# In this Issue: Authors and Articles

### Smith's "Management evolution"

As Anne Huff discusses the use of metaphors in this issue, Professor Smith evokes a metaphor of evolution in evaluating the changing nature and scope of mangement thought and practice throughout the history. He identifies five major stages of management: symbolic, static, scientific, systemic and strategic. One can draw a parallel between Smith's stages and the methodological concerns of science: non-disciplinary, intradisciplinary, multidisciplinary, interdisciplinary and transdisciplinary.

Evolution is often taken to imply a progression toward improvement, toward something 'better' or 'better suited'. Such a linear interpretation of the five stages would be overly simplistic. One stage does not replace the preceding one, it builds upon it, ideally retaining and enhancing its most useful characteristics. For example, scientific management (exemplified by Taylor, Gilbreth, Fayol, and others) has certainly its shortcomings in comparison with more recent research paradigms (management science, systems approach). But scientific management was grounded in the *actual* problems faced by managers of that era. It was carried out in close collaboration between researcher and practitioner. That part of the paradigm has been lost within operations research, management sciences and systems approach. It only now makes its reappearance as action research, repairing the breakage of the evolutionary cycle. Similar arguments could be advanced for all other stages of management. Smith misses this important factor, see his Fig. 1, by endowing the subsequent stages with "increasing management scope and sophistication".

Yet, his metaphor is powerful and is likely to form a foundation of lively research and enhanced understanding of the history of management. It has a potential for intelligent discussion of the future, well into the twenty-first century.

Adopting the evolutionary perspective should make the HSM readers aware of some self-limiting statements in the article (e.g., strategic management as the ultimate stage and level of management sophistication). But these are all to be taken as challenges and motivations for further elaboration and improvement of the idea. Smith himself repeatedly calls for a dialogue and discussion with HSM readers, to nurture the idea in the process of becoming.

### Huff's "Evocative metaphors"

Metaphors, if properly used, have a power of organization, synthesis, and communication of complex ideas, vast arrays of data and novel environments. One can only recall Toffler's skillful usage of the metaphor of 'wave', colliding waves of change [1]. This metaphor allowed Toffler to clarify an extremely complex phenomenon of societal change and even arrive at some plausible predictions of its future dynamics.

Anne Huff is advocating the use of metaphors in management deliberations loaded with conflicts, diverse perspectives and incompatible perceptions. Her examples of karate, social dancing and 'going in the water' are highly evocative and do have a power of providing a common ground for strategic deliberations.

What is a metaphor? A *metaphor* implies a comparison (dancing eyes, brilliant idea, grasp of the situation, etc.) while a *simile* makes a comparison explicit (man is a tree, works like a horse). *Analogy* exploits a partial resemblance of things (brain as a computer, management as steering a ship, and so on). Huff calls all three modes of comparison, metaphorically, a metaphor.

Complexity, ambiguity, uncertainty and fuzziness characterize the world of management in current turbulent environments. Managers and decision makers respond through contradictory and diverse perceptions and interpretations of their elusive experience. Evocative metaphors are part of a new language, complementary to the analytical-logical language of the recent decades, allowing insights and bringing coherence into situations where more familiar logic might fail.

Professor Huff is suggesting very concrete and deliberate guidelines for tapping the power of meta-

phors in the best tradition of action research. By abandoning, temporarily, the non-evocative, strict language of science, metaphoric debate provides the participants with a more flexible, richer and poetic language for expressing their experience and intuition. Manager—researcher conversations acquire necessary lucidity and form a basis for shared experience. Especially for top-level executives who are necessarily concerned about the future, strategy, and systemic perceptions, constantly encountering novelty and assessing innovations, metaphoric thought appears to be of great importance.

Anne Huff has daringly elevated metaphor to a previously unaccustomed legitimacy within the framework of human systems management. But metaphoric thought is an art and thus could become a dreadful kitch in the hands of incompetents and managerial simpletons. Wrong metaphor can do much harm and often inflict a lasting damage to thought (domino theory, man as a machine, sticky cards of evolution).

### References

[1] A. Toffler, The Third Wave (Morrow, New York, 1980).

### Reidenbach and Oliva's 'Macromarketing'

Macromarketing, in the Reidenbach—Oliva framework of thought, refers to a synergistic effect created by the many interdependent exchange (i.e. micromarketing) processes on the micro-level. This is in contrast to the assumption of marketing functions by some macro-level central agent: planning committee, government, etc.

Such assumption of micromarketing functions at a macro-level is now occurring more frequently in a variety of economic systems: 'socialist' marketing in centrally planned economies, governmental 'educational' marketing in Scandinavia, advocacy advertising in the U.S., etc. In all these efforts the actual needs and wants of consumers are dictated, manipulated or interfered with — as a result the needs go largely unfulfilled.

Examples abound. Central planning committees dictate what, how much, where, when, and at what price goods will be produced and consumed. Consumers have to resort to informal exchanges and black market, creating their own information/

exchange mechanisms and even rudimentary markets and micromarketing functions. Or, take the strict control of alcohol consumption in Sweden and its virtual prohibition in Iceland — as a result these countries now face the most serious problems with rampant alcoholism. Or, as Reidenbach and Oliva discuss, the misleading of the American public into viewing an oil shortage as a plot of big oil companies — a piece of politically motivated advocacy advertising by the governement.

An increased demand for government intervention is a result of dissolution, curtailment or misdirection of 'natural' micromarketing functions. Instead of collective 'voting' of the consumers as to what goods or 'bads' will be produced and consumed, these crucial decisions are made by a small group of 'experts' pretending to know the needs or wants of citizens better than the citizens themselves. Reidenbach and Oliva argue that as micromarketing facilitates exchanges on the microlevel, it becomes a vehicle of societal change through its effects on the macrolevel. Such change, whether judged desirable or undesirable by some groups or individuals, is a relatively spontaneous outcome of relatively free exchange interactions. It is an *imperfect* expression of collective 'societal will'. An alternative is a societal change brought about externally through 'informed' decision making of a committee of experts.

The rise of consumerism represents a corrective feedback response to the imperfections of micromarketing in free-exchange, competitive societies. There is no consumerism in centrally planned economies or in socialistic welfare states — the functions of consumerism are assumed by governments and their central agencies. Thus the very same central organ which created dissatisfied consumers by macro-usurping the micromarketing functions is obliged to usurp their corrective feedback functions as well. The same central body dictates to consumers and represents or protects them at the same time. Such system cannot be naturally self-perpetuating, is devoid of social change and comes to halt in a static, bureaucratic, ossified economy.

Reidenbach—Oliva normative implications are: do not destroy feedback mechanism of micromarketing and social 'voting' through competitive choice just because of their imperfections. Instead, concentrate on the imperfections and create the conditions under which their impact would be minimized. The alternative of dismantling these mechanisms, throwing out the baby with the water, is proving to be disastrous.

## Gerwin and Leung's "Flexible manufacturing systems"

Current explosion of business and engineering interests in fully automated production lines, industrial robots, and other computer-based technology, is in need of being complemented by equally serious interests and research in its organizational and human managerial impacts. This should go well beyond the general luddistic platitudes about "machines taking works away from workers". It's futile to keep preserving work which can be done *better* by machines.

Gerwin and Leung are studying organizational impacts of Flexible Manufacturing Systems (FMS). *Manufacturing flexibility* is truly one of the keywords identifying the future working place. This is a far cry from the inflexible, one-purpose mass production lines of the past. Random processing and small flexible batch processing is replacing conventional batch production. The whole area of production and operations management education will have to be changed radically within next couple of years. Added flexibility will have significant impacts on the product design itself. Recall Toffler's concept of 'prosumers', consumers directly interacting with companies' computer systems, 'dictating' a proper product mix and 'voting' for job processing schedules and sequencing of production. That is what flexibility holds for the future.

Gerwin and Leung have identified not less than six different types of flexibility, all of which could be strategically important at different places and at different times. They call for a flexibility in flexibility regimes: the ability of a system to switch and adjust from one type of flexibility to another. It is interesting to see how research in organizational impacts of technology can influence the new designs of technology itself. Computer-controlled switching among different flexibility regimes is becoming a reality with many advanced industrial robots. Built-in visual-spatial computer quality control goes hand in hand with these developments.

The authors discuss a variety of aspects connected with the implementation, operation and maintenance of FMS technology. For example, vendor-adopter interactions, semi-autonomous workgroups, overhauling of conventional accounting procedures, intra-organizational diffusion of new knowledge, 'halo effect' catalyzing the need for additional technology, new and multiple criteria for evaluation of performance, and investment decision — strategy development interaction. These are all important concerns, demanding broader and more holistic view of the production process and its increasingly dominant role in running business of the future.

## Kochen's "Medical decision support systems"

Computer technology is characterized by several attractive features; among them: increased quality and performance and falling prices. Desk-top personal computer systems are becoming a reality and their spread in health care and medical delivery systems is accelerating. In addition to classical tasks of record-keeping, billing and accounting, they open new possibilities in providing a support in diagnostics, decision-making, judgment and overall patient management. Decision Support Systems are of interest to Human Systems Manegement, see Keen (HSM, Vol. 1, No. 1, pp. 89–91) and the book review of Keen– Scott Morton book (HSM, Vol. 1, No. 1, p. 97).

Manfred Kochen argues quite persuasively about the potential advantages and usefulness of DSS in the areas of management of medical care delivery. He explains the use of linguistic, symbolic and pictorial representation of physician's experience, anticipating the impact of computer graphics and highly personalized support. We may talk about *Personal Decision Support Systems* in this framework.

Even here, as in many other fields, technology and its practical utilization is advancing fast enough to leave the theory lagging behind. Yet, developing adequate underlying theory will ultimately prove essential to the full and knowledgeable use of PDSS. Kochen provides some essential inroads in the field of medicine.

One of the most interesting parts of this article is a rather detailed discussion of "Illustrative Case". Even non-medical readers will benefit from its careful study. The failures of judgment, inadequate timing, failing cooperation and interaction, ill-informed decision making, etc., are of concern in managing *any* human system.

Medicine is undergoing a profound and fundamental transformation. Rather than treating the disease, it is shifting its attention toward treating the sick human being, a *person*. Any disease is occurring *in* a person, within a specific context of person's needs, fears, emotions, and broader circumstances. Thus, each disease becomes context-specific and its treatment acquires many additional dimensions. Physician's judgment and decision-making are facing heavier and heavier demands. Number of factors to be

considered is increasing, the memory span required is expanding, high cost of medicine are forcing more frequent choices and judgments upon physicians. It is within this changing framework that decision support systems are becoming essential tools of medical practice.

Kochen is not talking about computer-generated diagnosis, analytical modeling of medical processes, or constructing multiattribute 'utility function' of a physician's decision preferences. He talks about personalized verbal and non-verbal imagery, symbolic representations, external—internal memory interaction, associative retrieval of accumulated experience, and on-line computer conferencing. And showing how it may all work.

This is all optimistic and rather idealistic proposition. There is a good chance that personal computers will be used to improve physician's billing and record-keeping systems, manage personal investments and portfolios, optimize tax computations and provide defenses against the threats of malpractice suits. They will allow sharing of information and exchange of messages among groups of physicians, pooling of risks, sharing and cross-recommendations of patients. These aspects are missing in Kochen's account, yet they are as human and as integral part of human systems as any other concerns.

## Kefalas' "External business environment"

Professor Kefalas is critical of the wasteful and ineffective way in which most business companies respond to environmental problems and other societal issues. He recommends Action or even Proaction in place of Reaction. Reactive or reactionary management must give way to the anticipatory management in the turbulent eighties.

Why should anyone care whether reactive corporations save themselves under the environmental perturbations of the next decade? Why should not they rely on governmental bail-out à la Lockheed, Conrail or Chrysler? What should be done *now* so that our businesses and institutions will be there, viable and relevant, in the year 2000? What is going to separate men from boys?

Kefalas does not have all the answers. But he reminds the managers that managing of human systems outside their external environmental circumstance is at least a dubious proposition. Short-term concerns, day-to-day responses, lack of anticipation,

and lack of entrepreneurial vision are already derailing American management off the prestigious tracks of worldwide admiration and emulation. Where are the anticipatory managers going to come from? From our short-term oriented and single-objective dominated MBA's? Anticipation involves innovation, risk taking and understanding of technology and production; who is teaching it to our business students?

The purpose of the article are narrower, less anticipatory, but still crucial as a base for even contemplating such questions. It all must start with listening to the societal 'buzzing', learning and understanding of the broader socio-environmental dynamics, and recognizing one's place and role in its sweeping currents. How else can businesses become progressive leaders and reliable partners in societal transformations?

The expressed philosophy is not that of mechanistic reacting to environmental inputs, perhaps through simple feedback loops of cybernetics, but that of system management under continuing environmental perturbations. New breed of competent anticipatory managers must rise to the task. They will face conflicts with regard to their acceptability within existing corporate structures. As somebody observed, "an acceptable man is no longer competent; a competent man is not yet acceptable."

The dilemma of acceptability and competence (long-term management competence) is facing today's managers. To be reactive is safer than to be active or proactive; it is still being rewarded, at least in U.S. corporations. Kefalas argues that the risks should be taken, the necks should be stuck out. But how and by whom? Is the social environment going to create the conditions under which such behavior would be at least conditionally or contractually rewarded? It might pay to the companies to proact. Does it pay to the individuals to do so?

More and more so, Kefalas says. He cites growing evidence of how progressive companies are incorporating anticipatory management, multiple scenario planning, and strategic management within their organizational structures. The payoffs are not going to be readily visible in the next-year bottom line; the payoffs are multidimensional and qualitative, manifested in the improved corporate environment, increased productivity and higher confidence in dealing with uncertainties of the future. The 'bottom line' is bound to follow the 'top line' by definition.

## Grossman and Lindhe's "People react to more than the message"

Computerized (and non-computerized) management information and decision support systems are increasingly permeating human institutions and organizations. More and more the designers are realizing that there is a fundamental difference between human—machine and human—human (as well as machine—machine) communications. Many of the systems are not properly implemented, are misused or failing, often because the challenges of man—machine interactions are not sufficiently recognized. Grossman and Lindhe illuminate a number of seemingly secondary factors which can however spell the difference between success and failure of any system based on a human interface.

Somebody once remarked that computer printouts are good for starting fires and wrapping fish. That is, as long as they are intended more for machine rather than human 'consumption'. People *react* to information differently, subjectively, selectively or inadequately. Many of these reactions, and the actions based upon them, are often influenced by such factors as sender's identity, order and form of the presentation, timing, medium of transmittal, language used, etc. These factors are usually neglected by the theories of MIS and DSS and, more importantly, by the practice as well. Grossman and Lindhe insist that the impacts of continuing neglect of such factors could be significant.

Psychologists have made enormous advances in describing the biases of human judgment and decision making. We are starting to learn about the effect of reference points on judgment (anchoring effect), about the insensitivity to statistical sample size, about the effect of redundant information, and so on. This knowledge is already affecting the theories of individual judgment and decision making.

But what about such effects as: Who is the sender? Is his/her identity known? Is the message written or verbal? Is it printed or written in long-hand? What is the order of a string of interrelated mesaages? If the effects are truly significant, and the authors are fairly convincing that they may be, then psychologists are facing another challenging task which could influence the design of MIS and DSS in the upcoming electronic revolution.

We often talk about 'intelligent' electronics or 'smart' systems, but so far they are mostly 'stupid' in their interface with humans. They could be extremely effective when left alone, when they are so designed that no human interface is needed. But this is rarely the case. People are expected to use these systems, react to them and most importantly, interact with them. Human systems management requires a close interdisciplinary cooperation among psychologists, computer scientists, decision theorists and the users of management supporting systems: managers, workers, executives.

Scientifically oriented and expert reader will have a tendency to disregard the message contained in Grossman—Lindhe paper. Who cares about the color or the type of lettering used in transmitting the message? But the practitioners are already, perhaps intuitively, feeling the importance. Proliferation of computer graphics and multi-media displays in decision support is bringing the differential impacts to the surface. Many companies are 'staging' elaborate presentations for their strategy meetings, annual budget discussions, and the like. They are learning the crucial difference between the 'message per se' and 'getting the message across'. As in many related fields, the theory is starting to lag behind practice. The theories of decision making, judgment and MIS/DSS systems are being caught unprepared and unable to respond to the requirements of rapid technological change.

Human systems management without humans in their center is not going to work.