

In this Issue

Licker's 'Office automation'

Professor Licker is exploring the relationship between Theory 'Z' of management and the emerging trends toward office automation. One of the premises is the notion that management and management technique or methodology are *technologies* – as well as traditional hardware and software components. Technology, as a whole, must include the 'brainware', it must go beyond the hardware–software limitations if it is to be properly managed and utilized.

One of the effects of 'high technology' is the gradual but persistent dismantling of traditional hierarchies of command. Bureaucracies do resist and 'fight back', especially the classical, centralized data processing and management information departments. This is a futile fight that shows misunderstanding of natural and spontaneous requirements which high technology engenders. Decentralized, distributed information processing, diffusion of 'information power', more managerial self-reliance (and even workers' self-reliance), and so on, are trends that are only strengthened by high technology implementation.

Thus, Licker is right in pointing out that the high technology revolution will lead to a dramatic shift in management, decision making, and organizational practices – whether we like it or not. Managers, although they do not understand it yet, have only two choices: (1) Manage in the old way, especially if successful in the past, but then do not 'play' with high technology – do not even touch its hardware; and (2) Introduce high technologies but be prepared that the way of management will be changed.

The issue is *not* whether managers will or can change and adapt themselves to high technology – that is not important. The issue is that those who will not or cannot make such adaptation will be

bypassed, defined out of business, or gently forced out of the organization. A whole generation of managers and business executives is in danger.

The hardware–software skills are extremely temporary and becoming rapidly obsolete. Armies of better skilled and more up-to-date hardware–software workers are constantly pushing on in the place of their obsolescing colleagues. The decision-making skills and opportunities, i.e. the 'brainware' function may forever elude them. Only reorganization would save this enormous and crudely exploited talent. Licker is putting forth some arguments for that. Specialization and specific achievements are becoming less important in Theory 'Z' organization – contributions to the long-term economic health are.

High-technology organizations are becoming, in terms of their organizational structures, non-hierarchical groupings of interdependent professionals. These new types of organization are only vaguely understood by organizational theorists: reality is taking its own course again with the theorists watching and shaking their heads. The structure itself is becoming fluid, adaptive, changeable – one cannot simply design it as a fixture, but only as an ongoing process.

One aspect of Theory 'Z' is that information and power become uncoupled. This characterizes the transition state only: information and power *cannot* be uncoupled *de facto*. The ability to compel others to do work will come more and more from retaining or releasing information, less and less from a hierarchical position.

An interesting and much needed understanding of organizational behavior is peeking through the high-technology advance: the more explicit control is needed to maintain an organization, the more ill-suited such organization is to carrying out a given task. A bureaucracy is little more than a program and the sort of classical managerial control can be programmed.

Office automation, and high technology in general, is indeed a new idea, a new way of doing things, not just a way to speed up and perfect an old performance. Let us be aware of this.

Eto's 'Ethos of Management'

Hajime Eto, *HSM* Editorial Board Member, concerns himself with the issues of participation and decentralization in Japanese management systems. Eto's view is of importance to *HSM* readers as it comes directly from a Japanese rather than from rehashed and usually incorrectly transmitted second-hand readings. Because of this, we have engaged in minimal editing of the paper; even English has mostly been left in its uneven, often perplexing form. We found that strict editing for English infuses different meanings and an inflexible straightjacket on the whole. Interested readers will not mind the extra reading care required.

Eto stresses the necessary symbiosis of participation and decentralization as two inseparable aspects of modern Japanese management. He also shows, quite rightly, how so-called 'modelling' misses the most vital and important aspects of decentralization and participation: spontaneous emergence, organic, non-mechanistic harmony, and competent amplification of these features by sensitive management. Otherwise, as Eto points out, mechanical-mathematical structure of the system model is quite remote from the actual, viable process of decentralization going on within the actual system.

Many viable, healthy and persisting organizations are not simply designed by social architects but are to a large degree self-producing, autopoietic. Because of this they cannot be simply redesigned and/or decentralized through applying this or that model. Their socio-cultural environment must be studied, its spontaneous, natural tendencies understood, and amplifying (or deamplifying) measures carefully instituted over a long period of time. Even so-called 'quality circles' were not designed by Japanese management but arose rather spontaneously as a response of workers to an increasingly demanding, even stressful, industrial environment. It is to the credit of Japanese management that they recognized the potential benefits of these spontaneous emergents and took vigorous steps toward their ultimate institutionalization.

The system of periodic rotation within Japanese organizations is also singled out as an important prerequisite for avoiding ossification, overspecialization and burgeoning of huge and increasingly useless staff. Long-term employment guarantees

combined with vigorous rotation and reshuffling within such guarantees seems to provide the right motivational balance. (Compare with specialty-bound inflexibility of employees jumping from company to company.) It is turning out, more and more, that the 'demerits' of rotation (the lack of tangible, bureaucratically detectable specialty or expertise) are becoming important advantages in a new, increasingly technological reality. It is precisely this rotational flexibility that allows Japan to introduce high technology with so few employee frictions and on such a large scale.

Eto's discussion of trade unions is important and enlightening. We should add to it that the unions are organized by companies (rather than by industries or by profession – this U.S. exported model was quickly abandoned) and that they are rapidly outgrowing their 'childhood pains' of playing with leftist ideas of naive socialism and marxism. The popularity of Premier Nakasone and his policies make this maturing a part of a broader trend in the Japanese society at large.

The favorable acceptance of robots by workers is also mentioned. Lifetime employment, a vigorous rotation system, company-organized unions, and labor/management consultation systems create the right conditions for such acceptance.

Eto concludes with a discussion of the 'disciplining function'. The personnel management department of the company fills the disciplining vacuum created by the dissolution of the sternly moral family; it is the company that modernizes and upholds moral norms. Discipline is closely related to purpose, a sense of belonging and tangible, desirable benefits to be derived from compliance (from being disciplined). If these conditions and prerequisites are lacking, there can be no discipline (barring the unfortunate disciplining by brute force against the will of people – a method so sadly prevalent in so many countries of the world). It is self-discipline and self-control that Eto has in mind.

Carlsson's 'Twilight of management science'

Professor Carlsson, one of the most active and dedicated OR/MS academics in Europe, has now taken a critical stand toward OR/MS sciences, calling for their paradigmatic revitalization and reorientation before they slip irretrievably into

obscurity. He is using Decision Support Systems (DSS) as a vehicle for describing and analyzing the possible causes of OR/MS malaise.

The charges against OR/MS are becoming increasingly more substantial and devastating: OR/MS are (1) concerned about structured rather than unstructured problems; (2) out of touch with the advances in other disciplines, especially systems sciences, judgmental psychology, general systems theory, multiple criteria decision making, etc.; (3) out of touch with the advances in modern technology: microcomputers, robots, computer graphics, DSS, CAD/CAM, interactive programming and decision support, etc.; (4) out of touch with the decision-making function of modern management; (5) preoccupied with simple-minded quantitative 'precision' and little regard for ambiguity and fuzziness in real systems; OR/MS also exhibit (6) growing inflexibility and inability to change; (7) lack of innovation and creativity – intellectual boredom and irrelevancy; (8) obscurity of expression, unreadability, inapplicability, low quality of ideas and concepts; (9) institutionalization and entrenchment of the status quo; and (10) out of touch with the practical needs of modern management. Many other charges have been raised over the past decade or so, but OR/MS continue virtually unchanged since the early fifties.

Carlsson asks: "Are the decision support systems to take over the age-old hunting grounds of management scientists? Will DSS methodology, and the development of a theory and a conceptual framework for DSS, replace management science as a major field of research?" His answer: "Yes, it seems so".

While the revolution in management and management technology is going on, OR/MS leaders refuse to take off their blinders. Carlsson quotes one characteristic remark which reads like a new OR/MS motto: "... I find it impossible to ascertain what is either new or unique about DSS".

One typical example of the OR/MS irrelevancy is its insistence on researching, publishing and teaching the 1910 concept of economic order quantity in the age of stockless production, JIT (just-in-time), kanban, automated computer-controlled MRP, and one-digit set-up.

Of course, decision support systems methodology is addressing only one, although important, subset of a broader *management support* methodology. Decision support should not be separated

from the organizational, motivational, innovation and strategic planning issues. *Human Systems Management*, with its new explicit emphasis on high-technology related management, is aiming towards such broader management support systems. *HSM* editors have singled out decision support systems, robotics and CAD/CAM, expert systems and AI (artificial intelligence), microcomputers, and OA (office automation) as necessary technological components of such comprehensive support system.

It is important to point out that the DSS future is becoming increasingly less and less dependent on computer hardware and software; its future depends on our understanding of the *human decision-making process*: if we wish to 'support' anything we *must* understand it, be able to describe it, capture its essential features and dynamics. Yet, it is this descriptive theory of the human decision-making process which has received very little attention from the DSS community: dynamic, situation-dependent reframing of preferences, multiple objectives and goals, generation of creative decision alternatives, conflict management, fuzziness and ambiguity, and so on. These insights and descriptions will ultimately be crucial to any DSS methodology and, obviously, to any management support methodology.

Stodolsky's 'Self-management information systems'

David Sanders Stodolsky is from Alaska, a professor at the University of Alaska at Fairbanks; thus his work in self-management is doubly interesting: his research was supported by an Alcohol, Drug Abuse and Mental Health Administration National Research Service Award from the National Institute of Mental Health.

'Self-management information systems', although a term not directly used by Stodolsky, is an area of great potential and interest. Current trends towards home, computer-based patterns of self-employment, self-help, self-service, do-it-yourself, and so on, will certainly generate a demand for *self-management information systems (S-MIS)*. Stodolsky takes some first steps by concentrating on self-managed firms and their use of commonly available, commercially distributed computer software.

As with the theory of social judgment (SJT), pursued mostly by Hammond and his colleagues, Stodolsky argues that certain judgmental functions performed currently by humans could be *replaced* (note that Stodolsky also does not use the concept of *support*) by computer technology.

Stodolsky singles out the 'workplace' as a significant feature of modern life at a time when technology and social restructuring are diffusing 'workplace' into home office. Also, the explicit reliance on 'enlightened self-interest' and 'rationality' is difficult to imagine for large 'co-operatives'. It is direct and comprehensive *democracy* which Stodolsky tries to enhance and support.

One problem Stodolsky discusses is the problem of human errors and judgmental biases hindering the systems if only a 'chosen few' are allowed to use information systems. He believes that in some way the number of errors will decrease if *each* person in the organization has the opportunity to place items on the agenda. Petty, irresponsible, frivolous or vindictive 'agendas' might tend to overload the system – and Stodolsky is very much aware of that. He attempts to solve it by developing a 'person's profile' for the system, a type of information which self-managed users might or might not be interested in having developed and stored in the computer. (Also, if a person's profile does not 'match' a given agenda or decision problem, such persons might be excluded from the process deemed to be irrelevant to them. This phenomenon, 'I have not asked you because it does not concern you anyway', so well developed in Eastern Europe, does seem to present a problem of undesirable control and manipulation.)

One thing Stodolsky states is very significant: *all* voting systems are subject to manipulation!

One problem with the voting system is that a voter's performance, decision-making ability, judgment, and foresight are directly or indirectly related to the actual outcome. People are ashamed to vote for losers, proud to vote for winners, some people even drop out of the democratic voting system in order to avoid the dilemma of 'voting performance'. (Obviously all those people who voted for Hitler felt that their judgment and decision-making performance were correct and of high quality as they were confirmed by the outcome – and thus by the judgment of their fellow voters.)

Democracy has absolutely no mechanism to insure quality of performance in the voting process. A majority can be wrong, and actually must be wrong, more often than minorities or individu-

als; the one thing it does assure is that the deviations from the average opinion or view will be minimized by increased participation. As there is no 'average person' or 'average product', similarly the majority (closest to average) vote does not usually satisfy any one voter. These are formidable issues and complex problems and Stodolsky's courage to grapple with them must be appreciated.

Stodolsky concludes that the proposed system (1) makes a policy less susceptible to control and manipulation, (2) enhances personal self-respect and personal growth of the individual, and (3) multiplies the ways in which an individual can participate.

Mackenzie's 'Technology for organizational design'

Professor Mackenzie presents the second part of his series on organizational design. After discussing his thirteen desiderata for organizational design in his earlier paper, he now concentrates on the technology of Audit and Analysis, summarized in eleven steps of the process of organizational design.

This technology, Organizational Audit and Analysis (OA&A), has been developed by Mackenzie and his co-workers at Organizational Systems Incorporated (OSI), a consulting firm. In contrast to other approaches, this technology has been widely applied in a variety of organizations and large practical experience has been gathered. One of such experiences involves an understanding of the dynamics and the continuous change in organizational circumstances and in the process of design itself. Organizational design, when practiced in the real world, is a strenuous and humbling undertaking, requiring countless revisions, changes, discarding of cherished theories, considerable risk taking, and professional frustrations. The world of academic organizational theorizing is relatively peaceful and stable in comparison.

Through all the turbulence and mercilessness of the practical world, Professor Mackenzie managed to extract generalized and therefore communicable elements, allowing the transfer of knowledge and experience. This is again in contrast to practitioners who, even if successful, cannot communicate anything generalizable (i.e., learning and knowledge) beyond rambling and essentially useless 'war stories'.

The eleven stages of the OSI approach are: Strategic Assessment – Organizational Audit –

Organizational Design – Implementation Planning – Monitoring the Implementation – Organizational Playbook – Organizational Game Plan – Organizational Maintenance – Systems Review – Educational Services – Contract Research and Development.

Professor Mackenzie then elaborates the details of each of the steps involved. He stresses that this is an evolving system, continually changing and adapting to societal, organizational, and group dynamics. Organizational audit, organizational blueprint, and organizational design are at the core of the process. The process from blueprint to design is that of incremental articulation, utilizing computer-based technology, and involving most of the persons to be directly affected. A computer is very useful in allowing rapid updating and impact tracing of numerous incremental changes and simulations. At the end of the process of blueprint articulation most of the personnel should understand the solution and their place in it. This is crucial for a successful implementation process, in fact the implementation process has already started during the earlier stages.

Thus the implementation process is conceived as permeating over many of the stages of design, and the design articulation continues throughout the process of implementation. Design and its implementation are not viewed as separate tasks but as interrelated activities of the same process. Their ad hoc separation, very often practiced in theory and applications, is skillfully diffused in the technology presented.

Finally, Organizational Playbook and Game Plan allow for continual updating of the design. These complement the OA&A software which allows in-house organizational maintenance systems which can be managed by the client organization via microcomputers. It is perhaps the further development of organization maintenance software which might ultimately allow first inroads into organizational self-organization, self-design, and self-maintenance.

The actual application of OA&A stages 1–5 and 8–9 will be demonstrated and discussed utilizing the design of Supermarket Systems, Inc. This will be the subject of the third paper in Mackenzie's series in *HSM*.

Mackenzie's 'Design of a supermarket'

Dr. Mackenzie, the President of OSI (Organizational Systems Incorporated) consulting group,

presents the readers with a description of a real-life application of the organizational audit and analysis methodology for organizational design. Retail food business (a supermarket chain) in the U.S.A. is the area of interest.

New technologies are affecting the retail food business in a revolutionary way. Automatic check-out scanners, computerized inventory control and new procurement and distribution technologies go hand in hand with the renewed emphasis on consumers' self-service, increased variety of goods and the emphasis on sophistication and quality of products. In the offing are the possibilities of teleshopping, computer-ordering and in-store production and manufacturing based on high-technology equipment and production mini-lines. Food retailers are more and more involved in the actual production of specialty products (baked goods, chocolate, deli products, etc.) allowing the consumers larger control over the types and quality of products offered in a given locality. The times of mass-produced, nationally distributed, low-quality products are past their prime.

Such trends are increasing the competitiveness of the food retail industry and make the organizational design a challenging undertaking, especially in view of the rapidly changing nature of the business in question. At the same time, food retailing is becoming a challenging, interesting, high-technology industry providing opportunities for creative people of solid education. To visit a well-run, innovative, exquisitely organized, 24-hour supermarket, offering a variety of on-premises produced and prepared specialties, amounts to experiencing the very best in achievement and excellence in American business: comparable with the excitement of a brokerage firm!

The customer is changing as well. Mackenzie refers to 'her' and 'she' in the weathered marketing cuteness of the fifties, but customers are increasingly men and 'he' is the main factor behind the push for better organized, more efficient, high-technology supermarkets. Smart chains have recognized this and responded to the 'male way' of shopping with striking designs, hours, and products.

Mackenzie's case analysis of SSI (Supermarket Systems, Inc.) is well written and thus conveys the excitement and challenge of this particular area of business. The steps of organizational design, including the implementation, are described in detail. The complexity of the problem is apparent even though the design was more structure-pre-

servicing than structure-changing. Also, as Mackenzie points out, in real-world situations one loses control and the cause-effect relationships are almost impossible to trace. It is hard to say which effects are due to the design itself and which are due to the ongoing dynamics of the environment. It seems that going through the exercise of the design in itself improves the understanding and self-confidence of key people in the organization. Initiative, agility, even aggressiveness are certainly recovered and even amplified.

The earlier papers in this series described desiderata of an organizational design methodology and a specific technology called Organizational Audit and Analysis (OA&A). Now we have the main features of the application of this technology for the first year of the engagement. Professor Mackenzie has completed a significant contribution to organizational design theory and practice.

Tichy's 'Austro-Keynesianism'

Austria has long been a puzzling and unexplained story of economic success. A new form of economic policy has emerged: combining long-term stabilization of parameters (important for business decision making) with unconventional and flexible assignment of instruments to goals, and with a selection of instruments according to psychological considerations. This is certainly something of interest to both economists and businessmen, but, most importantly, to policy makers and politicians.

After the long years of Friedmanesque simplicity, Leontieffian antiquity, and Thurowian politicking, it is quite important and interesting to be again exposed to economic *thought*. (This is exciting in itself, as connecting economics with thinking, rather than number-crunching, is not exactly a common every-day experience.)

Professor Günther Tichy is an eminent Austrian theoretician/practitioner of the art of economics, especially of 'Konjunkturtheorie und Konjunkturpolitik'.

So, what has happened in Austria? At least in the past decade or so, Austria has attained price stability, full employment, productivity growth and balance of payments. No other industrial country has achieved that (or even approached that).

Professor Tichy points out right at the outset that this 'miracle' is not the result of a carefully architected economic policy, implemented by this

or that group of politicians and their advisers. This new policy, Austro-Keynesianism, has come into existence spontaneously, undesigned, through trial and error, as if by itself. This is of course true of many economic policies, especially the successful ones, but it is a fact rarely acknowledged by most Western economists (and by the most Eastern ones as well, to be sure). So it is very fitting that this acknowledgement comes from the heirs of the 'spontaneous social orders' (or self-organization) of Menger, von Hayek, Schumpeter and von Bertalanffy.

Austro-Keynesianism, among other concepts, relies on the insight that it is certainly inadequate to restrict policy measures to demand: the supply side is equally important and catered to through vigorous investment promotion and sensitive structural policy. In this sense, Austro-Keynesianism conceptually preceded but empirically certainly surpassed the so called supply-side economics.

Supply-side economics is perhaps one of the most potent and exciting conceptualizations of economic policy for modern 'post-industrial' or 'high-technology' era. It is also one of the most misunderstood, mismanaged and politically crippled. It is always difficult to wed new economics with old politics: the supply-side economics never really had a full chance.

Austro-Keynesianism, if carefully studied and sensitively implemented in a long-term strategic sense (not deployed within few years à la military operations) could provide a useful model for most industrialized nations; especially US Keynesianism, although potentially useful in the short run, is self-defeating and structurally unsound in the long run. Tichy calls its textbook version 'Bastard-Keynesianism'. On the other hand, Austro-Keynesianism, with its balanced treatment of both demand and supply sides of the economy has proven more fit for the modern industrial era.

But, ultimately, serious structural problems will have to be addressed: tax evasion, hidden economy, public debt, ever increasing (although fluctuating) unemployment, malignant growth of services and government, high-technology displacements, international interdependence of industrial economies, etc. The Austro-Keynesianism itself will have to be allowed to evolve, to adjust itself to the new revolutionary dynamics which is still gathering strength all over the industrial world.