Participation in industrial change is a hot issue in countries experiencing rapid social change. Major problems include the number of large, highly centralized organizations; people's changing values; work-education and industrial-welfare gaps; the absence of forms to replace unacceptable authoritarian control; the effects of electronic information and communications systems; the bureaucratization of trade unions and professional associations; and the development of "specialist power." We face the colossal task of redesigning major parts of the industrialized world, to set in motion the learning and development process that may spring us from our self-created trap. First, one technology cannot any more be taken as given; second, we must debureaucratize the work organizations and their interrelated institutions. Modern technology makes possible much smaller, simpler, and efficient factories, superior in social terms; they require changes in our basic ideas of work and education. To prevent technological and economic planning from taking precedence over social criteria, a participative design process must take place, in which the roles of specialists are changed. It is possible to choose between basically different forms of work organization. (Author/AJ)
The development of human resources in a rapidly changing world takes on new dimensions as increased participation becomes more important. However, increased participation in decision - of all kinds - is still mainly a slogan. This is also the case with what is called democratization of the workplace and the school, the university and the hospital, the public service organization and the municipal or government agency. Until we have achieved something less democratic, it is all rather diffuse. As it is with health. It is not easy to define what it is until we get ill and then recover. After that we may even acquire the wisdom to protect and develop our health. Not many of us have achieved that degree of wisdom.

Democratization is very simple if we live under dictatorship, as we experienced in many European countries during World War II. Then the picture of democracy against the background of dictatorship was clear. But when we have established our democratic institutions, and they seemed to work far from satisfactory, the problem was no longer so clear; at least for those of us who do not see one simple solution, one simple theory or ideology likely to solve the major problems of democracy.

One dimension of our problem is clearly to establish a new situation which offers better development and utilization of human resources as compared with another situation. But if participation as such is important in the development of human resources, then the methods of change, or the way by which we get from one situation to another - i.e. the degree of participation in change - is perhaps the most important. This is particularly so in a rapidly changing society, where the methods of change characterizes society as a whole. Participation in industrial change is therefore a hot issue in countries as different as Norway and Yugoslavia, Britain.
and India, France and Australia, Japan and the U.S.A., and so on. Typically, one of the recent books on participation is called "The Worker and the Job; Coping with Change" (Ed. J.M. Rosow, Prentice Hall, 1974).

If the world of work is still a leading part of our society, how do we sort out some of the major problems facing us? The following list comes up over and over again when so-called specialists of organizational design and leaders of industry, trade unions and government analyse the future they are faced with. (Perhaps we should rather talk about "the futures we are in", which is the title of a recent book by Emery, F. and Emery, M., Center for Continental Education, N.U.A., Canberra, 1973.)

1 Highly centralized organizations are still the major building blocks of industrialized societies. The influence of the individual or the small groups, on local and the regional level is weak. Public criticism against the large, centralized organizations are growing. This is particularly the case when they take the shape of multinational corporations. However, as stated by one of their critics, "If there is one thing more alarming to a small country than the presence of multinationals, it is their absence." (A. Sampson, in his recent book "The Sovereign State of I.T.T."; Fawcett Crest, 1974)

2 The values of people are changing as affluence grows and the ecologic time bomb become more threatening. Particularly the younger generation demands something more than money and things out of their working life. They demand meaningful work, in personal and social terms. They want to learn and develop, and to have control over their own work and their own life situation.

3 The split between work and education has been widened and so has the gap between industrial policy and welfare policy. At the same time the cost of social welfare and of education is growing to levels where industrial and public bankruptcy, or tax revolts, may occur.
Authoritarian control over people in work and education is no longer acceptable. At the same time there are alarming signs that we have not created alternative forms of social control to take over. The worlds of "Clock Work Orange", "Big Brother" or "Scientific Behavioural Control" are looming on the horizons.

Electronic information and communication systems, which promised to save us from routine work and to educate and cultivate us, seem to have quite different potentials. The number of people controlled by computers for control is few often narrow in their specialist outlook. Mass communication, so far, seem to have contributed more to a passive superficial and fragmented world perspective than to cultivation of knowledge and other human values. However, the new forms of communication can still be used for major improvements in the world of work and the world of learning, as well as in leisure activities.

Trade unions and professional associations have become bureaucratized and taken on many of the same characteristics as the centralized economic institutions they were built to encounter. Lack of communication and participation in decision making, are felt also by union members. Established career privileges among the highly educated and highly skilled professions are blocking new and more democratic forms of work organization. This is particularly serious when the technologies underpinning many of the privileged professions are already obsolete.

Specialist power is one of the major pitfalls we must avoid if we want to increase participation in the work organizations and improve the development of human resources. To remove the power of technocrats and give it to social science or other specialists in the same sort of specialist roles would only be to exchange one evil for another.

Each of the points above taken alone, may be something we can handle. But if these conditions start to interact and intensify each other we may be facing a critical situation.
If you think I am dramatizing, perhaps the wording of the Times of London is more convincing:

"A few years ago the idea of an official strike in the Civil Service or of a refusal to make arrangements to pay increased old age pensions, or of an attempt by local government staff to disrupt local elections, or of a strike by hospital workers that admittedly exposed patients to a degree of danger, would all have seemed equally outlandish. Yet all have recently occurred." (Editorial, August 22nd 1974)

The next five to ten years are perhaps going to be critical for us. When I say us, I mean the people in the rich, industrialized world. People in some other worlds, i.e. in Africa and South America, have probably got less time to save themselves, partly because they have been led into a trap by the so-called civilized Western society, and it is difficult to escape a trap set by others. Other worlds, like China, have probably got more time than we have. This does not necessarily mean that their world perspective and the social system they are trying to form for themselves is of very great direct help to us to use as a blueprint when we face the colossal task of redesigning major parts of the industrialized world. I think it is nothing less than that we are up against. If this is so, there is one thing we can learn from the Eastern world, and that is to change our time perspective. If we first realized that most things we fear today - that we are struggling with now - are going to get worse and not better in the short run, then we may start to do something that may have some positive effect in ten to fifteen years from now. I am not thinking of the continual over-population and ecological pollution. I am thinking of problems close to you as specialists. Alienation and unrest among people in centralized and bureaucratized companies and government agencies will not decrease in the next few years. Young people will revolt more and more against meaningless work and meaningless schools and universities. Ideological wars with words and material weapons will sharpen.

If we accept these grim realities, then we may avoid panic. The next is then to realize that the time perspective is critical, and we must choose for ourselves a perspective relevant to our problems, not Stalin's five years plans or Mao's fifty years plan. We have to make our own choice of time perspective and
world perspective. If we do so we may start slowly to work ourselves out of the trap we have got ourselves into. What is this trap that we have got into? Geoffrey Vickers describes the trap in a book with a most relevant title for our time: "Freedom in a Rocking Boat" (Pelican, 1972). Sir Geoffrey uses the example of a lobster pot to describe the nature of the trap (p. 15):

"Lobster pots are designed to catch lobsters. A man entering a man-sized lobster pot would become suspicious of the narrowing tunnel, he would shrink from the drop at the end; and if he fell in, he would recognise the entrance as a possible exit and climb out again - even if he were the shape of a lobster. A trap is a trap only for creatures which cannot solve the problems it sets. Man-traps are dangerous only in relation to the limitations of what men can see and value and do. The nature of the trap is a function of the trapped. To describe either is to imply the other."

Perhaps you think that the world perspective I start from is too far-fetched as a basis for your main task, the development of people and their work environment? I don't think so, because you are right at the centre of the leading part of the system we live in, the industrialized institutions.

Unless we can stop the vicious circle industry is in, in the way it utilised its human resources, there is little hope that we can set in motion the learning and development process that may take us out of the trap we have created for ourselves. To be more concrete: Two principles of the redesign of our industrialized organizations and institutions are of critical importance. First, technology cannot any more be taken as given. We must choose the technologies and the work systems relevant to our basic social and human requirements. This does not mean that technological and economic measures can be dropped, or that they are unimportant. Secondly, we must debureaucratize the work organisations and their inter-related institutions. This means changing the pattern of change. It does not mean that political institutions and cultural measures can be left untouched, but a direct approach at this level is perhaps more that we can manage at the moment. If we try, we may end up in new traps created by ideologies and closed conceptual systems on which they
are built. If there is something we need it is an open-systems concept and an open-systems approach to change. But we must stop fooling ourselves by words like "open systems". We must confront our concepts with realities by doing something in ways by which we learn to get out of the environmental, the social and conceptual traps we are in.

Let me illustrate why the choice of technology is critical and how organisational choice is open to us. Perhaps an example from a non-industrialized country may be useful. If a country like India has to increase its production of food, it may be necessary to build chemical fertilizer factories. But why build them as large and specialized as they usually are in the US and the USSR? Modern technology has, over the last twenty years, made it possible to build much smaller and simpler factories which are almost as efficient in technological and economic terms, and they are much better in social terms. These smaller factories could make it possible for more people in agricultural India to stay in their villages and not to be uprooted from their village culture if they don't wish to do so. They could work for short periods of time in the less qualified jobs of semi-mechanized manufacturing and learn what chemical fertilizers are, how they can be used and misused, and how technical machinery is used and maintained. The factory could employ as many people as possible - which is relevant for India for a long time to come, not as few people as possible which might be relevant for the US or the USSR. Vocational education could be organized in close relation to agriculture and the crafts of the village on the one hand, and semi-mechanized manufacturing on the other. General education likewise could be handled in this way. Some of the teachers and students might practice their know-how in local industri and agriculture. Technicians might hold semi-permanent jobs in a fertilizer plant or small service industri or in technical schools. Simultaneously, they would be able to work on problems of water supply, housing, transportation, etc, in the villages. The new fertilizer plant, its training and other service functions could become an integrated part of the local environment, if one chose the right size of plant and the right level of technology. If you don't believe that a factory organized along these principles could produce
chemical fertilizers, you are wrong. Industrial experiments carried out in Scandinavia and Western Europe and Australia and the US in the last few years indicate that it would be quite possible. But to make such a factory work in the context of a local community we would have to change basic ideas about work and education. Quite a few industrial organizations have had to do exactly that.

A similar example as the one indicated from a developing company could be given from the situation we are in now in this country, where we are building our new petrochemical industry based on the oil from the North Sea. Why should we repeat the errors that we can so clearly observe in Holland and the US — not only in terms of physical pollution, but in terms of poor work and life environments? Why should we accept that technological design and economic planning should take priority over social planning and design when the social problems of the industrial environment are perhaps the most critical ones? But what, then, could we do in practice? As I said before, we would first have to choose a reasonable time perspective; not five and not fifty years, but perhaps ten to fifteen years within which we could apply the two basic principles I mentioned earlier. First, not to take technology as given but to use social criteria of design as well as technological and economic ones. Secondly, to debureaucratize and despecialize the work organizations and the institutions most interdependent with it. We would, in fact, have to set up a participative design process where industry, trade unions and professional groups were actively and continuously involved in the design process, together with local and central government, and local and central education. To organize so-called counter-expertise would not solve the basic design problems, although it might put new people with different values and ideologies into the specialist positions — positions in conflict with what I shall outline as a participative design process, or more briefly expressed, a joint design process.
An important step towards a joint design process would be to change the roles of specialists.

1 The ownership of the problems or the projects should be clearly recognized. They belong to the people on all levels of the organization where the specialist is invited to work - and not to the specialists.

2 Some shared values must exist between the organization members and the specialists. Specialists must understand that their work is never value-free. In fact they get involved in the process of policy-making whether they want it or not. On the basis of some shared values and some understanding of the structure of the organisation, it is possible to set up some sort of sanctioning body which can deal with value problems and policy problems.

3 Problem definition, or analysis of the problem situation, must be a joint effort by specialists and members of all level of the organization. the specialist must take care not to define the problem to fit his theory and his methods. Many specialists have strong theories of their own and are looking for problems that fit their theories.

4 Criteria of evaluation, by which solutions to problems are to be judged, must be worked out primarily by members of the organizational members and not primarily by the specialists.

5 The dependency of the organization upon specialists should decrease over time, as learning by joint problemsolving takes place. This means that organizational members can learn from the specialists and achieve increased independence. Specialists can learn from the organization members and are encouraged to
renew their theories and methods. This makes it possible for them not to be dependent on continued services to one single organization. It is then possible to build what is called "selective interdependence" between outside specialists (or resource persons) and organizational members.

Over the last ten years we have gained some experience in democratization projects in industry, regarding new specialist roles. One of the main reasons why the diffusion of new models of organization in industry has been relatively slow is that we have not been sufficiently aware of the specialist dominance which so easily occurs. This is particularly serious when a major objective of organizational change is increased participation on all levels of organizations.

ORGANIZATIONAL OPTION

The idea that it is possible to choose between basically different forms of work organization is fairly new and far from generally accepted. Small variations within traditional patterns do occur, of course. But within each work culture, industry or government, shipping or banking, education or health service the traditional forms are more or less taken as given. Eric Trist and his colleagues showed in the 1950-ies how miners could choose between a specialized, fragmented type of work organization and one with partly autonomous work groups. Similar possibilities of choice have been demonstrated in industrial manufacturing, in shipping, the service industry etc. But in spite of such illustrations and hundreds of articles and books and thousands of courses and conferences on organizational change there are few cases of systematic organizational choice made in practice. Changes do indeed take place but mostly as direct consequence of technological change. A choice of technology according to organizational need rarely occurs, although this is possible, much more so today than ten or twenty years ago.

To illustrate what organizational choice might mean let us look
at three basic questions and the standard answers to them

1 What are the standard building blocks of organizations? In most cases: One person and one job (or main task)
There is a major alternative to this, namely a group of people and a group of tasks. These two alternatives could be used consciously in a great number of combinations within each organization. Usually the group principle goes counter to and is inconsistent with the standard organizational design.

2 What is the basic pattern of information in organizations? The standard is: Up and down the status hierarchy, and mainly downwards. The alternatives to the vertical system of communication and control is that it can be horizontal and functional. A combination of vertical, horizontal and functional systems of information can be used within each organization, but there is one great limitation. If the building blocks consist of one person and one job the vertical system of communication is encouraged by the status system that generated as a consequence. Whom does the boss turn to when he wants something done? Whom does the subordinate turn to when he does not know what to do?

3 What are the standard criteria of evaluation in organizations? In spite of all lip service paid to social and psychological criteria, the economic and technical criteria dominate in practical life. The reason for this is not only that these two sets of criteria are still critical ones for organizations, but also that little is done to make other criteria practicable, i.e. the need to provide conditions for learning, participation in decision making, conditions for cooperation and social support, etc.
The concept of self-maintained learning as a strategy for organizational change is one of the main outcomes of participation experiments. Increased variation in job content and increased learning on the job has lead to improved involvement in decision making and improved social interaction. This type of organizational learning would reinforce further improvements in job design, learning conditions and so on.

For managers the concept of self-maintained learning has meant a transfer from exercise of direct control to acting as resource persons helping other "to learn how to learn". This type of leadership role demanded a willingness to let individuals and groups learn from mistakes but at the same time to assume responsibility for optimising technical and social resources within partly autonomous production units. Ability to build trust would consequently be as important for managers as technical competence.

In conclusion, it seems important to stress the following conditions for new forms of work organizations and managerial role to develop.

First, economic and technical criteria for organizational evaluation have to be supplemented by operational social criteria such as more meaningful tasks, continuous learning, participation in decision making and policy making. If this does not occur, work organizations will increasingly get into conflict with changing values in the wider society.

Second, new building blocks in organizational design, such as multiple, nonpermanent work roles and partly autonomous work groups will have to be developed and tested by people on all levels of organizations. If not, it seems impossible to build enough capacity for learning and change into organizations to cope with social and technological change in the wider environment.

Third, new systems of information and control may be viewed both as conditions for and consequences of new types of
organizational design. So far, new information technology has not, in spite of its potential, been used much to reinforce new forms of organization but rather to increase centralized bureaucracy.

Fourth, top management in changing organizations seem to be increasingly involved in institution building, i.e., setting up social coalitions between organizations in the wider environment. This leads to decreasing involvement in internal coordination and control. The same shift in role focus seems to be important to trade union leaders and top public administrators. The opening of free space for new forms to develop on all levels of organizations may be viewed as a condition for, as well as a consequence of, correlated changes inside and outside work organizations. These comprehensive changes may imply policy making as a stepwise learning process.

Fifth, the changes in management roles and organizational policy do not seem to occur primarily according to a systematic plan or logic. Fundamental changes seem in each work environment to generate their own logics, their own process of change and their own concepts parallel to changes in values inside and outside organizations. For managers this seems to depend on a transition to alternative ways of distributing responsibility and of exercising control. It also seems to change the requirements among managers from being basically of a technical nature to include responsibility for optimizing technical and human resources. Their ability to build trust and create conditions for learning, involvement, and commitment among people is not a new requirement but of increasing importance. The same seems to apply to specialists who will increasingly be asked not only to give prescriptions for problem solving, but to create conditions for people to learn how to learn. This may demand a change in the models and strategies also among specialists in organizational development.