Management Efficiency and Its Measuring Methods

L'EFFICACITÉ DE LA GESTION ET SES MÉTHODES DE MESURE

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Abstract: What is management efficiency and how to measure it which is a subject that isn't resolved scientifically in the world of academe. The authors of the paper, to start with researching quantity of management, think that management efficiency is quantity of information communicating finished by a manager in a unit time and on the basis of which put forth corresponding method of measuring management efficiency.
Key word: management efficiency, essentials of management, method of measuring

Résumé: Q'est-ce que c'est l'efficacité de la gestion? comment peut-on la mesurer ? c'est une question qui n'est pas encore résolue dans le monde académique. l'auteur de cet article, en commençant par l'étude de la quantité de la gestion, pense qu l'efficacité de la gestion est la quantité des informations communicatives accomplies par un gérant dans un temps déterminé, d'où viennent ses méthodes de mesure correspondes.
Mots clés: l'efficacité de la gestion, l'essentiel de la gestion, la méthode de mesure

1. INTRODUCTION

Economical modernization depends on managing modernization. In the final analysis, economical lag is lag of management. With expansion of our country's economy reformation unceasingly, "management brings benefit" and "benefit comes from management" have become the common viewpoint of many people in management science field. The primary task of management lies in realizing the organic combination of

a variety of resources or factor of   production, and the combination status determines the utilization efficiency of each factor of production. Based on the thinking, in fact, it is essential task of economic system reform of all-sided enforcement at present to optimize combination of factor of production and to realize the reasonable allocation and high efficiency operation of the resource.

However, owing to various reasons, tradition management is also chief management way in all departments and industries in our country. Moreover, one of the most limitation of tradition management is low management efficiency. Such low management efficiency has already become serious restrict factor of society and economy development in our country. Thus,

the management efficiency problems are important ones for us to solve. Luckily some scholars have done definite study. For instance, literature [1] pointed that management efficiency came down to work efficiency, and used below formula to express:

$$\eta = \frac{N_{CP}}{N_{NCP}} \qquad (1)$$

Where: η is the work efficiency

N_{CP} is the number of events completed within given period

N_{NCP} is the number of events to need complete within given period

This formula in a certain extent can be used to illuminate status of work efficiency. But in practice application, usage of this formula exists some limitation. Firstly, there are many effect factors to deal with a piece of event, such as, original status of this event, circumstance factor and personal factor and so on. Secondly, at the same condition of effect factor, event to need complete is big or small, also difficult or easy. Thirdly, hard or enjoy is odds, a piece of event may be completed by a management unit or a management group. How to distribute the workload is a question that

needed to solve. Herein this, this paper will proceed with the effect factors of management efficiency to study the essential of management activity. Based on the study, the corresponding method of measuring management efficiency is expatiated.

2. THE ESSENTIAL OF MANAGEMENT ACTIVITY

What is the essential of management activity? Different management scientists have different opinions, but those cannot handicap to understand essential features of management activity.

To realize these questions rightly, we need to know the task, function and goal of management. The task of management is to realize the organic incorporation of a variety of resources or factor of production, and the function of management is that the organization staffs realize to identify organization goal through varieties of manner. So by analyzing them, we may educe the conclusion that the essential of management activity is the communication of information. The demonstrate of the conclusion is as follows:

Firstly, all management activity will recur to determinate organization. Based on the view of the inscape of an organization. The founder of the Organization theory C. I. Barnard (1886~1961) pointed out that any organization is composed of three basic factors that are common goal, concurrent desire and communication of the information in which will cannot lack [2]. If one of them is lacked, any organization will become out-of-order chaos. The communication of the information is more important. If the information is not communicated, it is very difficult for the members of an organization to know the goal of the organization so as to they cannot cooperate each other to realize them and the organization cannot order run.

Secondly, based on the view of management method, the basic methods are administrative method, juristic method, economic method and educational method and so on. Based on the view of the essential of management activity, these different methods complete the communication of information from different angles, for example, administrative method and juristic method do the communication of authority, economic method do the communication of benefit, and educational method do the communication of truth. Hence, the validity degree of those methods is up to authority or benefit or truth degree of using those methods. Unquestionably, the more the methods are used, the higher the management efficiency is. Obviously, validity degree of the methods is also communication degree of the information. So, management efficiency comes down to communication efficiency of the information in fact.

Thirdly, based on the practice view of management

activity, the order degree of any organization depends on the synergic condition and degree of all staffs realizing organization's goal in their organization, whereas, the synergic degree depends on knowing and identifying degree of all staffs to goal of organization. Where, knowing degree relevant to the communication condition of information in organization, that is, knowing degree relevant to propagandizing goal of organization, and identifying degree intimately relevant to authority, benefit and truth condition of goal of organization. To the goal of the organization, in other words, the identifying degree of the organization staffs depend on:

(1) Whether or not the goal of the organization accords with social and economic development goal of country or region.

(2) Whether or not realization of the organization goal can bring real benefit for organization staffs.

(3) How the immanent truth degree of the organization goal is, etc.

Of course, understanding of the organization goal is not equal to the communication of information, because the communication of information is bidirectional rather than unidirectional. So the communication of the information is finished completely till the organization goal is identified (that is, the organization goal will become oneself goal of action consciously). Obviously, the function of management is that the organization staffs realize to identify organization goal through varieties of manner. From above, the essential of management activity isn't obviously other but it is communication of information. Therefore, management efficiency sums up eventually efficiency of communication of information.

Fourthly, based on the concrete object of the management activity, though the object of management is composed of various different factors including human, wealth, substance, time and space, the most active factor is human rather than others. Human's management efficiency directly lies on the management efficiency of other factors. The management efficiency depends upon the communication between manager and object of management or depends upon the melioration of human relations, whereas the communication of human relations belongs to the field of communication of information.

Finally, based on the origin of the management activity, in primitive society, the management was not needed at all because people worked on hunting single-handedly. With the appearance of collectivity labor, the management also appeared in order to communicate and coordinate each other.

3. QUANTIFICATION INDICATORS OF MANAGEMENT EFFICIENCY DELIMITATE

There is mainly need to solve well four relevant questions.

Firstly, it is the content of communication of information or it is how to realize communication of information. At first communication of information comes down to two sides necessarily, which always occurs between manager and passive manager. Based on relevant study, the communication of information is divided into three instances generally [3]: requisite satisfaction, attitudinal change, frustrating adjustment. More demonstration is that the requisite satisfaction is management significance instead of economics significance. That is a consumer buys goods by using own currency to satisfy her or his need and it has not the characteristics of communication of information, thus it doesn't belong to communication range of information. In addition, a person who realizes his or her attitude change and frustration adjustment by learning and self-contemplation also doesn't belong to communication range of information because the two aspects of information communication are not existed. In other words, the essential of communication of information is to resolve problems.

Secondly, what is the management efficiency? According to the essential of management activity, if the essential of management activity is communication of information, then management efficiency should be the quality of communication of information per time unit. In fact, in terms of the content of communication of information, management efficiency may define to resolve number of the problems per time unit, because meeting the need of management object or urging the management object to turn his or her attitude or helping management object to adjust his or her frustration, all of them show that manager are solving the problems actually.

In the management science, human requirement is divided into five levels by America management science (Abraham Maslow, 1943). This requirement can be met by manager' active, then the manager helps passive managers to change their attitude and conduct adjustment of frustration, all of these are that manager is solving problems straightly in fact.

Thirdly, how to measure the management efficiency?

We know that essential of management efficiency is the quantity of resolved problems. Then there are many different schemes to resolve a problem generally. The more the schemes are, the more complex the problem is, and more time and energy is needed to solve it. more of time and zap. Following the road, we may preliminarily assume that measuring formula of management efficiency is defined:

$$Me = \sum_{i=1}^{n} \log_2 N_i \qquad (1)$$

Where n expresses the quantity of resolved problems per time; N_i is the number of schemes to solve the problem; Me expresses the management efficiency, its unit is bit (bite). The formula originates from measuring formula of information:

$$I = \log_2 N \qquad (2)$$

This formula explains that a piece of information's quantity I is determined by own its uncertainty number N, the bigger the N is, the bigger the I is, and the more complex the information is solved. The other equivalent formula to calculate the quantity of information is:

$$I = -\sum_{i=1}^{N} P(x_i) \log_2 P(x_i) \qquad (3)$$

This formula explains that the quantity of information is that is confirmed by both number N of containing uncertainty and their uncertainty probability, and they are have inverse proportion obviously. That is the more the uncertainty state of the information is, the smaller the probability of per state occurs and the bigger quantity of its information. Those are similar to the condition of information communication in management process. The more the possible schemes of resolving this problem is, the smaller the realizing possibility of per scheme is and the more difficult we will solve this problem is, also it requires high working efficiency. The example is as follows:

There are A and B two functional offices which they should do 6 item task in a week. In nature, office A has done 5 items, and office B has done 4 items. The number of possible schemes of each item is in table one and table two:

Table 1

Office	Item	A1	A2	A3	A4	A5	A6
A	Possible scheme	2	8	4	2	4	8

Table 2

Office B	Item	B1	B2	B3	B4	B5	B6
	Possible scheme	8	4	8	16	4	2

We can figure out that working efficiency of the office A is Me1=9 bit, and working efficiency of the office B is Me2=12 bit. Obviously, due to the difficult degree of the work, the number of items that the office B has done is less than the office A, but its working efficiency is higher than office A.

Fourthly, we should how to reflect the relationship between the input and the output of management? Any management active always needs to devote some manpower and material resources, this is input. The direct output of management active is resolving of problem, or it is communication of the information. The aim of management efficiency we study is to improve the efficiency. Therefore, we have to consider the relationship between the input and the output of management. So the management efficiency may be defined as the quality of the information communication per time. Its formula is defined as follows:

$$Me = \frac{1}{w} \sum_{i=1}^{n} \log_2 N_i \qquad (4)$$

Where w expresses numbers of manager, and the unit of Me becomes bit pp (bit per person). That is the information communication quantity of per person who has done.

Now we proceed to analyze the example above. We suppose that there are 4 persons in office A, and there are 6 persons in office B. We may figure out that management efficiency of office A is Me1=2.25 bit pp, and management efficiency of office B is Me2=2 bit pp. Obviously, the management efficiency of the office A is higher than the office B.

Maybe someone think the material output should is the output of management activity. Is this right? The answer is yea-saying, because the quality of the material output depends on many factors including the activity of the stuffs, and their material degree of equipment, and capital organic composition, and stuffs' level of technology and so on. So the output of the management activity is information communication.

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