

# A Methodology for the Measurement of Internal Managerial Efficiency in Public Enterprises

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## I. INTRODUCTION

The objective of the study is to present a methodology for the measurement of internal managerial performance in public enterprises. In general, public enterprises have to satisfy two criteria in their performance. The first is to meet objectives which were set by the government when the public enterprises were founded. The second is to achieve profitability as a business unit. Due to these somehow contrasting criteria, it is said that the measurement of internal managerial efficiency in public enterprises presents a complicated measurement problem.

In this study, the focus of the analysis is placed on the efficiency of the managerial performance. Efficiency is used here to refer to whether a given amount of source in a public enterprise is utilized in a way to achieve the greatest result. Thus, the analysis of efficiency is primarily concerned with an investigation of management practices and its effect on the company's performance. The analysis could be made by means of in-depth interviews with top executives and departmental managers in public enterprises.

## II. THE MEASUREMENT FRAMEWORK

First of all, it should be recognized that performance of a company is directly

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related with the efficiency with which people in the company are managed in all activities. In this connection, a separate questionnaire should be prepared to measure the employee morale and attitude toward the company. Also, the soundness of organization structure should be analyzed in conjunction with the management of people.

In measuring the performance of public enterprises cost minimization is of primary importance in assessing the managerial performance. Since the pricing policy in most of public enterprises is determined by the government, under which same quality is priced differently for different companies, the profit-maximization concept cannot properly measure the performance of each company. Instead, the cost-minimization concept is taken as one of main criteria for efficiency of the management.

As an example, the Korean fertilizer industry where price and marketing of the product is strictly controlled by the government, the cost-minimization can be obtained through the following activities:

- 1) maximum (efficient) utilization of fertilizer manufacturing process that is installed already: It is well recognized in the fertilizer companies that the manufacturing process as a continuous production process should be run continuously without interruption if the facility is going to be.
- 2) efficient management of purchasing activities: Annually, one of the fertilizer companies, Young Nam, purchased raw materials amounting to 4.27 billion won from the domestic market and 14.46 million dollar from overseas. Also the company purchased 311 million won worth of maintenance parts from oversea. The magnitude of these figures and their influence on total cost, of course, emphasized the importance of evaluating carefully the efficiency of purchasing operations. Especially the planning and controlling of purchasing operations, purchasing procedures, and inventory management of materials deserve a close attention.

In addition, financial conditions of public enterprises should receive emphasis in the measurement. For example, trends in various ratios of financial conditions

should be analyzed to measure management's performance. Also, the budgeting system in relation with the controlling agencies and its effects on managerial performance should be studied.

In the case of the fertilizer companies' performance, a comprehensive and systematic approach to fact-finding and analysis could be done. Table 1 summarizes the major areas and factors to be evaluated. In addition, interfunctional coordination procedures need a careful study.

In order to obtain the required data, in-depth interviews with top executives and departmental managers in each company can be done. Financial statements over period of 5 years can be used to put the company's performance in perspective and to reveal any significant trends. Comparative analyses between the public enterprises will help to compare performance. In addition, comparison with foreign companies in the same industry, if possible, can be made to evaluate the performance of the public enterprise.

In carrying out the measurement, efficiency is used to refer to, whether a given amount of resources is used in a way to achieve the greatest result. Since assessment of efficiency in the public enterprises companies requires how the resources are managed in fulfilling its goals, it is necessary to secure an understanding of the public enterprises' mission and their roles as a public enterprise in order to establish value standards against which the company's performance would be measured.

For examples, in the case of public enterprises in the Korean fertilizer industry, which were described earlier, the mission of the fertilizer industry is to provide the necessary fertilizer to the farmers when, where, and in quantity demanded, at the lowest cost. Then, the mission of each fertilizer company is

- 1) to produce maximum volume of fertilizer as demanded by and requested by the government,
- 2) at the lowest possible cost.

Table 1

Factors to be evaluated	Factor	Indicators	Evaluation
1. Objective	Consistency with the government goals	Actual goals, Stated goals, Perceived goals	Effectiveness
2. Organizational structure	Specialization	the degree and number of specialization	<i>Organic vs. Mechanistic Model</i> low high
	Standardization	standardization of procedures	
	Formalization	the degree to which rules, procedures, communications are written	
	Centralization	hierarchy of authority degree of participation in decision making	
	Configuration	degree of complexity and stratification	low high
	Soundness of organizational structure	top-executive level function of Board of Directors	degree of bureaucracy effects of organizational characteristics
	Departmental coordinations	communication between departments	delegation of authority, responsibility, accountability, its impact on the performance of organization, flow of information, degree of autonomy
	Departmental coordinations	member and kind of committees pattern and method of communication	

Factors to be evaluate		Factor	Indicators	Evaluation	
3. Performance	production system	productivity	trends in productivity —labor productivity —capital productivity —process yield trends in cost per unit quantity (analysis of manufacturing)	production efficiency	
		cost-minimization	cost reduction/avoidance activities	activities for cost reduction/avoidance	
		capacity utilization: maintenance and repair	efficient use of capacity activity	ratio of capacity utilization hours of process down-time (analysis of down-time causes) planned vs. actual production rate	
		quality control	achievement of quality standard	trends in quality (in terms of defectives, rejection rates)	
		production and inventory planning	demand forecast finished goods unnecessary inventory	trends in unnecessary asset inventory inventory turnover	
		manufacturing engineering support and innovation	improvement on manufacturing facilities	number of engineering innovation cost savings from engineering support and innovation	
		financial condition	profitability financial stability	financial ratios	efficiency in the use of financial resources
		budgeting system	budgeting procedures	types of budget budgeting procedures control on budget	effectiveness of budget as a planning and controlling mechanism
		cost accounting system	use of cost accounting	types of cost accounting method number of days required to obtain ex-post cost data	degree in which cost accounting data are used effects of auditing
		auditing system	function of auditing	type of audit	

Factors to be evaluated	Factor	Indicators	Evaluation
marketing system	market position product development and leadership channels of distribution pricing activities of sales forces	marketing standing of the company sales volume share of the market obtained number of new products introduced advantages and disad- vantages of distribution channel used pricing policy sales promotion method	overall performance in marketing function
personnel system	employee attitude	motivation of manage- ment and workers degree of satisfaction from the work, achi- evement, recognition, self-fulfillment, status- prestige feeling toward their job pay relationship with superior working condition job security	employee performance and attitude
	personnel development	programs for manpower development hiring and promotion statistics employee turnover number of transfers between the functional areas trends in the number of employees (in compari- son with production activities)	effectiveness of manpower development program: —at director's level —at manager's level —at lower level
	total number of employees	optimum number of employees	
purchasing system	purchasing policy	coordination and flow of information between departments procedures for purchasing activity	efficiency in purchasing activity
	purchasing procedures		

The performance of the four fertilizer companies should be measured on the basis of the above mission.

But there are no absolute single criterion of performance against which to measure how efficiently the mission is accomplished. It is necessary to use multiple criteria, as shown in Table 1, to reach overall conclusions about a company's performance.<sup>(1)</sup> While each of these criteria is only a partial measure of performance, the trends and other characteristics among these criteria measure the overall performance of each company.<sup>(2)</sup>

### III. An Application

The following frame of analysis is used in conjunction with the areas and factors evaluated (Table 1) in order to evaluate the performance of the four fertilizer companies, which are public enterprises.

- 1) Analysis of key performance measures: Those factors described in Table 1 are analyzed and trends in cost, productivity, financial ratios are studied to measure management's performance. Continuing improvement on these factors over time will be regarded as a good indication that management achieves greater efficiency in its use of resources.
- 2) Comparison of key performance measures: Comparisons are made between the four fertilizer companies' performance ratios and with other comparable data from foreign fertilizer companies. Comparison with foreign fertilizer manufacturers may provide another measure of relative performance for the company under the study. In addition, comparisons are made between

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(1) Peter Drucker, for example, lists: market standing, innovation, productivity, physical and financial resources, profitability, manager performance and development, worker performance and attitude, and public responsibility.

(2) When these criteria can be weighted objectively on the basis of their importance by attaching a numerical grade to each of criteria, it is possible to combine the measures of various aspects of performance into a composite index, which measure the overall performance. In fact, such a composite is used by the American Institute of Management in evaluating and ranking the managements of corporations, hospitals, and other organizations. If interested, see *Manual of Excellent Management* (New York, 1955).

the fertilizer companies' performance measure and that of private companies when appropriate and possible.

- 3) Analysis of management process and methods: In addition to the quantitative analyses of performance measures, qualitative aspects of management such as what kind of management techniques are being used, how planning and control is performed, and what procedures are used in decision-making, are studied and compared with those of other companies.

In conclusion, the aim of the section is shown how the measurement frame can be applied to performance of the four fertilizer companies. This is analyzed with the variables described in Table 1 and performance criteria were obtained by defining the mission of the companies. However, it should be noted that the analysis is a comparison of the company's relative effectiveness at various times and not a comparison of its achievement with its stated goals in absolute terms.