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Principles of management efficiency and organizational inefficiency

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Abstract

Purpose – The purpose of this paper is to introduce two important principles of efficiency, one on the management of a business entity and the other on the structure of employees' efforts and devotion toward realizing the mission of their organization.

Design/methodology/approach – All discussion and reasoning are established on some of the traditional methods of microeconomics and on the basis of the systemic yoyo model. Here, the yoyo model plays the role of intuition, while the traditional methods are utilized to present the exact details underneath the systemic thinking.

Findings – What is discovered include how management efficiency can be achieved by being flexible in terms of allowing individual employees to have conflicting personal values and how organizational inefficiency always exists no matter how the business entity is set up.

Research limitations/implications – The established results are applicable in all business scenarios without foreseeable limitations.

Practical implications – By understanding these results, business managers could simply devote more of their time and effort on being flexible in terms of management styles and focusing on the "big" picture of the corporation instead of dwelling on how to improve employees' efficiencies.

Originality/value – This paper establishes two very important, very useful results for managers. These results are expected to enrich the managerial understanding on what can be improved and what cannot.

Keywords Dishpan experiment, Managerial flexibility, Organizational mission, Personal value, Systemic yoyo

Paper type Research paper

1. Introduction

No matter which business entity we work for, we tend to find inefficiencies in the management, in the business operation, and in employees' efforts and devotions. And many of us always seem to have ideas about how things could improve if this or that is introduced/implemented.

One reason why we discover abundant inefficiencies is because each person, as a living being that is severely limited by its sensing organs, looks at the world with a pair of colored eyes. The color in the literature is also known by the term of personal values and philosophical assumptions about the world (Lin and Forrest, 2011; Villalobos and Vargas, 2015; Terán *et al.*, 2015). In other words, because philosophical assumptions and value systems vary from one person to another, from one people to another, from one culture to another, …, the same physical world becomes extremely beautiful and multi-colored when people individually try to describe what they see and what the world is really about.

This paper attempts to address the situation just described: how management efficiency could be potentially achieved? Why organizational efficiency could only

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be a conceptual dream. To this end, we establish a systemic view on how personal values and philosophical assumptions are developed when a person is born into this physical world, and why they evolve with time and changes of the environment. On the basis of this new understanding, we can readily see why different people have diverse value systems. With this result in place, this paper turns its focus to the concept of organizational efficiency and addresses whether or not an organization could ever be efficient by looking at examples that are rigorously constructed. Through strenuous reasoning based on the intuition of the systemic yoyo model it is discovered that inconsistencies between employees' personal values and between these personal values and the organization's mission always lead to organizational inefficiencies. At the same time, the relevant analyses suggest that management efficiency can be potentially achieved by being managerially flexible in terms of management styles.

The concepts of organizational and management efficiency have been investigated by different authors from various angles. For example, Pawłowski *et al.* (2012) look at modern management as a series of decision makings and creations of conditions for effective realization of the decisions. Ren and Xiong (2010) investigate the measurement of management efficiency from the angle of systems involving many mutual-coupling and unknown or uncertain factors by using the information entropy principle. Considering the fact that the management increases the functionality and competitiveness of its company and impacts the organization's efficiency and efficacy, Laura-Georgeta (2011) studies the performance management by using an approach that joins both organization efficiency and efficacy and the grounds for achieving organization's competitiveness. Burton *et al.* (1991) research the relationship between organizational size and performance. Cummins *et al.* (1999) introduce the technique of cross-frontier analysis for estimating the relative efficiency of alternative organizational forms in an industry. Ismail *et al.* (2011) provide an empirical study on the relationship between efficiency and organizational structure for takaful operators of the dual financial system in Malaysia by using a sample of 19 firms chosen over the time period of 2004-2009. Alvesson (1989) surveys some of the common conceptualizations of organizational culture as a building block in organizational design, as the outcome of symbolic management, as a diagnostic instrument, and as a paradigmatic concept. By recognizing the fact that benchmarking for decision-making units is more than a purely monitoring process and includes a component of future planning, Stewart (2010) extends the standard data envelopment analysis model to include longer term top management goals. By identifying the manager of an organization as a systems designer who plays the role of self-organization both within and outside the organization of concern, Kasianiuk (2016) presents identification models useful for understanding self-organization processes within and outside the organizations facilitated by leaders.

So our present work formulates the concepts of management and organizational efficiency at the theoretical height of abstraction and carries the existing literature on these concepts steps forward with a much wider range of applicability.

The rest of this paper is organized as follows: Section 2 introduces the basics of the systemic yoyo model and shows how personal values are formulated and evolving over time. Section 3 looks at the concept of organizational efficiency. Section 4 establishes the principle of management efficiency. Section 5 develops the principle of organizational inefficiency. Then this presentation is concluded in Section 6.

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2. The formation of personal values

2.1 The systemic yoyo model

Since 1924 when von Bertalanffy pointed out that the fundamental character of living things is their organization, the customary investigation of individual parts and processes cannot provide a complete explanation of the phenomenon of life, this holistic view of nature and social events has spread over all corners of science and technology (Lin, 2009). Accompanying this realization of the holistic nature, in the past 80 some years, studies in systems science and systems thinking have brought forward brand new understandings and discoveries to some of the major unsettled problems in the conventional science (Lin, 1999; Klir, 1985, 2001; Mathematical Sciences, 1985; Blauberg *et al.*, 1977).

Similar to how numbers and algebraic variables are theoretically abstracted, systems can also be proposed out of any and every object, event, and process. In particular, when internal structures can be ignored, numbers and algebraic variables can be very useful; otherwise the world consists of dominantly systems (or structures or organizations). Historically, on top of quantities has traditional science been developed; and along with systemhood comes the systems science. That jointly gives rise of a two-dimensional spectrum of knowledge, where the classical science, which is classified by the thinghood it studies, constitutes the first dimension, and the systems science, which investigates structures and organizations, forms the genuine second dimension (Klir, 2001). Such a strong promise that systems research holds relies materialistically on the particular speaking language and thinking logic – the systemic yoyo model (Lin, 2007), Figure 1, similar to how the Cartesian coordinate system plays its role in the development of modern science (Kline, 1972).

Particularly, the blown-up theory (Wu and Lin, 2002) and the discussion of how the world can be seen from the viewpoint of systems (Lin, 1988; Lin *et al.*, 1990), the concepts of black holes, big bangs, and converging and diverging eddy motions are coined together in the model, Figure 1, for each object and every system imaginable. In other words, each system is a multi-dimensional entity that spins about its axis. If we fathom such a spinning entity in our three-dimensional space, we will have a structure as shown in Figure 1(a). The side of black hole sucks in all things, such as materials, information, energy, profit, etc. After funneling through the neck, all things are spit out in the form of a big bang. Some of the materials, spit out from the end of big bang, never return to the other side and some will (Figure 1(b)). For the sake of convenience of communication, such a structure as shown in Figure 1(a), is referred to as a (Chinese) yoyo due to its general shape.

What this systemic model says is that each physical or intellectual entity in the universe, be it a tangible or intangible object, a living being, an organization, a culture,

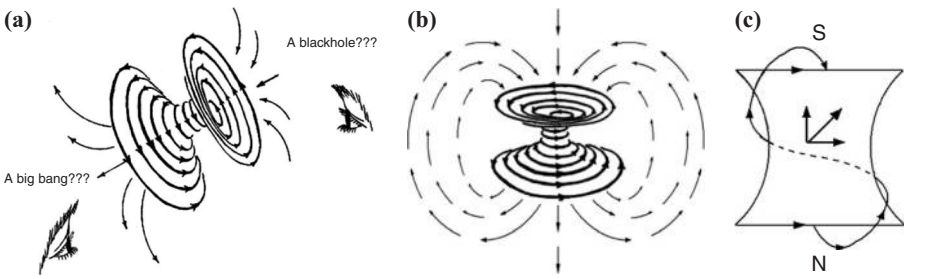

Figure 1.
The eddy motion model of the general system

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a civilization, etc., can all be seen as a kind of realization of a certain multi-dimensional spinning yoyo with an eddy field around. It stays in a constant spinning motion as depicted in Figure 1(a). If it does stop its spinning, it will no longer exist as an identifiable system. What Figure 1(c) shows is that due to the interactions between the eddy field, which spins perpendicularly to the axis of spin, of the model, and the meridian field, which rotates parallel to axis of spin, all the materials that actually return to the black-hole side travel along a spiral trajectory.

As expected, this yoyo model has successfully played the role of intuition and playground for scholars who investigate the world and explore new knowledge holistically (Lin, 2009; Lin and Forrest, 2011; Forrest, 2013, 2014; Forrest and Tao, 2014; Ying and Forrest, 2015). In particular, this yoyo model of general systems has been successfully applied in the investigation of Newtonian physics of motion, the concept of energy, economics, finance, history, foundations of mathematics, small-probability disastrous weather forecasting, civilization, business organizations, the mind, among others.

2.2 Personal values

In this subsection, we address the question of why different people have different underlying assumptions and values of philosophy and why it is extremely difficult for us to find two people with the same, identical value system. By underlying assumptions and values of philosophy, we mean the value system of a person that consists of his/her beliefs about how the world functions and his/her moral codes with which he/she is recognized with his/her particular identity and integrity.

From the systemic yoyo model, it follows that each human being lives in a vast ocean of spinning fields, which consists of the fields of other people, physical objects, abstract thoughts, and myriad of other things and matters. Soon after a person is born, he/she starts to interact with the world. It is these interactions with people, physical objects, abstract thoughts, and the myriad of other things and matter that shape the person's philosophical assumptions and values, similar to how a civilization formulates its value system (Lin and Forrest, 2011). Because of the subtle differences between the interactions experienced by one person from those by another person, each person has his/her own set of very specific philosophical assumptions and values, which dictate the behaviors and decision making of the person for the rest of his/her life. Although the differences might be "subtle" when seen from the angle of the magnificent scale of the entire ocean of spin fields, they are generally major to the individuals involved, causing important differences in the relevant personal value systems. That actually explains why children who grow up in the same household may have quite different personalities, characteristics, and thinking processes.

In the following, let us look at some of the relevant details.

Bjerknes' circulation theorem (Wu and Lin, 2002; Hess, 1959) shows how nonlinearity mathematically stands (mostly) for singularities, and in terms of physics represents eddy motions. Such motions represent structural evolutions, a natural consequence of uneven evolutions of things, information, energy, etc. In particular, a circulation means a closed contour in a fluid, which can be generally understood either as fluids in the conventional sense or as information, knowledge, money, etc., because the movement of information, knowledge, money, etc., possesses the basic characteristics of fluid. This theorem reveals from another angle the commonly existing and practically significant eddy effects of fluid motions and that uneven eddy motions are the most common form of movements observed in the universe. Because uneven densities create twisting forces, fields of spinning currents (of water,

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information, knowledge, money, etc.) are naturally created. Such fields do not have uniformity in terms of types of currents. Clockwise and counter clockwise eddies always co-exist, leading to destructions of the initial smooth, if any, fields of currents.

Now, let us look at the questions we like to address in this subsection.

At the start of a new life, when still living in the tender care of others, due to the existing conditions of disability and available resources within the environment, the new born forms his/her elementary beliefs, basic values, and fundamental philosophical assumptions, on which he/she reasons in order to acquire what is needed, explains whatever inexplicable, develops approaches to overcome hardships, and establishes methods to manage personal affairs. With time and increasing physical, mental capabilities, the person is able to handle more advanced tools, innovative thoughts, and intelligent methods to deal with personal and interpersonal affairs. The natural desire for better conditions, more control and recognition (due to the increasing strength of suction and emission power of the yoyo field of the person) paves the way for the person to invent new tools to handle issues with the environment, discover new methods to reason, and introduce more efficient ways to deal with various affairs through interactions with the environment. That is, a circulation of information, knowledge, money, etc., starts to form within and around the person. Along with the rapidly growing awareness of the environment and within the person, practical skills also become parts of the circulation. As such circulation starts to appear, Bjerknes' circulation theorem guarantees the appearance of abstract eddy motions within the mind of the person, consisting of the appearance of new people, expansion of knowledge, improvement of old skills, acquirement of new skills, and accumulation of wealth. That is, with age the person gradually forms his/her underlying assumptions and values of philosophy on how the world functions, what kinds of behaviors are acceptable, how he/she should interact with others and the environment in order to achieve better results. As the personal yoyo field gradually matures over time, it makes the person more able to fight off different beliefs and value systems that might destroy his/her own yoyo structure, while the person enriches his/her philosophical assumptions and values and redefines his/her identities throughout life. Here, the person's basic philosophical assumptions and values are a reflection of the fundamental structure of his yoyo field. Although it changes and evolves with the environment, its basic characteristics will stay the same throughout the lifespan of the yoyo structure.

This end explains why different people have different underlying philosophical assumptions and values (the value systems), because first no two people grow up within a perfectly identical environment, and second with age people's philosophical assumptions and values evolve according to their respectively changing environments. For related discussions regarding the four human endowments (self-awareness, imagination, conscience, free will) and related concepts please consult with Lin and Forrest (2011).

Comparing to the concept of leisure used in the literature of economics (Becker, 1991), the concept of person values is much more general. As a matter of fact, leisure, as how it is used in the literature of economics, is only a minor reflection of the personal value system. For example, although two people with different value systems could all be working hard in their works, their different value systems lead naturally to drastically different consequences. That is one of the many differences between craftsmen and innovators.

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3. Organizational efficiency

By organization it means an economic entity, where people are connected by some purpose, and it is economic viable through its members' efforts. That is, any organization considered in this paper has to be a non-trivial system (Lin, 1999) that is made up of people, and has to produce to sustain its existence. What is implied is that each organization has a mission, by which all employees produce their products or services to sustain the economic viability of the organization.

For any organization, its organizational efficiency is defined as how well its employees help reach the defined mission. We say an organization is efficient, if all employees work toward the common goal and help materialize the mission; otherwise, we say the organization is inefficient.

In this section, we look at the question of whether or not an organization could ever be efficient. First let us see two examples:

Example 1. This example is based on the reading nightlight example (Becker, 1974; Bergstrom, 1989; Lin, 2009).

Assume an organization has two such employees i and j that a particular effort of i, which potentially strengthens the viability of the organization, and helps increase i's income, but bothers j, while for some reason, j cannot simply leave the organization. In order to calm j down and hopefully make j become supportive of i's effort, i will compensate for j's frustration by transferring monetary contribution to j from his increased income, a result of his particular effort. Now, if the organization is efficient for this scenario, then how much and how long will both i and j be better off without selfish j starting to interfere with i's effort, which will make the organization inefficient?

Assume that the production function of the organization is:

$$P_c = P\big(U_i(X_i, X_j, Y), U_j(X_j, Y), \ldots\big) = U_i U_j^a \Pi,\ 0 < a < 1, \tag{1}$$

satisfying:

$$\frac{\partial U_i}{\partial X_k} > 0,\ k = i, j, \frac{\partial U_i}{\partial Y} > 0,\ \frac{\partial U_j}{\partial X_j} > 0,\ \text{and}\ \frac{\partial U_j}{\partial Y} < 0,$$

where the condition $0 < a < 1$ reflects the assumption that i's effort is potentially beneficial to the organization in several ways while it really bothers j, because $a < 1$ is the root reason, the dots represent an abbreviation of the utilities of all employees other than i and j, and Π the product of all other employees' utilities, U_k the utility of employee k $(= i, j)$, defined as follows:

$$U_i = X_i X_j (Y + 1) \tag{2}$$

and:

$$U_j = X_j e^{-Y}, \tag{3}$$

where X_k is the total consumption of goods of employee k $(= i, j)$ and Y an index that measures the effort i puts into his work. Here, we assume that while j is so selfish that he does not care about the well-being of any other co-workers, i is so altruistic that he includes j's utility in his utility function, while knowing that his effort bothers j. In Equation (2), the factor $(Y+1)$ indicates that other than receiving a portion of utility from the joint consumptions of both i and j, i also enjoys additional utility that is

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proportional to how much effort i puts into his work. In Equation (3), the factor e^{-Y} models the fact that j is really bothered by i's effort Y exponentially.

Substituting Equations (2) and (3) into Equation (1) produces:

$$P_c = U_i U_j^a \Pi = X_i X_j^{1+a}(Y+1)e^{-aY}. \tag{4}$$

Now, the organization wants to maximize P_c subject to:

$$\sum_{k=1}^{n} X_k = I_1 + I_2 + \ldots + I_n = \sum_{k=1}^{n} I_k, \tag{5}$$

where n is the total number of employees, I_k the personal income of k, $k = 1, 2, \ldots, n$. The first-order condition for this optimization problem is:

$$\begin{bmatrix} \frac{\partial P_c}{\partial X_i} \\ \frac{\partial P_c}{\partial X_j} \\ \frac{\partial P_c}{\partial Y} \end{bmatrix} = \begin{bmatrix} X_j^{1+a}(Y+1)e^{-aY}\Pi \\ (1+a)X_j^a X_i (Y+1)e^{-aY}\Pi \\ X_i X_j^{1+a} e^{-aY}[1-a(Y+1)]\Pi \end{bmatrix} = \lambda \begin{bmatrix} 1 \\ 1 \\ -\frac{dI_i}{dY} \end{bmatrix}, \tag{6}$$

where $\lambda > 0$ is the Lagrange multiplier. The (3.1)-entries in Equation (6) show that only when:

$$Y > \frac{1}{a} - 1, \tag{7}$$

where i's income I_i has an up-trend with Y. Dividing the (1.1)-entries in Equation (6) by the corresponding (2.1)-entries produces:

$$X_j = (1+a)X_i$$

Solving this equation for X_i and inserting into Equation (5) produce j's consumption:

$$X_j = \frac{1+a}{2+a}\left(\sum_{k=1}^{n} I_k - \sum_{\substack{k=1 \\ k \neq i,j}}^{n} X_k \right) \tag{8}$$

Because a value in Equation (7) is really not known to either i or j, and because j's consumption in Equation (8) does not have a clear connection with Y, in a real-life setting i will be in a very inauspicious position to truly strike any deal regarding how much he should devote himself to the particular effort while j continues to be bothered. It is because Equation (7) implies that Y could potentially take a very large value, if a is close to 0, which, to j, is not realistic in terms of getting compensated for his frustration, since no one knows when i will get any additional pay for his particular effort.

In terms of organizational efficiency, the difficulty in this scenario becomes obvious: to have the desired organizational efficiency, a negotiation between i and j (not between the organization and employee j, because the organization has done its part by including j's utility within its production function) needs to take place. At the same time, the analysis above indicates that j might give in temporarily when he imagines a foreseeable a-value, which means when j foresees when he might get compensated for

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his frustration. However, if such an imagined a-value were not materialized in a timely fashion, then a frustrated j will sooner or later start to interfere with i's effort, making the organization inefficient:

Example 2. This example is based on Lindbeck and Weibull (1988) and Bergstrom (1989) to show that organizational efficiency cannot be generally achieved or maintained.

Consider an organization with n different departments. Each department receives a lump sum of money as its budget at the start of each time period for all operational expenses of the department throughout the period. Look at one department, named k, and non-overlapping time periods 1 and 2. In period 1, k has a budget to operate on. It has the option to spend it all now or to spend some now and save the rest for future. In period 2, k knows that it will receive a new budget from the parent organization, assuming the organization cannot make any pre-commitment to punish k for any of its profligate period 1 behavior. Suppose the production functions P_k and P_o of k and the organization are:

$$P_k\left(c_k^1, c_k^2\right) = \ln c_k^1 + \ln c_k^2 \tag{9}$$

and:

$$P_o\left(c_o^1, c_o^2, c_k^1, c_k^2\right) = \ln c_o^1 + \ln c_o^2 + \alpha U_k = \ln c_o^1 + \ln c_o^2 + \alpha \ln c_k^1 + \alpha \ln c_k^2, \tag{10}$$

where c_k^i and c_o^i are, respectively, k's and the organization's direct expenses in period i $(=1, 2)$, and $\alpha > 0$ a constant. If, in period 2, the organization allocates its available budget to k to maximize its production P_o subject to:

$$c_o^2 + c_k^2 = w_o^2 + w_k^2, \tag{11}$$

where w_j^2 represents the available money in j's budget in period 2, $j = o, k$. Then, the first-order conditions of this optimization problem is:

$$\begin{bmatrix} \frac{\partial P_o}{\partial c_o^2} \\ \frac{\partial P_o}{\partial c_k^2} \end{bmatrix} = \begin{bmatrix} \frac{1}{c_o^2} \\ \frac{\alpha}{c_k^2} \end{bmatrix} = \lambda \begin{bmatrix} 1 \\ 1 \end{bmatrix}, \tag{12}$$

where λ is the Language multiplier. Dividing the first entry equation in Equation (12) by the second gives:

$$c_k^2 = \alpha c_o^2. \tag{13}$$

So, Equation (11) implies that:

$$c_o^2 = \frac{1}{1+\alpha}\left(w_o^2 + w_k^2\right) \text{ and } c_k^2 = \frac{\alpha}{1+\alpha}\left(w_o^2 + w_k^2\right). \tag{14}$$

That is, to maximize its production in period 2, the organization will divide the organization's total budget $(w_p^2 + w_k^2)$ so that the fraction $1/(1+\alpha)$ of the total will go to the organization's budget for its direct expenses, and the fraction $\alpha/(1+\alpha)$ will go to k.

This end implies that if department k controls its expenses in period 1, then it will have a greater sum of money available for period 2. That is, to obtain more money from

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the parent organization in period 2, k should have spent all or more than its period 1 allotment during period 1. In terms of Pareto efficiency, it will be wise for k to squander as much as it can during period 1 so that its parent organization will provide more during period 2. If the organization's mission can only be further materialized with budgetary support, then this end implies that with the organization's budgetary arrangement no department will be automatically motivated to maximize the overall monetary asset of the organization. In other words, the organization is not efficient.

The reason why organizational inefficiency appears here can be further seen as follows: first, the budget of the organization is not the sum of all the available money supplies of the departments. Second, if k saves money in period 1, k would naturally not want this money affects its budget of period 2. Since in Equation (11) k's budget w_k^2 is used against k's will, there appears an inconsistency in the desires of departments and the organization, the root cause for departments to be not motivated to further achieving the organization's mission.

Although Examples 1 and 2 have only shown that under particular circumstances organizational inefficiency is unavoidable, we in face have the following general result:

Theorem. Inefficiency always exists in any organizational system that has at least one full-time employee whose personal value is not in total agreement with the organization's mission.

Proof. Because the related reference is yet to be published, let us outline the argument here.

By contradiction, assume that there is a fully efficient organization that satisfies the conditions of the theorem, while the organization's mission is not in total agreement with the personal value of full-time employee k. Let Y be a variable measuring one aspect of employee k's personal value such that the utility of k increases with Y while the work efficiency of k in terms of helping to realize the mission of the organization decreases with Y. Symbolically, we have:

$$U_k = U_k(X_k, Y), \text{ satisfying } \frac{\partial U_k}{\partial X_k} > 0 \text{ and } \frac{\partial U_k}{\partial Y} > 0, \tag{15}$$

where U_k is the utility of k, X_k the total consumption of k, and the production function of the organization is:

$$P = P(X_c, U_k, ...), \text{ satisfying } \frac{\partial P}{\partial X_c} > 0, \ \frac{\partial P}{\partial U_k} > 0, \ ... \tag{16}$$

where X_c represents the expenditure of the organization, including the monetary expenses on all employees except k, and the dots the abbreviation of all the utilities of all other employees. The fact that employees' utilities enter into the organization's production function means that the organization keeps its employees' welfare as part of its objectives of operation. Now, the monetary bonus that measures the work efficiency of k is expressed by:

$$h_k = h_k(Y), \text{ satisfying } \frac{dh_k}{dY} < 0. \tag{17}$$

Note: in real life, such a variable Y might only exist implicitly and cannot be measured readily. However, its negative effect on the quality and efficiency generally can be clearly seen. So, we simply assume without loss of generality that Y can be measured in determining the monetary bonus.

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To the organization, its resources are distributed to its employees to maximize its production function P in Equation (16) subject to the following constraint:

$$X_c + X_k = X_c + (I_k + h_k), \tag{18}$$

where I_k is k's income from his work at the organization. Maximizing the production function in (18) subject to the constraint in (20) leads to the contradiction:

$$\partial X_k/\partial Y > 0 \text{ and } \partial X_k/\partial Y = dh_k/dY < 0.$$

That implies that the assumption that the organization that satisfies the conditions of the theorem is fully efficient is incorrect. ■

4. The principle of management efficiency

To materialize its purpose, an organization generally has to hire employees with desired talents. So, a natural question arises: If two employees i and j have conflicting personal values, can the organization still operate smoothly while keeping the best interests of these employees in mind at the same time? The answer is: YES, it is possible. To this end, let us look at the following example:

Example 3. Assume that the utilities of i and j are given by:

$$U_i = X_i - Y \text{ and } U_j = X_j + Y, \tag{19}$$

where X_k is the consumption of k $(=i,j)$ and Y the conflicting personal value.

Then, the organization's production function could be defined by:

$$P_c = X_c(U_i + U_j) = X_c(X_i + X_j) \tag{20}$$

where X_c represents the expenditure of the organization. That is, in the face of conflict in personal values between i and j, the organization can still be completely neutral. ■

A second natural question is that when the organization's mission is in conflict with the personal value of an employee i, can the organization still function smoothly while keeping i's well-being in mind? The answer is: YES, it is possible. To this end, let us look at the following example.

Example 4. Let Y represent an aspect of i's personal value that is in disagreement with the organization's mission. Let the utility of i be given by:

$$U_i = X_i Y \tag{21}$$

and the utility of the organization:

$$U_c = X_c/Y \tag{22}$$

where X_i stands for the consumption of i and X_c the expenditure of the organization. If the product function of the organization is:

$$P_c = P_c(U_c, U_i) = U_i \cdot U_c = X_i \cdot X_c, \tag{23}$$

which implies that although the organization is in conflict with i's personal value, in the production function, the organization still cares about i as much as if they did not have any conflict. ■

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These examples imply that no matter whether there exists a conflict between employees' personal values or between some employees' personal values and the mission of the organization, the organization could still operate smoothly. So, if we define efficiency of management as keeping all employees' well-being in mind while materializing the mission of the organization, then we can suggest the following.

Principle of Management Efficiency: Management flexibility in terms of managerial style is the key for maintaining management efficiency.

Examples 3 and 4 suggest that flexibility in defining the organization's production function is the key for eliminating any potential effect of existing conflicts between personal values and the mission of the organization. Here, different ways of formulating the product function is seen as different approaches of management. Speaking differently, if an organization's management has a fixated method to measure success, then it will have difficulties to handle varied personalities; and crucial talents, badly needed for the organization's success will be forced out of the organization.

5. Principle of organizational inefficiency

From Section 3, it follows that if an organization has two employees with conflicting personal values, then the organization will have to suffer from organizational inefficiency, because one of the conflicting personal values will not be in total agreement with the organization's mission. In order to increase the efficiency of the organization, why can one not hire only people whose personal values are in complete agreement with the organization's mission?

First, from Section 2 about how personal values are formed, it follows that finding such employees with identical personal values are practically impossible. Second, personal values evolve with time and changes of the environment. So, initially similar personal values tend to diverge over time. Third, suppose we can find all the employees who have the desirable identical personal value, then what is observed in the dishpan experiment (Hide, 1953; Fultz *et al.*, 1959) would suggest that differences among the personal values will inevitably appear within the smooth operation of the organization.

In particular, when we look at one of the spinning fields of the yoyo model in Figure 1(a) from a distance, although everything is set up perfectly symmetric about the axis of rotation, both flow patterns as shown in Figure 2 appear alternatively, where the speed of alteration depends on the rotational speed.

Within our current context, we can naturally imagine that the entire pan represents the mission of our organization, the spin the organization's operation, and individual employees' personal values drops of the fluid. So, this experiment indicates that although the organization could find employees of identical personal value, this initial uniformity will be destroyed by the smooth operation of the organization.

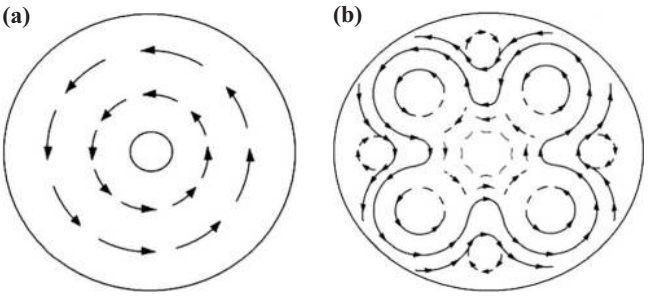

Figure 2.
Patterns observed in Fultz's dishpan experiment

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That is, uniformity in personal values is materialistically destroyed by employees' interactions and conflicts of interests. Therefore, the previous discussions imply that organizational inefficiency appears. So, we have the following general result.

Principle of Organizational Inefficiency: Inefficiency always exists in any organization.

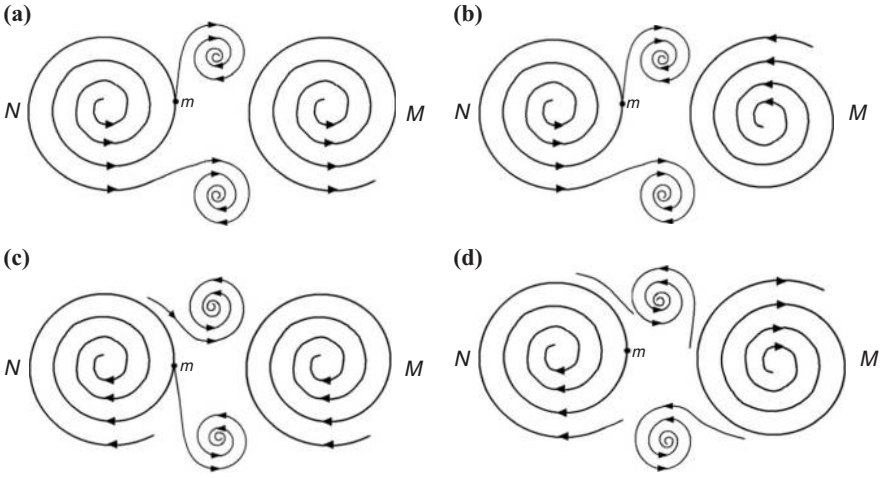
Here, the concept of efficiency includes all aspects of running the organization beyond from what is specified earlier. It could include, but not limited to, efficiencies of communication (both internal and external), management efficiency, public relations, employee satisfactions, etc. For example, communication efficiency consists of the efficiencies of the media, the receivers, and the senders of information, where the media could be somehow deficient, defective, or even dysfunctional, while due to diverse perceptions involved, receivers and senders of information could misunderstand each other in many different ways. Management efficiency is very delicate, because any push from the management could easily upset some employees, leading to purposefully delayed work progress or unconscious slow-down.

Suppose inefficiencies of all kinds do not exist, this proposed principle of organizational inefficiency still holds true no matter if the organization has full-time employees or not. To this end, we only need to address the situation where the organization has only part-time employee(s) and none of them has a conflicting personal value with the organization's mission. Let us consider:

(1) the organization has only one part-time employee who is the founder; and

(2) the organization hires at least one employee who is not the founder.

For scenario 1, we could reasonably imagine that the founder employee would formulate his organization's mission in reference to his personal value system. Now, there are three systems involved here: the founder himself, his organization, and the environment. When the founder interacts with the environment, inevitable consequences appear. In Figure 3, N represents the founder and M the environment.



Notes: (a) Both harmonic N and M are divergent; (b) when N is divergent and M is convergent; (c) both harmonic N and M are convergent; (d) when N is convergent and M is divergent

Figure 3.
How consequences appear when two systems interact

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As an input-output system, *N* has to interact with *M* so that some unexpected subeddies appear. That means that the stated mission becomes inadequate. So, from the definition of organizational efficiency, it follows that this organization experiences inefficiency.

For scenario 2, assume that the organization hires only one employee, who is not the founder. Then, in this case, we have four systems that interact with each other: the founder himself, the hired employee, the organization, and the environment, with the former three being input-output systems. Similar to what is analyzed above, by being input-output systems, the founder and the employee have to interact with the environment, creating unexpected consequences, as indicated by the subeddies in the relevant interacting yoyo fields. So, similar organizational inefficiencies appear as in the analysis of scenario 1.

Let us now look at a case study to illustrate how widely useful our established principles are. To this end, let us imagine a university, whose mission is to produce as many graduates who are assets to the society as possible.

First, around this mission statement, organizational inefficiencies will naturally appear. Specifically, professors, who believe in passing on book knowledge is of the ultimate importance than anything else, will focus on doing so, while those professors, who believe in cultivating the spirit and desire to succeed in life in the students, would beyond passing on book knowledge place an additional emphasis on motivating students to work hard and smart in order to achieve personal and career successes. When students have these professors for their classes, the professors' different professional orientations and emphases will surely create chaos in at least some of the students. That leads to organizational inefficiency.

Second, suppose that the head of one particular department is a faithful believer of that education only means passing on book knowledge to students. Due to various reasons at the university level, such as recruiting, third-party university ranking, etc., the faculty of the department also consists of some believers of that it is more important to inspire students than simply passing on book knowledge to students. Now, in order to manage the department efficiently, the department head has to be flexible in his style of management, otherwise the department will be dysfunctional in no time.

6. Some final words

By employing the intuition and thinking logic of the systemic yoyo model, this paper develops a systemic view of how personal values are established and evolving with time and how different people most likely have dissimilar personal values. On the basis of this result, this work looks at the concept of organizational efficiency and whether or not an organization could ever be efficient. It is found that inconsistencies between employees' personal values and between personal values and the organization's mission always lead to organizational inefficiencies. Based on this result and the underlying analyses, the principle of management efficiency and the principle of organizational inefficiency are established. However, what remains unsettled is that in practical situations, how can one actually become efficient in terms of management styles, and how organizational inefficiencies be improved.

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