### **1.4.1 Group Decision Making**

The goal of group decision making is to get a group consensus and determine the objectives that most satisfy the group overall while balancing the conflicting goals and objectives. These objectives can and do change over time and change when the makeup of the group changes. You can apply numerous methods in group decision making, but the simplest techniques are SPAN, nominal group technique, brainstorming, and brainwriting. Each can be used to gain a group consensus of goals and objectives. You can apply different methods for group decision making

