Guest-Editor's Preface

Self-Management: Road to a Productive, Healthy and Self-Sustaining Organizational Milieu?

The notion of self-management has been used to signify different phenomena which cut across several disciplines, and which may have individual as well as organizational connotations. These include "self-management" as:

- a particular way of dealing with a personal situation (e.g., self-management of diabetes);
- the idea of a worker-controlled organization of production formed as a reaction to central bureaucratic control (e.g., as in certain Eastern European experiments with "self-management" in the 1960s and 1970s);
- a variety of participative practices in industrial organization; and
- the "management of oneself" in a variety of contexts (occasionally interpreted as "impression management").

In contrast to the above connotations, but not necessarily in opposition to them, self-management can perhaps best be comprehended as *an organizational mode* that acquires its optimal usefulness in a situation where people have to avail themselves of a common resource system in order to produce something that has a value for themselves as well as value that is acquired by exchanging it with others. In this particular organizational mode, people organize themselves in such a way that a sustainable productive process is created in which each individual or group cooperates in maintaining the common resource system, whilst simultaneously taking care of his or her own self-interest.

This *organizational mode* has been used and experimented with in a variety of organizational contexts. The contributors to this issue were asked to address essential economic and business aspects of self-management, which would include cases, history and experiments. The themes that they have presented undoubtedly give expression to the wide range of the applicability of self-management. Indeed, the cases and theoretical explanations draw on experiences with the management of irrigation systems, as well as business organizations, and also describe the roots and history of self-managing practices in the context of development. I believe that the variety of domains of application can be instructive, in that difficulties and roadblocks encountered in one domain can initiate new ways of representing and verbalizing those encountered in another area, and solutions found in one area may inspire approaches and methods for resolving problems in another. Common to most of these situations are a number of characteristics that appear to be vital to an organizational milieu based on self-management.

Vital Characteristics of Self-Management

Some of the vital characteristics that emerge from experiences with self-management can be summarized schematically in the following tentative and non-exhaustive list.

1. This organizational mode hinges on *the acceptance and integration of its paradoxical qualities*. The idea of self-management responds to a

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fundamental aspiration of individuals and groups, which is to assume autonomy by having control over their own destiny. In the work environment, this would entail having authority over their own job, being able to exercise initiative, and having leeway to follow up on creative endeavours. In this way, self-management responds to the individual need to experience dignity. But there is no autonomous "self" without others, and there is no organization or work group that is not also a part of other groups and organizations. Furthermore, every self-reliant entity depends on the use of resources that are also accessible to others. Consequently, self-management addresses the necessity for individuals and organizations to interact with other entities, and calls for adherence to certain rules in order to take care of the common good, particularly with regard to the use and preservation of valued resources.

Thus, one of the most fundamental paradoxes that must be resolved in the practice of self-management lies in the need for people, teams and organizations to act in their best self-interest while behaving cooperatively at the same time. The resolution of this paradox is a necessary condition for the development of *commitment* towards any self-managing organization. Indeed, a fertile soil on which the commitment of individuals and groups can evolve consists, among other elements, of the possibility to be autonomous and self-reliant and the awareness that every other member of the organization is adhering to the same rules that they are following themselves.

Another paradox to be resolved is the organization's need to foster creativity in its management, whilst simultaneously needing to adopt sound financial management. The fact that these paradoxical qualities appear more readily in self-management accounts perhaps for the mixed feelings that the idea and its practice evoke in many people, even when the integration of these qualities ultimately serves as an advantage.

2. A second characteristic of this mode is a *bottom-up approach in the management of an organization*. This approach raises questions about the management of the *boundaries* of a self-managing unit. The boundaries of an organization or unit may be managed by regulating the inclusion and exclusion of members to and from the organization or unit, or by regulating individual access to valued resources. Questions raised in this respect are, for instance, which aspects of the regulation of boundaries are flexible, and which are inflexible and may not be compromised (i.e., what are the criteria for determining the flexibility of the boundaries of a self-managing unit). Further, one may ask which circumstances would allow the resources of a self-managing unit to be exchanged or shared with another organizational unit.

It is important to define the boundaries of a self-managing unit in order to assure a sufficient degree of internal coherence along with the establishment of an external identity with respect to the environment. This importance has been emphasized by Ostrom in her proposition that both the boundaries of the service area and of individual access and right to use water from an irrigation system need to be clearly defined in order to assure the viability of the system [26]. Similarly, business organizations using self-managing teams have often experienced the need not just to give consideration to the optimal size of such teams, but to the possibility for the teams to decide on inclusion and exclusion of members, and for them to be clearly aware of the boundaries of their responsibilities [11, 33].

3. A third vital characteristic of a self-managing organization is that its members have an interest in *developing the capacity of that organization to sustain itself*. Such a capacity refers to the ability of the organization to renew and transform itself. For instance, Stafford Beer sees the key to the "viability" of an organization ("viability" meaning that which is capable of independent existence) in its ability to handle its own internal regulation. With reference to Ashby and to Shannon, he shows that with a high level of change and complexity at its entrance or input level (coming, say, from rapidly changing environmental or internal demands), the organization can sustain a particular purpose (or acceptable level of production) only by means of "requisite variety" in its regulation [2, 4, 5]. According to Beer, such variety in regulation can only be obtained with a high degree of autonomy (though not separateness) of each individual and unit within the organization, in order to draw

sufficiently adaptable responses to changes in the environment for the maintaining of an acceptable level of production and competitive resilience. According to Zeleny, the ability of an organization to sustain and renew itself also depends on the continual regeneration of its knowledge base rather than on a singular focus upon its capacity to produce goods and services [39].

4. The foregoing characteristic of the members of a self-managing organization having an interest in sustaining the organization, usually leads them to make provisions for *managing their own internal conflicts within the boundaries of the system.* This is in contrast with those organizations that tend to exteriorize their internal conflicts, for instance by appealing to an outside judge (such as the government) or by unwarrantably attacking surrounding systems. In the context of self-reliance, J. Galtung expresses this characteristic as: ... internalizing the challenges this involves, growing with the challenges, neither giving the most challenging tasks (positive externalities) to somebody else on whom you become dependent, nor exporting negative externalities to somebody else to whom you do damage and who may become dependent on you [13, p. 101]. The harnessing of conflict has been identified as one of the important factors for sustaining the capacity of organizations such as Motorola, Honda, Sony and several others, to reinvent or renew themselves [14].

Furthermore, an interest in sustaining the self-managing organization also leads its members to recognize the self-management capabilities of constituent and surrounding organizations.

An appropriate image for the interlocking nature of such organizations would be that of Russian dolls or Chinese boxes [4, 5], as any self-managing organization simultaneously contains and is contained within another self-managing organization. With this recognition, conflicts tend to be dealt with at a more localized level. For instance, instead of resorting to a hierarchical system to solve internal problems, a greater demand is made on the sense of leadership, responsibility and commitment of all members of the organization. In this respect it is counterproductive for organizations to be trapped by the idealizations of leadership [19] that often form a component of the foundations of hierarchical systems.

5. Another characteristic of self-management is that it appears to be an inherently holistic endeavour, in the sense that this mode of functioning *encourages wholeness rather than fragmentation.* For instance, it may favour the users and providers of technology to work together and focus on the fundamentally important productive capacity. In the case of the self-managed irrigation systems described in this issue by Ostrom et al., this means that both users and providers of technology focus on obtaining better agricultural yields, rather than having each side focus on its own particular incentive schemes which may not be related to the yields. Thus, rather than allowing people, such as government agents, engineers or providers of technology, to solve problems for other people, such as the farmers or users of technology, self-management encourages the users of technology to manage their own productive capacity and to keep it intact. In this sense, self-management does not allow people to lose control over their own destiny, and avoids the fragmenting of their authority which would result in a loss of motivation to enhance their productive capacity.

A Productive, Healthy and Self-Sustaining Organizational Milieu: the Role of Personal Control

Given the general characteristics of self-managing organizations mentioned above, a central question can be asked: *can a self-managing organizational mode lead to an organizational milieu that is productive, healthy and self-sustaining?* Surely this question may not be answered immediately as it is open to controversy. However, an affirmative answer can be surmised from at least three supportive perspectives – from a systems sciences point of view, from experiences with self-management, and particularly from the perspective of the behavioral sciences. Within the *systems sciences point of view*, Beer states that autonomy (such as can be provided by self-management) is a logical necessity for enabling requisite variety in the regulation capabilities of an organization [4], so that a flexible and adaptable organization may

emerge where members can be individually self-regulating while participating in a self-regulating organization. As Beer argues, the fact that autonomy offers variety in an organization's regulation capabilities is a logical conclusion, and does not need experimentation to be validated. Furthermore, *experiences with self-management* appear to confirm that this organizational mode is useful not only for improving performance in terms of productivity (e.g., output per person), but also in terms of the organization's capability to renew and sustain itself, and to improve the health of its members.

Most importantly, *from a behavioral sciences perspective*, self-management reaches to the foundation of what potentially constitutes a productive, healthy and self-sustaining organizational milieu. Indeed, *self-management is rooted in the premise which states that the most basic psychological need for a person is to be in control of him or herself*, to be able to master his or her destiny by developing his or her competence, and to feel that he or she is a useful member of the organizational group, of society and perhaps humanity as well. This premise does not entail a need for egalitarianism, but rather for the cultivation of individual differences and the recognition of unique personal contributions. Thus, a self-managing system responds to the core of a person's need to experience *a sense of owning* the system in which he or she is a participant, and the resources which he or she shares with others, or at least and even more importantly, to experience *the sense that he or she owns his or her own presence in that system.*

This premise which declares that the basic psychological need of a person is *to be in control*, is not a new idea. The sense of being in control, or the sense of mastery, was termed as "efficacy" by R.W. White [38]. According to White, such a sense of efficacy results from a person's "competence", which refers to his or her ability to interact effectively with his or her environment. White further defined "effectance motivation" as the basic motivation of every person to develop such competence, and to develop the resulting sense of efficacy as well. He argued that effectance motivation operates as long as one's actions have an effect on the environment, and it decreases when one's actions begin to have less of an effect. The motivation "subsides when a situation has been explored to the point that it no longer presents new possibilities" [38]. Bandura has extended the concept of self-efficacy through the formation of concrete linkages between a person's sense of control and his or her performance. He argues that "judgments of self-efficacy... determine how much effort people will expend and how long they will persist in the face of obstacles or aversive experiences... those with a strong sense of efficacy exert greater effort to master the challenges" [3]. He further argues that when people experience situations where any input of effort fails to produce recognizable results, whether or not they already have a relatively high sense of efficacy, they become apathetic or devaluate themselves. Active and opportune action is fostered only when efficacious individuals meet with a responsive environment. This parallels Seligman's theory of learned helplessness, which in broad terms also states that people become inactive and ineffectual if their actions cannot affect or control what happens to them. According to Seligman the debilitating effects of such uncontrollability may reveal themselves motivationally (e.g., with a decrease of initiatives or voluntary actions), cognitively (e.g., by the stifling of one's ability and eagerness to learn that one's responses can still have an effect on the environment), and emotionally (e.g., through feelings of incompetence and inadequacy) [24].

There are also indications that when this need of persons to be in control is recognized within an organization, the resulting individual sense of efficacy can be *reflected in the vitality and resilience of the organization as a whole* [1]. For instance, Bandura extended the concept of efficacy to collective efficacy: perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when the group efforts fail to produce results [3, p. 143]. Based on their research, Seligman and his colleagues have also argued that just as it is plausible to speak of group efficacy, one can speak of group helplessness [27]. Thus, when the organizational milieu is characterized by collective helplessness, it is unable to cope effectively with environmental challenges. Bandura further showed

how a collective efficacy is rooted in self-efficacy, as it is only those people who maintain their sense of self-efficacy through adversity who can lead the group to tackle its problems and better its condition. He and others as well have cautioned that this self-development of efficacy and control demands the investment of time and effort, and that it can require hard work along with the cultivation of discipline and the development of a practical philosophy of life [3, 9].

From the three preceding perspectives (i.e., from the systems sciences perspective, from experiences in self-management, and from a behavioral sciences perspective), it would appear that the results of self-management as the basis for a productive, healthy, and self-sustaining organizational milieu reach beyond the results that one would anticipate from many types of incentive plans [20, 31], and beyond those that could be expected from the classical ideas of "participation", "industrial democracy", or even "employee ownership". These latter ideas and practices cannot be assumed, for instance, to automatically eliminate an excessive waste of energy and resources, or to constitute an automatic panacea for the misuse and abuse of power. Furthermore, they often condone dualistic and fragmented organizational modes of being which tend to assign people to limited and predictable roles such as leaders and followers, the powerful and the powerless, the rich and the poor, and those on the side of capital and those on the side of labour. When in the throes of this kind of fragmentation, both sides of such dualistically imagined categories end up deluding themselves. For instance, leaders and followers alike may tend to forget that feeling powerful is as much of a trap as feeling helpless is, and both the contributors of capital and of labour may fail to remember that money cannot buy a truly productive and creative life. Most of all, this kind of fragmentation tends to corrode a person's sense of being in control of his or her actions and destiny.

Personal Control and Performance

Not only does it appear that an organization practicing self-management can become more vital and resilient, but several of the articles in this issue also show that more *classical measures of performance can be positively influenced by the introduction of self-management.* For instance, in the case of the Kyocera Corporation in Japan, the company has grown dramatically in the last twenty years with total sales amounting to 4 billion U.S. dollars in 1993, and it has succeeded in maintaining remarkable profitability, with after-tax profits of 0.4 billion U.S. dollars in depressed economic conditions [35]. Similarly, the performance of self-managed irrigation systems in Nepal has been shown to be consistently higher than the government-managed systems, both in terms of water delivery and agricultural yields, despite the higher engineering standards and the potentially better performing technology used in several government-managed systems (article in this issue, by Ostrom et al.).

The hypothesis that these improvements in performance are related to the practice of self-management, is supported by laboratory experiments recorded by Lefcourt [22]. These experiments have shown that people's performance is improved when they have a certain control over the conditions under which their tasks can be executed. Many of these experiments involved situations where people were asked to accomplish a task, both with and without having control over the possibility of getting rid of an external irritant such as a loud noise or crowding. Invariably the tasks were accomplished better and more rapidly when people had the *possibility of controlling* the irritable factor, whether or not they actually availed themselves of that possibility [22, pp. 1–18]. Among other things, it is one's awareness of one's ability "to do something" that gives rise to the feeling of personal control, as opposed to the perception that leads one to believe that whatever one does, does not make a difference. This latter perception would lead one to experience a sense of helplessness. Lefcourt concluded that whether people believe that they can determine their own fates within limits, is of critical importance to the way in which they cope with stress and engage in challenges [22, p. 5xxx]. These results have also been corroborated in actual work situations where the introduction of *self-managing teams* in a num-

ber of companies has proven to affect several classical measures of performance very significantly. B. Dumaine calls the introduction of self-managing teams, or their many variations, "*the* productivity breakthrough of the 1990s", and illustrates his claim with several convincing examples. For instance, General Mills claims that productivity in its plants that use self-managed teams is as much as 40% higher than at its traditional factories. Another food manufacturer, Johnsonville, claims a productivity rise of 50% since they adopted a self-managed team system four years earlier [11]. According to Waterman [37, p. 33], Procter & Gamble reports between 30 to 40% higher productivity in plants that are based on self-managed teams than in plants that are not. There are many more examples. While telling the story of how his Brazilian company, Semco, operates through self-managing groups or "satellites", Semler implies that the company's vastly increased flexibility to adapt and to survive in extenuating economic circumstances is the result of self-management [33]. Many of these accounts of success with self-management contain references to the fact that "everyone works harder as a result". The harder work and the increased hours do not seem objectionable to the workers involved. Many workers in these companies go on to acquire access to a variety of profit-sharing schemes, employee-shareholding schemes, and other participative incentive structures.

Despite the fact that these experiences with self-management can be deemed successful when evaluated on the basis of classical performance measures, the very nature of self-management (which is rooted in the realization that persons need to be in control), invites a *broader perspective on the evaluation of the performance* of these systems. For example, classical performance measures are mostly unidimensional and short-term concepts. However, more multidimensional measures of performance are becoming increasingly essential not only to account for the results assessed by classical output measures, but also to account for the ways in which the organization as a whole can thrive in and adapt to a turbulent environment. In this respect, the long term is as important as the short term [28], and there is an increasing need to differentiate between different qualities of performance that are required to follow a shifting and competitive environment [21]. Thus, the sustainability of an organization, its flexibility and its internal harmony, as well as its resilience in difficult economic circumstances, are as much parts of the performance criteria of a self-managed organization as are profitability or productivity. In addition, the health and vitality of the participants are increasingly perceived to be an integral factor of the acceptability of this organizational practice. In this respect, two questions can be raised: *to what extent can personal control, as a basis of self-management, contribute to a healthier organizational milieu, and on what basis can an organization practicing self-management better sustain and renew its own resources and productive capacity?*

Personal Control and a Healthy Organizational Milieu

The work of early researchers such as Claude Bernard and Walter B. Cannon has stated that for an organism to remain healthy, it must maintain an internal balance despite changes in the external environment. Cannon suggested the term "homeostasis" to describe the organism's ability to "stay the same" [7, 25, 32], or to self-regulate. Later research on stress showed that the demands made on people at work could raise their level of stress with beneficial results in terms of performance up to a certain point, after which the stress begins to have negative consequences on health. It is implied that this happens when the organism cannot self-regulate its internal balance any longer [25, 32]. For instance, Levi demonstrated through research on actual situations that work that is paid for by the quantity produced rather than by the hour, could lead to significant increases in productivity, but that beyond a certain point, the arrangements could also lead to physiological reactions to stress, such as sickness. These reactions would ultimately take their toll on company profits [23]. Among the more recent research at the interface of psychology, medicine and the work environment, Frankenhaeuser's work relates "effort"

or performance with an experienced "affect" and with the hormonal responses of the brain [12]. Furthermore, Karasek and Theorell specified that the very *condition which determines whether the consequences of exposure to stress will be good or bad, is the individual's level of control over his or her responses* to the stressful situation [18].

The complexity involved in Frankenhaeuser's biopsychosocial model of the brain's psychoneuroendocrine system can be summarized as follows. In a situation that is perceived either as a threat to something we value, or as a challenge requiring the input of effort, the hypothalamus-adrenal medulla system of the brain responds by sending out two chemicals called catecholamines or stress hormones (adrenaline and noradrenaline) which mobilize the body's resources and make it "fit for fight or flight". In case we experience feelings of distress and helplessness, another system known as the pituitary gland-adrenal cortex system sends out another chemical called cortisol. It is especially these simultaneously occurring, frequent and long-lasting high levels of catecholamines and of cortisol that should be regarded as warning signals of negative long-term health consequences, as they may lead to structural changes in blood vessels and ultimately to cardiovascular disease [12, p. 752; 34]. According to Frankenhaeuser, "high effort" together with the experiencing of a "positive affect" usually increases the supply of catecholamines while the level of cortisol is low or even suppressed. *This corresponds to a situation where a person experiences being "in control", and is able to use creativity and to get deeply involved in the job.* In this situation the person remains in good health, is vital, and is able and eager to take on challenges. Frankenhaeuser further identifies three other possible combinations of "effort" and "affect": an "effortless" positive affect (low stress hormone output); high effort combined with a negative affect, typical of situations of low control where conditions may be experienced as a burden (output of both catecholamines and cortisol); and an "effortless" negative affect, characteristic of situations in which one feels helpless because one notices that events and outcomes are independent of one's actions (output of stress hormones, particularly cortisol). It is in the latter case, where the emotional experience inclines towards one's feeling helpless, that the exclusively high levels of cortisol over a prolonged period of time have been associated with fatigue, dependency, resignation and ill-performance, and also with fear and anxiety, depression, disturbances of immunocompetence and hypertension [12, 16].

Among others, Karasek and Theorell further elaborated on the linkages between the demands and challenges faced by an individual at work and the degree of the individual's ability to make decisions and to be in control ("decision latitude"). In their model, *it is the combination of low decision latitude and heavy job demands, rather than either condition by itself, that leads to excessive stress and threatens one's health* [17, 18]. A person who enjoys a larger degree of decision latitude or control on his job is capable of better and longer performance than someone who enjoys low decision latitude. The amount of stress which that person can "take" without experiencing negative effects in these conditions is also significantly higher. Thus, according to Karasek and Theorell *the conditions for motivated, optimal activity are that heavy job demands or challenges are matched with a high level of control or the ability to self-regulate.* In addition, they believe that by mastering increasingly high levels of difficulties and by increasing the range of competencies developed as a result, the individual may learn to maintain a state of equilibrium while broadening his or her range of confrontable challenges and stress factors.

These authors compare the possibility of a heightened potential for coping in the face of challenges and stress, to results predicted by Prigogine in the domain of self-organizing physical systems [18, p. 93]. Prigogine asserts that when such systems are far from their equilibrium state and receive energy (such as heat) from the exterior environment, they can under certain conditions spontaneously reorganize themselves into different and more complex states of matter, called "dissipative structures" (as opposed to "equilibrium or near-equilibrium structures" such as crystals). In these far-from-equilibrium states, the transformative processes are non-linear as opposed to the linear processes that characterize the changes un-

dergone by near-equilibrium structures [30]. Prigogine alluded to the possibility that the learning process is an instance where such characteristics might be applied in the social and cognitive domain [29, p. 8].

Could it be that the difference between a situation of "low challenges" (e.g., with low initiative and low decision latitude) and a situation of "high challenges" (e.g., with a high degree of individual and group initiative and high decision latitude), in the domain of learning how to cope with stress, can be compared with the difference between a situation where a simple and closed system is "challenged" by an external element, and one where a complex and far-from-equilibrium system is similarly "challenged"? In the former, the system quickly returns to its original state of equilibrium, whereas in the latter it may undergo "global reorganization" and reach a higher level of complexity that is characteristic of "dissipative structures". According to this analogy then, a person operating in a situation that requires low effort (i.e., a state of "near-equilibrium" in Prigogine's terms) would need a big jolt to be able to learn anything at all or to augment his or her cognitive and coping capacity. On the other hand, for a person operating in a situation that requires high effort to face its challenges (i.e., a "far-from-equilibrium" state), successive reorganizations and increases in cognitive complexity and organizational capability would be regular occurrences. According to Prigogine there is a possibility, however, that instead of moving on to a higher level of organization, the system moves to chaos [30].

Is it possible that in applying Prigogine's theories to the domain of learning how to cope with stress, "personal control" (and the possibility to exercise initiative and to make decisions) is one of the key factors that determines whether a person will become vulnerable (e.g., to low performance, fatigue or illness) in the face of high challenges or whether he or she will move to higher levels of cognitive complexity, communicative and organizational capability, and the capacity for high performance? In Prigogine's opinion, it is plausible that intensive communication within "far-from-equilibrium" systems as well as communications between these systems and their environment is what allows them to remain at a highly energized, organized, high-performing level instead of them falling into chaos.

Apart from the hypotheses that can be drawn from Prigogine's theory on physical systems, the preceding studies by Frankenhaeuser, Karasek and Theorell, and others, appear to confirm that it is possible for an organization based on self-management not only to *elevate* and *differentiate* its level of performance, but also that personal control as a basis for self-management can contribute toward a healthier organizational milieu. Can the practice of self-management also contribute towards the ability of the organization to sustain and renew its own resources and productive capacity?

Thinking Like Owners: the Key to a Self-Sustaining Organization?

Psychologically, the experience of being efficacious, or in control, results in and interacts with the sense of *owning oneself* [10]. This sense of owning oneself is also related to the sense of owning one's space, owning one's place at work, and "owning the system". It refers to the *possibility* of having an effect on one's environment and on one's destiny. It is this psychological sense of ownership that allows one to develop one's sense of personal *integrity* and the possibility of acting in a *responsible* way with respect to others. It also allows one to cooperate with others (e.g., by recognizing the sense of ownership of others as well), and to be able to *commit* oneself to relationships and activities that one believes in and *values*.

A high degree of autonomy and personal control is typically found among individuals such as craftsmen, artists, scientists, entrepreneurs, as well as among top executives [12]. These persons appear to "own themselves" in the psychological sense, and to "own" the system within which they work. This sense of ownership is not necessarily directly related to ownership in the legal sense, or to the financial implications of legal ownership. Rather, it is related to "*thinking like an owner*". "Thinking like an owner" encourages the development of feelings and attitudes of responsibility and commitment. Although such a way of thinking

involves the recognition of one's freedom to create, it also leads to the recognition of the necessity for the exercise of discipline in order to concretize the conditions for one's survival. It leads to the sense of owning and developing one's own resources, and of owning one's place amongst other "owners". It also creates a desire to take care of and sustain those resources that one shares with others. The realization that one "owns" one's share of the available resources and that one "owns" one's place among other "owners", adds up to a situation where one feels at ease to "carry one's weight" and to "do one's part". It is only when one "thinks like an owner" that performance tends to become multidimensional instead of unidimensional. All these notions are virtually synonymous with the concepts of self-efficacy and personal control, and it would appear that they are very much connected to an organizational practice which is based on self-management. Two questions can be raised in this regard: *how can people and employees be encouraged to think like owners*; and when they do think like owners and are in control, and when they are encouraged to develop capabilities to build on their strengths, *can this form the basis of the capacity of an organization to better sustain and renew its own resources and productive capabilities?*

Intuitively, this idea of an organizational milieu where members are encouraged to think like owners and to sustain their productive resources, is more easily applied in the context of people who are already used to thinking quite independently such as entrepreneurs, or in the context of individuals such as farmers or fishermen. For example, the articles in this issue by Uphoff as well as by Ostrom et al. show that *farmers* can be encouraged to organize themselves around the use and maintenance of the common resource of irrigation water, and in the process, also increase their own productivity in terms of agricultural yields. Based on their experience with these systems, both these authors present hypotheses regarding the factors that may encourage the formation of such an organizational milieu. These factors include the necessity for the farmers to be able to make their own decisions, and to determine who is included in and who is excluded from their organization. Also, the possibility of a learning process has to be recognized, as do the potential benefits generated by "social energy", and so on. In short, these farmers have to be able to feel that they "own" their system. While farmers are already the material owners of their plot of land and may naturally "think like owners", these papers tend to show that it is equally important for them to cooperate with other "owners" around a common resource. This may not be self-evident unless clear choices are made as to what organizational mode will be adopted that would hold the potential for enhancing such cooperation.

Experiments in New Zealand and Australia have also shown that *fishermen* can be organized around self-managing systems that encourage them to regard a certain stock of fish as their property, for instance in the form of quotas that can be bought and sold, or in the form of shares which are registered like land titles. Although New Zealand's Ministry of Agriculture recognized that it took six years for the fishermen's behaviour to change under the experimental schemes, there are signs that after this initial period of adaptation to the new system inspired by self-management, the fishermen are beginning to behave like "owners" rather than like "hunters that have a tendency to overfish". Evidence for this new thinking can be seen in the fact that, for instance, these fishermen began to voluntarily help to finance the policing of valuable inshore shell fisheries. When the fishermen were offered the chance to catch an extra 50,000 tons of "hoki" in 1993, they actually turned down the offer because the market was glutted and because they hoped to catch more "hoki" in future years instead [36]. It is fair to say that in both these cases in New Zealand and in Australia, when fishermen began to "think like owners", they came to regard performance as a multidimensional issue rather than only as an issue of short-term profit, and they began a process of being able to self-sustain and renew their own organizational practices and productive capacity.

Can the practice of "thinking like owners" be applied in the context of business organizations? Furthermore, is it necessary, or even desirable, for the members to own a financial stake in the company, such as in the form of stock ownership, for such a practice to succeed? Traditionally, the di-

vision between capital (material "owners" of the business) and labour (performers) has largely been characterized by the need for the former to convince the latter to perform, by means of a variety of material incentive schemes. However, "thinking like an owner" is not simply a question of money. It also involves personal control, group control, dignity, commitment, responsibility, integrity, and initiative. In short, it is a question of being able to think of performance in a wider sense, which simultaneously includes criteria such as profitability and health, as well as the organization's resilience and the sustainability of its resources.

The article by Mr. Ishida in this issue shows how the Kyocera Corporation in Japan deals with the question of how to encourage people to adopt such entrepreneurial qualities. Others try to deal with this question by means of employee ownership schemes. As Professors Poole and Whitfield point out in their article in this issue, there is an increasing trend towards the introduction of several forms of financial participation in the company, such as profit-sharing and stock ownership plans. One hypothesis in regard to this is that employee ownership could lead to better performing organizations, as the "ownership" would make workers want to improve productivity and profitability, and would make them initiate possible positive changes in work processes, or would make them less resistant to capital modernization or procedural changes initiated by managers in order to improve performance [15]. But much of the research in this area finds no significant and consistent change in performance following the introduction of stock ownership plans. Occasionally, minor positive changes have been found that are related to a higher level of participation, but these are not necessarily related to financial ownership [6, 15]. It is not clear that these plans cause employees to begin to think like owners, nor is it obvious that employee ownership holds a direct relationship to more multidimensional criteria of performance, such as criteria concerning the health and sustainability of the organizational milieu, or the renewal and sustainability of its resources.

Some of the key questions that will have to be clarified in the future, are concerned with the difference as well as the relationship between owning a part of a company (i.e., being a material stakeholder through financial participation, such as in employee ownership), and psychological ownership (as in thinking like an owner, or owning oneself within the organization). More specifically, *can material ownership translate into psychological ownership, with the ability to think like an entrepreneur?* Can material ownership of an organization by its employees elicit personal control, commitment, responsibility, as well as an attitude of caring for the sustaining of their own resources, and for sustaining and renewing the organization's productive capacity? Can this be achieved by self-management? One thing is certain: at least theoretically self-management appears to be a valuable idea, not only from a systems sciences point of view, such as the one advocated by Beer and others, but also from a behavioral sciences point of view, i.e., from the point of view of the health and vitality that its practice could promote amongst productively engaged people. The articles in this issue point to the practical feasibility of self-management, not only in business organizations but also in a wide variety of situations where people engage in productive and creative activity, by using and sustaining resources and technology shared with those who came before and those who will follow after us.

Note Concerning this Issue

Three of the contributions in this issue present theoretical arguments that are drawn from experiences with irrigation systems. I believe that these arguments hold symbolic value as they reflect and represent theoretical and practical issues which are relevant for self-management in a wide variety of fields, including the field of business management. Indeed, the common resources involved in irrigation systems (water and infrastructures) and the necessity to maintain them properly, as well as the asymmetries present in the relation between benefits and responsibilities for maintenance, offer a powerful image of the common resources involved in any commercial enterprise or in any nation-state, and indeed in our common heritage of the earth itself. The experience gained with these

systems may offer insights that have a much wider applicability. I certainly hope that the wide scope of self-management theories and practical examples presented here will be informative and stimulating, and will provoke enough curiosity to lead to further research and experimentation.

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