

P L A N N I N G F O R S C A R C I T Y

Remarks by

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PLANNING FOR SCARCITY

Three weeks ago we held the first of a series of seminars at the Federal Reserve Bank of Minneapolis to discuss different parts of our long-range planning effort that has been underway this last year. Quite appropriately this first seminar was devoted to an analysis of computer and communication technology. That discussion, like yours in this meeting, was concerned with the what, how, why, and who of storing, transferring and retrieving economic data. In these few minutes I'd like to try to apply some of the ideas developed in our study.

What data is easily answered. It is any data essential to the survival of man or his institutions. In one of its simpler forms, it is data about ownership of money claims. For example, instead of a check as the instrument of transfer of funds from A to B, there will be an electrical impulse to settle the transaction. With the per item cost of a credit card transaction at fifty cents, and that of a check at twenty cents, the seven and one-half cents per item cost of a direct fund transfer by electronic impulse is a powerful incentive.

In its most complex and sophisticated form, the data to be handled will be that which is produced ahead of the fact of its occurrence. I'm referring to simulation techniques and model building, both of which involve the assembly of historical data -- that is, facts which have occurred -- in equations based upon their relationships to each other, so that the results of different action alternatives in the future can be simulated without the pain of actual experience. This is not Buck Rogers speaking; most of the

great corporations of the world now use these techniques, whether it be to simulate the performance of a plane or a rocket, or to match different levels of supply and demand for their products. In the public sector, economic modeling is becoming increasingly sophisticated, and while we can't determine the alternatives for course correction as precisely and accurately as NASA can a space ship, we are making great strides.

Why is this important? It's because there now is a realization that actual experience is an extremely expensive teacher. And certainly it can no longer be our only teacher -- in fact, if we continue to rely on actual experience as the best teacher in approaching many of our social and economic problems, experience might very well turn out to be the last teacher we have. This is because for many of these there may be no second chance to try for another answer.

We have become a country of scarcities. Human talent, financial resources, and above all, time, are in short supply. There is simply not enough of any one of these to go around, and it makes little difference whether your example is the federal government, A T & T, the United Automobile Workers, or any of the fifty states. There is no U. S. institution that escapes the pinch. In fact, it is the one common assumption all projections for the next two decades agree upon.

The kind of prodigal waste that the expanding physical frontiers permitted over much of our history was possible only because the supply of human and natural resources seemed limitless. The price of failure was low because it was regarded as an individual concern.

But we have been pinched in two ways. At the same time the physical frontier was slipping away, the institutions of our society were becoming a great deal more complicated. The investment in money, talent and time to make them work has been exploding, whether they are organized for public or

private purposes. The price of failure started to climb years ago; much slower has come the public awareness that it pays part of that price, but it, too, is now rapidly increasing. Whether it be Penn Central in the private sector, or Vietnam in the public sector, everyone loses when management fails, and the losses cannot be made up.

How the data are to be handled has two aspects; solving the hardware problem, and the analysis of the cost/benefit factors. The first of these relates to the state of technology, which is very advanced, and which I do not understand at all. Sufficient perhaps to say that I have been convinced by a parade of experts from IBM, Honeywell, Control Data, the Bell Labs, and our own computer people that there exists the capability to do almost anything presently contemplated.

Costs of the hardware can be enormous, though, so evaluation of the cost/benefit ratios is really the more important of the two prongs of the "How" inquiry. What information is to be gathered, and the uses to be made of it after it is in hand, should be the determinants of the investment in the system. There are now existing computer and communication mixes to serve almost every kind of a user.

The how problem is a people problem, and not a technological one. Matching the quality and skill of the computer technicians with the knowledge and motivation of the ultimate users of the data -- the people who must say "go/no go" on the basis of the data -- is an exceedingly difficult one, and is really where our energies have to be concentrated.

Who will use the data and for what purpose? I have offered one assumption with which few would quarrel -- namely, that we have been and will continue to be an economy of scarcities. There might be less agreement, but I think it no less defensible, on the second assumption -- which is, that there are only two directions possible for human institutions: up and

down. There are no social and economic vacuums in which forward motion can be continued without effort, for friction operates as surely against governments and businesses as it does against matter. Not to consciously plan to move ahead toward defined objectives is to have unconsciously decided to fall behind.

There has to exist a set of objectives fairly well defined and agreed upon among the users of complex information systems. Unless these exist, marks on the wall and an abacus are enough. To design a computer system to serve conflicting objectives is not only impossible, but the attempt would be ruinously expensive. It is incumbent upon the leadership of the state, through whatever agency expressed, to decide what they want to be informed about and for what reasons. Once defined, the matter of data gathering becomes an essential supportive function for the people who must make the decisions necessary to the attainment of the objectives.

I lived in Montana much of my life and, like the late John Steinbeck, I, too, continue to have a love affair with Montana. But I have never been conscious of a sense of direction in the state. For many years it was a luxury the state could afford because it really didn't matter, given the wealth and relatively free access to the natural resources with which the good Lord had endowed the state. But I sense things are not all that well in Montana now. While the state fared better than some of the other areas of the district in the 1970 census data, it still suffered from net out-migration, and I suspect there has been a net upward shift in the age distribution.

Further, the complaint is frequently voiced that Montana is a capital exporting state in addition to a talent exporting one. On the public side this is not true, because the balance of payments with the federal government is a plus, rather than a minus, but I suspect it is true on the private side. If it is, it's generally because the owners of that capital

believe it can be more profitably employed elsewhere. In our economy, attempts to curb the mobility of capital, like attempts to curb the movement of people, have a dismal record. Ecological equilibrium, the "balance of nature," has its social and economic counterpart; and artificially upsetting that balance can be just as disastrous to an economy as some of the biologic evils we have committed in the name of progress. In this sense, out-migration of capital, like out-migration of people, is no problem but a solution to underemployment of both. As long as we continue to be a scarcity economy, human and financial resources will flow where they can be most profitably employed.

I should know better at this point than to continue, but the spirit of the early Christian martyrs is deep in the marrow of the Federal Reserve. It seems to me the central issue for Montanans, the quality of life for the individual Montanan, is almost totally obscured by the smoke of the rhetoric coming from the two extremes.

At one end are those who extoll the virtues of the simple life Rousseau wrote about. These people, with apologies to Mr. Rousseau, we can call the Noble Savages. It is their ambition to perfect a delivery system for care packages, appropriately filled with money, from the more populated areas, provided those delivering the packages don't stick around too long.

At the other extreme are the neo-colonials. These, in the tradition of those from the Mother Country everywhere, view the states as a source of raw materials to be extracted from the soil, air, and water, as quickly and efficiently as possible with the aid of the natives enlisted one way or another. In the old days, the blessings of civilization were the rewards for the natives; neo-colonials now talk a great deal about progress. There is a satisfying ring to both blessings and progress, nearly everyone feels they are joined in a noble undertaking, and it is easy to embarrass into silence --those who timidly ask what the future social and economic costs will be to those left behind.

Random non-growth, like random growth, is a luxury no one can afford. But we are stymied in varying degrees by the failure of information gathering and assimilation techniques in the public sector to keep up with the advancement of these techniques in the private sector. State and local government is the biggest business in Montana. The second I suspect is the federal government. Together, as I recall, they employ more people than agriculture in this state. There is little you can do about the federal government; there is a great deal you can do about state and local government. A definition of objectives and the tools to work with are starters.

Just one example. This session will be grappling with serious budgetary problems -- perhaps more serious than any of the last decade. National economic policies forced you out of national money markets for much of the biennium, so I suspect the backlog of public projects has awesome proportions. It also caused a shortfall in income tax collections, I suspect. How can a legislator possibly measure the cost/benefit ratios in appropriation measures -- the impact of tax proposals on the total economy of the state? The way since time immemorial in Montana has been to listen to various constituencies and their lobbyists, pitch the programs at what appears to be the middle, and then wait for experience to judge the wisdom of the decision. The power to tax is truly the power to destroy. How much better it would be to know within reasonable limits the objective impact of tax measures on different constituencies, and then tackle the political question in the full light of those facts. The Upper Midwest Research and Development Council, working with the University of Minnesota, and financed by a Ford Foundation grant, has been developing a computer program called RAFT to do just this. If they meet their scheduled targets, the Minnesota legislature this year will have access to an information system into which different patterns of taxation and rates could be plugged, and their consequences determined. At the heart of it is computer capacity and techniques of a high order.

Without these, and the will to use them, the kinds of computer programs being developed in different parts of the world, and designed to make all kinds of human institutions, public and private, work better, cannot be applied in Montana.

Coordination among the users will be an exceedingly difficult political problem. When I reflect upon the Ninth Federal Reserve District, it is easy to despair. With 13% of the continental land area of the United States, and only about 3% of its population -- and that concentrated in a relatively few cities -- the Upper Midwest too often looks like a collection of warring city states. I am reminded of ancient Greece and its city states.

Efforts to unite Sioux Falls and Rapid City, or Billings and Great Falls, to single out just two examples, in a common South Dakota or Montana cause often seem to have little more success than efforts to get Sparta and Athens together. Add to the intercity rivalry, counties, school districts and other political subdivisions, plus the array of institutions and agencies on the state level, and the obstacles may seem insurmountable. Yet there are success stories and places where public recognition of common self-interest have united warring communities, inter-state authorities, metropolitan councils, intra-state regional governments. There are examples to give us heart.

It certainly should be obvious there is not enough money and not enough talent to permit random expansion of computer facilities in this state or any other. Less obvious, but more fundamental, though, is the cost of the inevitable widening of the gap between the aspirations of the public for their government, and the capacity of that government to deliver.

I have talked excessively about the economic aspects of information systems. These may soon, for many information systems, be less important than the applications to education and health care. There is a real risk in

any talk about computer and communications technology that the speaker may end up simply reinforcing the universal fear in his audience that the individual human being no longer matters, and human judgment is obsolete. Nothing could be more wrong. Information systems exist only to enhance the capability of human judgment in human affairs.

The special interest of a world of scarcity is to assure the best use of what is available. A statement of goals, the systematic gathering of data, the development of plans of action; these steps have common purposes in public planning to make sure individuals are treated fairly and the delivery time of government programs is fast and efficient.

To an observer who has been infatuated with Montana all his life, the State is at some kind of a watershed today. Growth versus no growth; the shape and requirements of higher education; the costs and delivery of health care in the State; I sense a greater public awareness of fundamental issues in Montana than ever before in my lifetime, and a greater willingness to go behind the rhetoric of the ancient positions of politicians and power groups to the realities of now. The purpose of these sessions is to find better ways of exposing and measuring these realities in all their implications to better serve the public.