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POLITICAL DIMENSIONS OF AN  
INFORMATION SOCIETY :  
A GENERAL OVERVIEW

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## INTRODUCTION

One of the most dramatic phenomena of the contemporary world is the explosion of technology upon society. Science and technology have made such great advances in recent years that some people consider that we are undergoing a technological revolution. The significance of this revolution is measured by the perceived impact it has both on natural and social systems. Technological innovation is bringing about profound changes in our lives by solving many of our problems and creating others, therefore presenting us with new dangers, challenges and opportunities.

The social changes brought about by science and technology are nowhere more extraordinary than in the way we formulate and communicate information. Within a generation, television and computers alone have revolutionized our culture to the extent that they are now creating what has been called an Information Society. It seems that in this new society, no area of human life will remain unaffected. Because the effects of information technology are both extensive and intensive, they concern society as a whole and must be dealt with by public as well as private institutions.

In this respect, the interest that information technology raises on politics is rather obvious. Anything which affects society so much



cannot but have great political repercussions and thus involve the government of the country. It is for this reason that we have here undertaken a general study of the most crucial interfaces between the political and informational systems of society. This essay will investigate various relevant relationships between the two systems from the point of view of four different dimensions:

- Topical: systems analysis of structures and functions;
- Temporal: social dynamics of recent trends and future scenarios;
- Spatial: geopolitical perspectives of various territorial levels;
- Procedural: prescriptive outline of policy-making process.

Of course, these dimensions cross-cut and interact with each other, but we shall here treat them separately in the four chapters which follow, thus covering all facets of this complicated subject. Because of the broadness of our coverage, we cannot go into the details of any of their aspects. Such details will require separate studies in each of these areas which will, we hope, be undertaken at a later date as required.



## I. POLITICS AND INFORMATION

Human reality may be understood as a complex network of systems. This complex is composed of interconnected and interacting structures and functions. In order to study this complexity, we can discern three interrelated worlds of reality:

- Personal: the inner world of the human spirit or psyche;
- \* Social: the interpersonal world of human relations;
- Natural: the physical and biological environment.

In this study we shall concentrate on the middle or social world and touch upon the other two only peripherally. Even so, the number and complexity of social relations and activities necessitate a further breakdown of society into:

- Cultural: the way of life and expression of people;
- \* Political: the process of conflict-resolution and decision-making;
- Economic: the production and exchange of goods and services.

Here again, our focus will be on the middle or political system, because of the central role it plays in society.

The political system, like all open and dynamic systems, exists and operates by receiving, converting and transmitting various inputs and outputs from and to the environment. These systemic inputs, throughputs and outputs may be distinguished as:



- Matter: raw material resources of physical nature;
- Energy: potential for activity-production;
- \* Information: symbolic signals on the state of affairs.

A final delimitation of the scope of our inquiry will be around the information process and the way in which it is related to the political system.

In this first part of the study, we shall consider the connections between politics and information. The basic hypothesis here is that there are significant relationships between the political and information systems. Moreover, we postulate, these relations become crucial in social systems of high information flow and content: i.e. in "Information Societies." The following two sections will explain first the political and then the information system. On that basis, we shall then combine the two in a politics-information complex which will serve as the central model of the study. Finally, we shall look for the major implications of these structural relationships and the issues they bring forth.

## 1. The Political System

We define politics as a civil activity in which people engage in order to resolve their conflicts and arrive at a common policy. In this context, "civil" means a social interaction regarding public affairs in which there occurs a dialectical exchange of influence or





power. Since "power" is the ability to do work, political power is the capacity to get people to do something. This capacity characterizes those who can influence others to behave in a given manner. The powerful can do that politically by convincing people that what they propose is necessary or desirable for the common interest.

On the basis of these definitions, the political system is that part of society in which collective decisions are made as a result of the interplay of various forces and considerations. The political system thus converts differing views and opposing interests into a policy consensus by a process of equilibration and compromise. An important problem in politics is to locate the foci in which these activities take place and the loci along which influence flows.

For the purposes of this study, we shall simplify the structure and functions of the political system by discerning two main centres of activity and one channel of influence between them:

- The State: authoritative policy-making and implementing organ;
- The Polity: public arena of issue-confrontation and debate;
- Power Flow: channels of influence between State and Polity.

These two components of the political system and their interconnecting channels operate by transforming resources and pressures from the



social system and the natural environment into controls and services for people and things. This conversion of inputs into outputs and their subsequent feedback forms a cybernetic cycle which governs large areas of society.

Although this activity affects all people, few engage in it. The polity, which is supposed to consist of all citizens, is actually dominated by some powerful interest groups and political parties represented by lobbyists and politicians. The state, in turn, is directed by a bureaucracy of experts and functionaries who respond to the exigencies of political pressures exerted by its power brokers. The results of this process must, therefore, reflect the net total of this calculus.

## 2. The Information System

For our purposes, information is made up of certain symbols which have some meaning for human beings. Information is used to decrease the area of our ignorance about reality and hence is indispensable for the survival and operation of our systems. Information makes the world an organized complexity and helps us to understand and deal with it. As such, it builds up knowledge and counters entropy.

The flow of information in, through and out of a system is an important process, in par with that of matter or energy. For that



reason, a principal characteristic of society is how it collects, treats, stores, recalls and uses information. Society not only produces, exchanges and consumes energy and materials, but also information. In the last case, the formulation and communication structures and processes in society form the "information system."

A simplified composition of that system would, therefore, include two components and their interconnective links:

- Formulation: collection, manipulation and storage of data;
- Communication: selection, translation, diffusion of messages;
- Data Flow: channels of knowledge transmission in the system.

The formulation component is stimulated by the reception of signals from the social and natural environment. It interprets and organizes these signals into meaningful and useful data, some of which it then transmits to the communication component for preparation and publication throughout society.

The structural elements of the information system include social institutions, such as research institutes and laboratories, computer companies and libraries for the formulation of information; as well as the mass media, post offices and telephones for the communication of information. The former are staffed by scientists, intellectuals, programmers, calculators and organizers of data; whereas the latter include journalists, publishers, editors, operators and messengers.

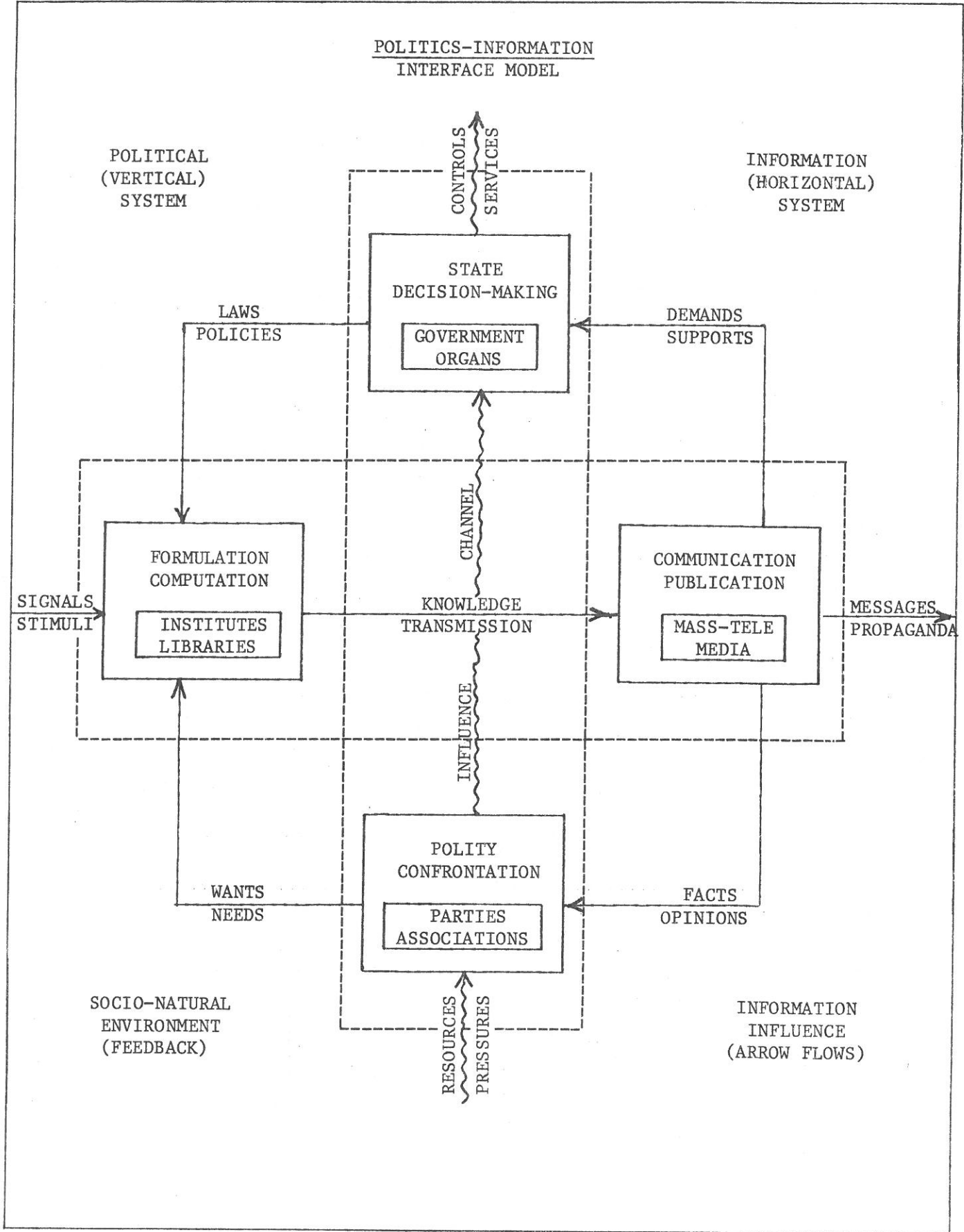


The significance of these people in society is evident, since they operate the machinery of production and distribution of knowledge through the system. It is on these information manipulators that society depends to manage and operate its vital nervous system.

### 3. The Politics-Information Model

Now that we have elucidated the systems of politics and information separately, we shall combine them to form a single complex as it is illustrated in the accompanying diagram. From this figure we can see that the political system is represented by the vertical rectangle of dash-lines, while the information system is the horizontal rectangle. To emphasize their interrelationships, we have placed them in an overlapping and cross-cutting manner which produces a cruciform, whose four arms correspond to the main components of each system: i.e. state-polity and formulation-communication.

This structural system-complex exists and operates within the social and natural environment from which it receives its inputs and to which it transmits its outputs. To begin with, signals from society and nature are collected and enter the information system where they are processed and then diffused in three directions: the society at large; the polity and the state. It is the latter two which are of particular interest to us here, since we are dealing with the political impact of information. In this case, information reaches





the political arena in the form of facts and opinions read, seen or heard by the politically active public. On the basis of this information and their socialization, people conceive and articulate their wants and needs. These form the public opinion which is picked up by the information system reprocessed and transmitted to the organs of the state as popular demands or supports. On this information, the state makes decisions and formulates policies which respond to the popular pressures as presented by the information system. Finally, that system collects, translates and communicates government policies to the public at large. This information re-enters society and the polity where it eventually becomes the feedback which starts a whole new cycle again.

According to this simplified model of a long and complicated process, the information system intervenes at many points between the public and its government. Of course, there are more direct relations between the political arena and the state which bypass the information system by using traditional interpersonal contacts. But, such communication (wavy-lines in the diagram) is decidedly a minor (less than a quarter) part of the total information flow in modern societies. Under these circumstances, the information system plays a key role in politics.



4. "Scientia potestas est"

It will be recalled that at the beginning of this part of the study, we made a hypothesis relating politics and information. Now, after the exposition of our model, we shall go a step further and state the main thesis which is implicit in the model and is tersely put in the latin dictum above. What we are proposing here is that knowledge leads to power, in the sense that he who has information has a potential to influence people and hence affect their behavior.

Political power proceeds in a dialectical manner. That is, people influence each other by exchanging information. Politics operates by the communication of facts and opinions among individuals and groups. It is through such communication that various interests and views become known and thereby interact. Information, thus, influences our thoughts and actions. Without it, decision-making and implementing would be impossible both in the personal and social scale.

From this it follows that the way in which information is acquired, processed, distributed and utilized in society is a very political matter. As for most things, information is not equally spread among people. Some have more than others. A few people are better at formulating and communicating information so they have a particular advantage in influencing the many. This capacity puts



the professionals of information in key positions as the gate-keepers of the flow of knowledge in society. Their activities in collecting, manipulating and disseminating information determines public policy making because they control vital junctions along the political process.

Of course, the political system is influenced by many factors in addition to information. The cultural system with its values and customs, as well as the economic system with its ownership of the means of production and distribution, have a lot to do with political power. But, according to our thesis, the Information Society places a particular emphasis on knowledge and hence tends to concentrate extraordinary power on those who control the instruments of education and the channels of communication. Those who have useful information, therefore, rank with, if not above, those who possess scarce resources in dominating the way society shares its costs and benefits.

#### Issues for Research

From what we have said so far, it seems that the relations between politics and information are both structural and functional. The politics-information interface is structurally established by the connections between the institutions and people in these two systems. Animating these structures and personnel are the interactive processes according to which they function. This analysis leads to certain





basic questions whose answers should explain what exactly is the politics-information complex and how it works.

As to structure, the central question is who has power in this complex. The distribution of power is a primordial question of politics and identifying the power holders is the first task of the political analyst. In our model, we have identified four estates of power: the politicians or power-brokers; the bureaucrats or administrators; the scientists or thinkers; and the communicators or popularizers. It is in these groups where one finds the main actors and principal roles in the arena of politics and information. The question is who influences whom under what circumstances? These power relations extend beyond this complex to the social environment and particularly the economic system, where there is to be found another important center of power.

Complementing this identification of actors and arenas is the requirement to figure out how power is exercised in this context. We have already mentioned some ways, such as control of the access to information, shaping the content of communications, participating in the decision-making process, selecting public issues, etc... Since, he who has information has a power potential, those who determine the media and the messages can influence on what basis public policies are made. Such issues as freedom on information; government censor-



ship; ideological propaganda; commercial advertizing; secrecy of communication; intelligence gathering, are all crucial in society. Obviously, how information is formulated and communicated makes a big difference to how influence flows through the system. By manipulating the quality and regulating the quantity of information, one can in effect control policy-making. If such control is concentrated in the hands of a few people, the distribution of both power and information will be uneven. Furthermore, the lines of this inequality could coincide with those of material wealth and poverty. It is evident that investigation of these issues would be highly significant for understanding society.



## II. TECHNOLOGICAL TRENDS AND IMPACTS

The first part of the study established the structural and functional relationships between information and politics in a so-called "Information Society." The model of these relationships which was presented supported the thesis that "knowledge is power" and the agenda for research, with which we closed that part, is supposed to confirm it.

Now, for the second part, we shall reach beyond the information system to the technological system which underlies it. Technology provides the infrastructure for information in the Information Society. What we have said in the first part assumed implicitly such technological basis. Presently, however, we must make an explicit attempt to investigate information technology and its relation to politics.

To do so, we shall put technology in perspective to our paradigm. To begin with, technology exists in society and more particularly centers around the cultural system. Nevertheless, it has direct links with the economic system and so indirectly with the political. Our first hypothesis, here then, is the existence of some relationship between technology and politics. It is on this hypothesis that we shall conduct this part of the study.



Another relationship which we must assume here is that between technology and information. For this we shall postulate that technology affects all three systemic throughputs: matter, energy, as well as information. Being the systematic application of science, technology determines how we process matter, energy and information in society. As a consequence, it characterises, if not dominates, the way of life of the social system.

Finally, in this section, we introduce the time element in the model of our systems. This means that we shall look at the historical evolution of information technology and trace its changing impact upon the political system. From that we can make some alternative projections in the foreseeable future. By discerning certain historical trends and constructing some future scenarios, we may be able to establish diachronic correlations among various factors of information, technology and politics.

## 1. Technological Revolution and Information Society

If we define technology as the systematic employment of rational methods and empirical knowledge to achieve human goals, then we can speak of a technological revolution going on in the contemporary world. Technology has revolutionized the world because of three significant characteristics:

- Rapidity of the pace of innovation and acceleration of change;



- Depth of penetration and radical degree of impact on things;
- Extent of effect and pervasiveness of scope in space.

On the basis of these revolutionary traits, technology has changed the face of the earth and its continued development is ushering in a new era in world history.

Looking at this evolution in a macrohistorical perspective, one may distinguish three great eras of human societies:

- Agricultural: minimal use of tools and techniques;
- Industrial: heavy use of mechanical instruments and methods;
- Technological: sophisticated use of artificial intelligence.

The last generation of the Twentieth century is now witnessing the transition of modern societies from the industrial to the technological mode. Although the world has various social systems at different stages of this process and even if it is by no means certain that all of them will follow the same steps, there are some advanced societies which are presently entering the technological age.

For these societies, technology has brought synthetic materials and even life, high concentrations of energy from fossil and nuclear sources, as well as an explosion of knowledge. In that last area, information technology is revolutionizing society by:

- Automation: replacement of human rationality by robots;
- Computerization: manipulation of large quantities of data;



- Telecommunication: transmission of signals over large distances.

The combination of these functions in "informediation" or "telematics" could transform the world into a vast network of high technology. Information Societies will occupy the nodes of this network and as such they will spend most of their time and efforts in collecting, processing and dispensing knowledge. As the energy and material needs of people are satisfied by agricultural and industrial technology with a minimum of human effort, information becomes the major preoccupation for most people, most of the time and thus dominates the cultural, economic and political aspects of society.

## 2. Information Technology and Political Change

From what we have said so far about the relationship between technology and society, it would be justified to formulate another thesis for discussion: technological innovations lead to social change and by extension to alterations in the power configuration of social systems. More precisely, the development of information technology is changing the political system in some relevant ways. According to this thesis, we consider technology as the independent variable and politics as the dependent. Significant variations in the first factor eventually affect the second.



Of course, technology is neither the first nor the only factor of social change. It operates in conjunction with many other intervening variables in the complex-dynamic system that is society. As such, it affects and is affected by other factors including politics. Here, however, for purposes of analysis, we shall isolate the part of a chain of causation which runs from science and technology, through culture and economy, to government and politics. Because it opens up new problems and opportunities for action, technology alters economic relations and social structures and so brings political forces into play either to restore the status quo or to find a new equilibrium.

By revolutionizing the formulation and communication of knowledge, information technology has changed all strata of society in the following ways:

- Creating new information-elites in the technocratic complex;
- Broadening the middle-class and raising expectations by education;
- Strengthening mass manipulation by ideological propaganda.

The common thread in all these changes is the increasing capacity of technology to spread information throughout society. The problems which accompany this formidable capacity arise from the unequal quantity and uneven quality of information distribution to the various groups and classes of society.



This inequality of distribution leads to an inequality of participation in public affairs and inevitably inequality of influence in the political decision-making process. Since technological change benefits some social groups more than others, it is bound to be supported by certain people and opposed by others. The resulting clash of interests and opinions dominates the politics of societies undergoing the information-technology revolution.

### 3. The Technocratic Scenario

Assuming the continued increase of technology and information, coupled with an unequal distribution of their benefits, we arrive at a technocratic type of the Information Society. This kind of society would be characterised by high technology controlled by a knowledge elite which dominates the political and information systems. The resulting scenario is that of a centralized technocracy deciding the content of information and regulating its flow in society.

Many trends so far are pointing in this direction and further tendencies will accentuate them. As technology becomes more sophisticated, society becomes more complex and hence requires great expertise to run it. Large complicated systems are costly and fragile, so it takes great skill and energy to govern them. Since only few people have such skills, they should also have the power to operate such delicate machinery as that of the Information Society.





This thesis that technology is inherently tending to technocracy, tries to make the best of the inevitable and organize the social system in such way as to optimize opportunity with necessity. To do so, social structures and functions must be rationalized by authoritative planning by those in the best position to understand and manipulate information. Without such technocratic intervention in society, the system will get out of control and everybody will suffer the consequences.

If a combination of technological and political developments lead to this neo-platonic scenario, one can expect many benefits for the common man. Presumably, government by experts will be very efficient in providing the greatest happiness for the greatest number. Based on benevolent utilitarian principles, a Technocratic Society might be a utopia of sorts and at worst the lesser evil compared to other possibilities.

On the other hand, technocratic control of information precludes participation by laymen in the decision-making process of society. Although technocrats may give people everything else, they cannot give them political power because that would negate the whole system. The masses must accept the leadership of their betters as long as the system makes their life comfortable. While the automated economy provides the bread, information technology will produce the circuses in the best of all possible worlds.



4. The Democratic Scenario

In contradistinction to the Technocratic Society, the democratic scenario provides an alternative interpretation of recent trends. These, in conjunction with certain factors, may develop into a more democratic society where participation of the people in public policy-making is optimized. In a democracy, the political system takes collective decisions as a result of social consensus of informed and involved citizens.

Information technology can help democracy by spreading information far and wide. The Information Society can be democratic if its population is highly educated and responsible. Educated people are more demanding and hence more difficult to govern. Better informed people want to use this information in making decisions, so they wish to participate in the policies which affect them. As technology solves economic problems, it allows people more time and energy for other things. If this new leisure is not all used in escapist entertainment, some of it is bound to spill over into politics. When it does, society will become much more politicized and public affairs could become the main occupation of the citizen.

This thesis that informatization leads to politicization, assumes that information is the great equalizer when properly distributed. This means that the communication channels will be two-way and



multilateral, so that more people can talk to one another. Information technology can facilitate such exchanges by decentralizing its apparatus and becoming accessible to all citizens. Unlike industrial technology, information technology need not be heavy or concentrated; "egalitarian polytechnics" is a real alternative to "authoritarian megatechnics."

Of course, people cannot become experts in everything in order to participate in the political system. Technical questions will have to be decided by specialists, but there is still room for decisions by generalists on the broad issues of public affairs. Societal objectives and cultural values can be democratically determined by the appropriate information technology. Through such technology, it would be possible for the first time in history for all the people to become sufficiently informed as to attempt responsible choices. If we can develop the right "political technology" we should thus solve one of the most elusive problems of humanity.

#### Issues for Research

A general conclusion of this part of the study is that technology increases the importance of politics. This is because technological innovation brings about social change, which if it is not to get out of control, requires high quality information, which only technology can provide. Thus, it is easy to see how information technology affects political activities.



On the basis of these preliminary conclusions, further work must be done to discover more detailed correlations between technology and politics. Obviously, the relationship is a complex one and involves many intervening variables of economic and cultural nature. An important question here would be what happens to the distribution of power as a society moves into the technological era. Is it possible for the political status quo to survive a technological revolution?

To answer these questions one must study the historical record and establish the trend of events. The history of science and technology can provide examples of dramatic social changes involving politics. Historical trends, of course, can be interpreted in many ways depending on one's paradigm or ideology. Nevertheless, the attempt must be made in order to articulate diachronic correlations. It is on these apparent trends that we base social forecasting. Trends may continue or change as a result of various factors. For that reason we must construct different scenarios to cover the main probabilities. The two we have presented are only outlines of one alternative between technocracy and democracy. Other combinations may be worked out in greater detail using different factors as variables.

Whether one is optimistic or pessimistic about the future depends on his values and forecasts. In the field of information technology, such outlook would depend on whether a way is found to handle economic



scarcity, social inequality and political conflict. The last issue is a matter for political technology, which through such innovations as televote referenda, community teleconferencing, interactive telecommunications and participatory technology may succeed in turning the tide from technocracy to democracy. Undoubtedly, more inventions in this area should be welcome.



### III CANADA IN THE WORLD OF THE EIGHTIES

In this third part of the study, we move to investigate more specific questions relating to Canada. The first two parts, have set the theoretical framework within which one can study the correlations among information, technology and politics, both in structural and interactive terms. We can now apply this theory in the case of Canada, as a particular example of the general principles we enunciated.

To do so, we shall have to introduce another dimension to our model. In addition to the topical (structural-functional) and the temporal (historical-futuristic), we presently consider the spatial field. This means that we shall look at our topic from the point of view of geography and deal with various regions of different areas. Since our topical focus is politics, the infusion of geographical considerations combines to form "geopolitics." We shall, thus, treat the information system from a geopolitical standpoint.

This new orientation will be organized according to spatial levels of hierarchical relationship. That is to say, we are dividing the world into several political levels of jurisdiction and studying each one separately. In this matter, the most acceptable levels are the following:



- International: relations and interactions in the world;
- National: domestic and foreign affairs of one state;
- Intranational: public affairs of local communities.

From our point of view, Canada will serve to define the national level and thus determine what is internal and what is external activity.

On the basis of these vertical categories, we shall begin from the lowest level and proceed to the highest. Thus, we will first consider the impact of information technology in the local communities of Canada. Then we move to the Provincial and Federal levels to consider the overlapping jurisdictions in communications. Finally, we take a global look at the world as a whole and the problems that are common to the United Nations system. In this manner, we shall see how our information-politics complex model holds up to the realities of the contemporary world.

1. Information Technology and Political Geography

One of the most banal assertions is to say that modern telecommunications have conquered distance. This, of course, is true in a sense. Information technology has made instantaneous communication a possibility for many people spread over large territories like Canada. Beyond that, the international telecommunications network is supposed to have turned the world into a "global village."



The political implications of this space shrinkage have made the world more interdependent in information as well as in energy and materials. A most important trend accompanying man's conquest of space and time, has been the centralization of power. Instant communication gives power centres better control over the periphery and thus marginalizes many people living in remote areas. Moreover, the mass media with their standardized programming, break down local particularisms and homogenize the world into one culture.

From the point of view of a country, such as Canada, telecommunications can serve nationalism in the same way as the railroads served a hundred years ago to forge continentalism. A strong nation-wide press, radio and television can create a national conscience and unite a sparsely populated country. And yet, things have not evolved quite like that. The relationship between technology and geography is not so simple.

What has happened is that we face various contradictory developments. On the one hand, communications have created not one but many national constituencies, from professional associations to cultural movements. These common interest groups operate nationally and pressure the central government of behalf of their members, thus erasing local boundaries. On the other hand, we are witnessing a resurgence of local community activities and stronger demands for





regionalism. The most forceful manifestation of this trend, of course, is provincial separatism.

One can thus discern both centripetal and centrifugal forces at work at the same time in the same area. Evidently, these opposing tendencies create great stresses on the political system of any level. In time, perhaps, one or the other of these trends will prevail but meanwhile, we must contend with both; even if we can try to help one rather than the other. In any case, parochial autonomism and transnational corporatism may coexist for a long time.

## 2. Localization of Information and Micropolitics

One of the most serious effects of the information explosion in the mass media is the anesthetization of people. Information overload and escapist entertainment promote public apathy and individual alienation. Tuning-in has become synonymous with dropping-out. When every man can have his own television set and private computer, he does not need anybody else for anything. Interpersonal communication deteriorates as man-machine interactions proliferate. Ultimately, society becomes atomized and community breaks down in isolated self-sufficient units.

The political implications of this "mass society" and the "lonely crowd" are significant. As the social fabric disintegrates, politics



retreats to small enclaves of power brokers and demagogues. Small elitist groups dominate the political system and dictate their terms to the government. This state of affairs has not yet reached an extreme degree in Canada, but there are many disturbing signs in that direction.

At the same time, there are some signs which point in the opposite direction. As Canadians become more informed and educated, they are more aware and more interested in what is going on. The consciousness raising function of information technology leads to politicization of the people. Many of them are no longer content to be passive onlookers or even periodic voters of a distant government. They demand more immediate and direct influence in matters of everyday life. Traditional representative politics thus give way to direct and local democracy.

Information technology can help this trend as much as the other one. If huge mass media are supplemented with community controlled local stations, citizens groups can increase their say in public affairs. When each community is able to process its own information, it will be able to arrive at its own decisions and individuals will feel that they have contributed directly to them. Participatory politics could, therefore, become a result of the proper information technology. This would be particularly helpful in a heterogeneous



and large country as Canada, where local cultures resist national assimilation. Such localism, of course, is dangerous because it may break down the country all together. But, the challenge is to find a point of equilibrium between community and nation that will satisfy both individual fulfillment and collective aspirations.

### 3. National Politics and Information Systems

The critical political issues in Canada revolve around two cross-cutting axes: the federal-provincial and the public-private. The former confronts conflicting jurisdictions between the central and regional governments; whereas the latter is a power struggle between the political authorities and private or sectoral interests. The geographic cleavages sometimes coincide and other times overlap the functional divisions of various pressure groups, but it is in the interfaces of both where Canadian politics focus.

Federal-provincial conflicts have always been part of the Canadian scene but they seem to have accentuated lately. One hypothesis here is that information technology had a lot to do with that. Naturally, the Canadian Constitution could not have foreseen the tremendous innovations of technology, especially in communications, so it leaves a lot of room for interpretation of who has what jurisdiction. The constitutional talks have faced some of these issues and have hardly resolved them. Provinces, of course,



demand a more decentralized system, while the federal government tries to keep and consolidate the gains it made from technological developments.

To compound these problems are those arising from the birth and spread of the new information and communication industries. Both public and private interests are involved in these enterprises at both the provincial and federal levels. Conflicts among different private groups, such as Bell and CN/CP Telecommunications; as well as between private and public, such as cable companies and CRTC, indicate the shifting power map of Canada. Added to these, are the conflicts between labor unions and management, the most visible of which is that in the Post Office. Altogether, they make a very complex picture of the Canadian political landscape.

It is evident that the evolving information system has had a heavy impact on the political system of Canada. The tendency of technology to multiply power has created large agglomerations of political influence operating in the public and private domain, as well as at the various levels of government. The big three of Canadian politics: government, business, unions, have all being strengthened by information technology and will continue to be if certain trends go on. Only the counter trends of community power and popular participation can check such concentration of power.



4. Canada in the International Information Order

We have now arrived at the highest geopolitical level where power politics is supposed to operate at its purest. Yet, like the domestic scene, the international system has been greatly affected by information technology. Traditional diplomacy has all but disappeared with the advent of instant telecommunications connections among all the capitals of the world. World politics already operates under the computerized surveillance of space satellites. Technology has revolutionized the intelligence field and has erased political borders for purposes of information communications. Keeping secrets and hiding actions has become almost impossible.

These developments are not limited to power politics but have spilled over into power economics. Technological capacity is becoming the most important factor of state power and the advanced states rely on it to keep their advantages. If Canada is to maintain, if not improve, its position in the world, it must be at the forefront of technological innovations, particularly in the field of information. Much more than raw materials and energy, information is most likely to become Canada's main resource in a post-industrial strategy.

As a middle power, Canada has to compete much harder in order to survive in a world of giant states and corporations. The international system of superpowers and common markets, together with



the transnational system of IBM and Xerox or Sony and ITT leave very little room for national sovereignty and technological independence. Only a combination of public and private resources, federal and provincial governments can hope to keep Canada in the race with the western Information Societies and their multinationals.

The centralizing tendencies of transnational technology are not putting only Canada at a disadvantage. The repercussions on smaller and poorer states have been even more severe. The well known gap between the North and the South is nowhere so wide as in information technology. Once left behind, underdeveloped countries have no way of catching up without the cooperation of those ahead of them. The demands for a New International Order reflect the frustration of the people of the Third World not only for the economic injustices they suffer but also for the present information maldistribution that leaves most of humanity in ignorance and isolation.

#### Issues for Research

The relations between geopolitics and infotechnology are, as we have seen, both sufficiently important and complicated to warrant further investigation. A fundamental question here is how to distribute power and information along the various geopolitical levels: local, state, international. It seems that technology has made the nation-state too big to solve local problems and too small to



solve global ones. Being caught in the middle, national governments are attacked by community groups as well as transnational corporations.

In the case of Canada, with its large territory and heterogenous culture, politics are shaped by geographical factors modified by technology. As information technology develops further, many questions arise as to its impact along the federal-provincial, public-private, labor-management and geographical-functional interfaces, because it is around these features where power-interests clash. Certain technological innovations favor one of these sides rather than the other, thus upsetting the delicate balance of power which only further political manoeuvring can reestablish.

In the global scene, power-politics is played through similar cleavages: East-West; North-South; national-transnational; international-supranational. The problems which have developed here as a result of unequal technological distribution exacerbate geopolitics and require innovative solutions. Will information technology tend to concentrate wealth and power in the hands of an international elite who will dominate by manipulating the masses? Will the assymetric interdependence of the world increase in proportion to the gap between the information-rich and poor people? These are important questions for those who want to study a New International Order.



The different impacts of information technology on space and time pose many dilemmas for the student of politics: centralization vs decentralization; independence vs interdependence; nationalism vs cosmopolitanism; regionalism vs functionalism; revolution vs evolution. These apparent alternatives must be considered by the social scientist in order to understand and deal with social change. But, these options may be complementary. As a recent slogan proclaims "Think globally, act locally - think ahead, act now!" The best policy might be: local and immediate action on the basis of global and futuristic thinking.





#### IV. POLICY-MAKING IN THE INFORMATION SOCIETY

We have now come to the fourth and last part of this study, where we shall look into the policy-making process in an ideal Information Society. This means that we are explicitly choosing a particular future scenario which we consider more desirable than other possible ones. We, thus, introduce a value judgement and preference for what we called the "Democratic Scenario" in Part II. We shall here elucidate the political processes which could take place in such a technological social system.

So far we have considered information and technology as the independent variables which acted upon politics. Such a cause-effect arrow, however, is only part of the story in the contemporary world. As government increases its intervention into the social system, its policies become independent variables shaping the development of technology or the flow of information. In fact, this becomes a loop where technological progress brings about social change which then affects the political system thereby forcing it to respond with certain policies which in turn determine the further evolution of information technology.

Our thesis here is that politics becomes more important as we move into the technological era and construct an Information Society.



The complexity of modern systems and the dynamics of social change require more carefully cybernetic mechanisms to keep society in good operating order. Sophisticated systems are quite delicate and fragile, so they must be handled expertly and thoughtfully by the proper institutions. The social structures and functions of control, thus, become crucial. If control is not to become dictatorial or technocratic, the political system must be strengthened and the policy-making process improved.

This is what we shall attempt to do in the following sections. In doing so, we shall construct a model procedure for policy-making which focuses on the role of information and technology in this process. For that purpose, we shall utilize the information-politics complex model which was introduced in Part I. Based on the structural components of that model, we shall outline a step by step sequence which follows the various phases of policy-making. Thus, we shall end with a prescription for an optimal interaction among politics, technology and information.

#### 1. Information and Political Technology

The proposed model procedure is based on certain fundamental assumptions which relate politics and information. One is that citizen participation is the life of the political system, the other is that information is a prerequisite to rational action. Our very



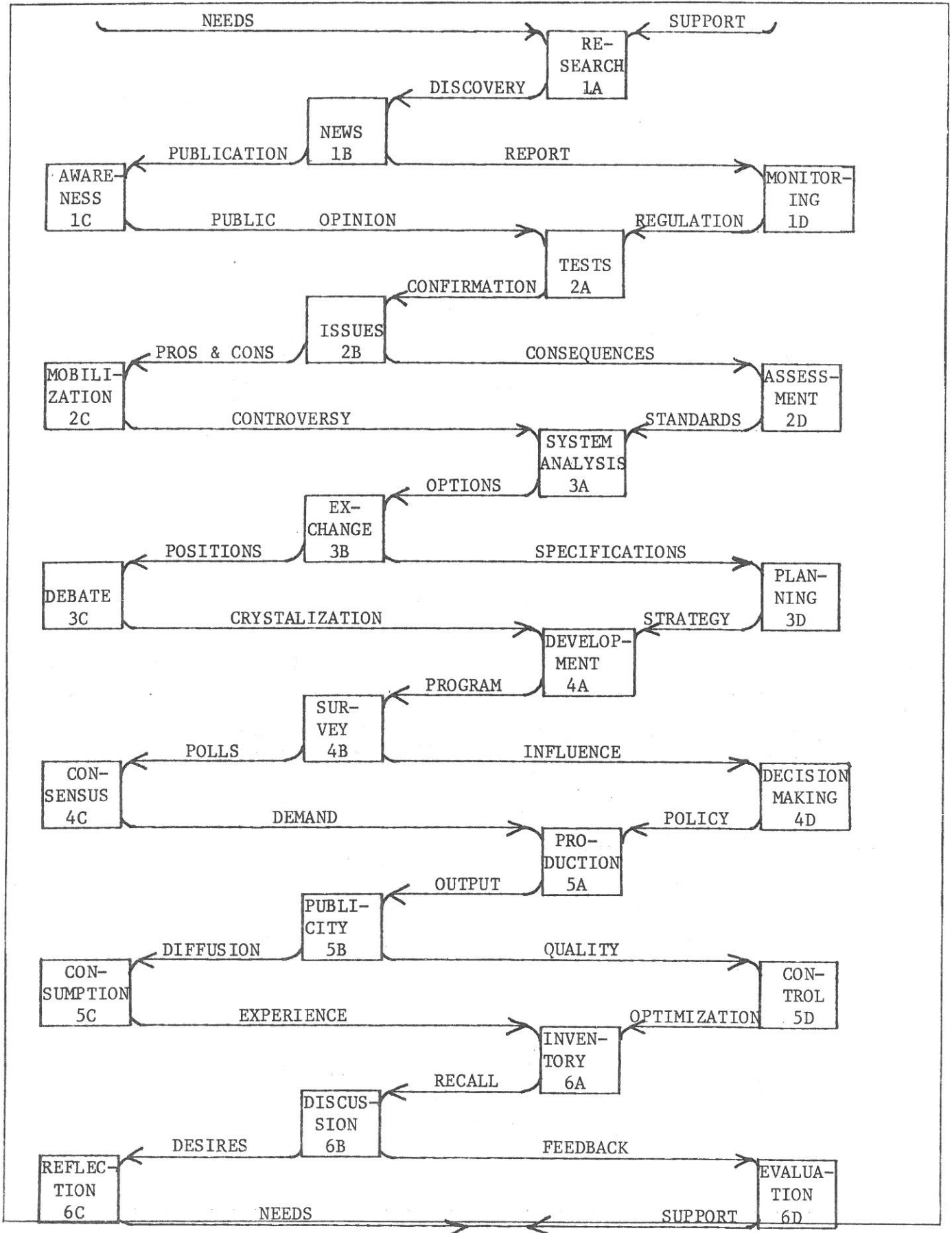
definition of politics presumes some public involvement in collective decision-making, in the same way as any purposeful activity can only result from processing information as well as matter and energy. Juxtaposing the political and information processes, it is evident that rational politics requires the proper information which is necessary for knowledge. Politics without information is ignorant mob-rule; knowledge without participation is elitist technocracy.

In an effort to combine informative action and knowledgeable involvement with as wide a popular participation as possible, we have outlined the main phases of the democratic process of an Information Society. These phases are:

- Identification: perception and conception of reality;
- Intention: volition and decision to do something;
- Implementation: carrying out a controlled activity.

Accordingly, we are all engaged in at least one of these actions at any particular time. Either one is forming impressions, trying to arrive at a decision, or expressing oneself. Information comes in at many points along this process, but particularly in the first stages, where technology can have its greatest impact.

In the Information Society context, both the information system and the political system alternate in their involvement at all three stages. As is shown in the attached flow-chart, the two foci of the





information system: formulation and communication, correspond to the series of boxes "A" and "B"; whereas, the political system's polity and state are represented by boxes "C" and "D" respectively. Steps number 1 and 2 belong to the identification stage, 3 and 4 to the intention stage and 5, 6, to implementation. Thus, as we descend the chart, we meander across the various phase functions of the four arenas going through six cycles of the policy process. By the proper use of information technology on the one hand and political technology on the other, we should be able to optimize policy-making in a democratic Information Society. In the following three sections, we shall explain the phases of this process more fully.

## 2. Policy-Identification

One convenient beginning for the public policy process is at the point when various social needs and state supports meet to trigger an investigation by the research institutions (1A) of the information system. These inputs, combined with the intellectual curiosity and knowledge of scientists, could result in certain discoveries which may create as well as resolve social problems. News of the discoveries are diffused by the communications media (1B) throughout society, thus bringing to the attention of those concerned what is going on in the search for knowledge.

As a result of this communication, the political system is alerted to scientific or technological innovations which might be



significant to society. A well-informed citizenry (1C) conscious of what is happening around it, can form a tentative public opinion on matters of social significance. This public awareness, along with governmental vigilance (1D), are the first step to good policy making. Government institutions must constantly monitor what is new in the information system and together with the initial public reaction determine whether the potential technology should be undertaken.

With an affirmative public opinion and sufficient government regulation, tests of new technology could be carried out (2A) and the results confirmed to the communications media. At this stage, it is the function of the media to determine the issues involved in the innovation (2B) and publicize both the pros and cons to the population. As is the case with most technological innovations, there can be found both advantages and drawbacks according to different points of view. These differences will mobilize various (2C) citizen groups either to support or oppose the new technology.

At the same time, government institutions should be making a technology assessment (2D) of the whole thing to find out what could be the consequences to society. This assessment requires the consideration of values as well as information by the political system. On the basis of the given information, technology should be assessed on how it will affect the culture of society as a whole in



addition to how it might benefit or hurt particular individuals. Programs such as "Ethics and Values in Science and Technology," "Science for Citizens," and "Public Understanding for Science," can go a long way to involve people in technology assessment.

### 3. Policy-Intention

The first phase of the policy process was primarily informative. That is, it was designed to sensitize the people to technological issues and thus prepare them to participate in collective decision-making. The second phase, now, enters in the heart of the political process which is conflict resolution. In this phase, the political system will have to convert various opinions and interests into a common policy.

The role of the information system here is to make a systematic analysis (3A) of what is involved for a decision to be made. Learned societies and think-tanks should study the situation and present the options which are open to choice. These and other options would then be the subject of a public exchange (3B) through the communications media. Public debates in community stations (3C), teleconferencing and other techniques can facilitate to widen popular participation in social issues and thus open up politics.

With the help of this public airing of controversial issues, the government machinery can plan its strategy (3D). Alternative plans



would thus be made on the basis of both scientific analysis and popular sentiments. Only when these two sources agree should further technological development take place (4A). Once the R & D process is completed, the proper institutions of the information system should prepare the necessary programs to put the plans into effect. Here again, the public must be consulted for the last time before a decision is taken.

Surveys of public opinion (4B) should show whether there is a community consensus (4C) for or against a course of action. Consensus-building is the function of a successful political process. Political technology can help this process through delphi, charrettes and televote techniques. As people are increasingly called upon to make critical assessments, take sides on public issues, and understand more things, such technology becomes indispensable. The more efficiently this process is carried out, the more effective it will be in influencing the decision-making of government (4D). When this happens, politics will no longer be a spectator sport in which the masses watch complex technical games being played by teams of experts, whom they boo or applaud. Participatory technology could bring everyone into the play and thus restore meaning to citizenship.

#### 4. Policy-Implementation

Public policy is the result of authoritative decision-making which can only be legitimate if it is based on political consensus. Laws





and policies are effective and acceptable to the degree that those who are affected by them have been involved in the decision-making process. It is upon this central thesis of participatory democracy that effective policy implementation is based. Technology has a crucial role in streamlining the political process of the Information Society.

If this process is successful, the production of goods and services (5A) will be in line with social demand and government policy. In this phase, the information system has the responsibility of publicizing the available products (5B) and educating the public in their use. In this way, commercial advertizing can be more than mere propaganda urging people to consume one thing or another (5C). Informative publicity by the media, along with quality control by the government (5D), make the distribution and consumption of the products of technology a responsible enterprise.

Policy implementation, however, does not end with a successful consumption campaign. If the purpose of public policy is human development as well as the fulfillment of human needs, society must institute ways of learning from its experiences. This feedback forms the accumulated knowledge or stored inventory (6A) in the collective consciousness of the information system of society. It is by calling on this information that the communications media can promote public



discussion (6B) on the degree of satisfaction or disillusionment with what has been experienced. The information system can thus help people reflect on their needs and desires (6C), thereby contributing to the evaluation of the whole process by the political system (6D).

As a result of such evaluation, new needs or wants arise which with the support of public resources will begin another cycle of research and development to fulfill. This, then, ends the last phase of the policy process from the point of view of the information-politics complex. In this phase, the operation of S & T Courts and Citizen Review Boards will complete the implementation process and thus institutionalize anticipatory democracy.

### Issues for Research

Many problems of complex social systems are due to the fact that political technology has not kept pace with information technology. Because of that, as well as other factors, societies seem to be getting out of control, policy responses fail to resolve the important issues and governments lose credibility and authority. The technological innovations which are creating an Information Society must also be utilized to advance and refine our collective decision-making processes.



It is in this area that much work remains to be done to discover the political innovations necessary to update and synchronize social institutions in the technological era. Since science and technology are at the forefront of social change, we must find ways of harnessing them to serve the common good. This is above all a political process which calculates the weight of opposing interests and opinions to arrive at a compromise of consensus. To make this process more efficient, we need the help of appropriate technology.

Such technology will improve the procedures of public information, popular consultation, human interaction, collective intervention, community influence and citizen participation. Developing better public inquiries, opinion surveys, advisory councils, educational panels, legislative hearings, mobilization campaigns, and regulatory bodies; society should be more able to perform technology assessment, problem-management, conflict-resolution, information-processing, communication exchange and decision-making.

Well-informed people are not content merely to vote for a representative once every few years. They want a more direct and more frequent participation in the control of social change. Many people now demand a greater say in guiding and planning their future. The traditional politics of laissez-innover, therefore, are no longer



applicable to the Information Society. As the industrial revolution provided the basis for mass society, the technological revolution is making possible participatory democracy. Whether this possibility is realized will depend on our political as well as technological imagination and action. Homo faber combined with the zoon politikon would then usher in the new technopolitical era.



## CONCLUSION

Since the sections "Issues for Research" summarize the main points of each chapter; we shall not recap them here. What we shall do as a conclusion is to draw the general lines of thought which emerge from the four dimensions that we have traversed in this study. As a result, we should be able to place them in perspective and thus orient any further work on the subject.

On the assumption that there is a significant relationship between information and politics, it was possible to build a model showing how the structures and functions of the information system correlate with those of the political system. In effect, the possession of information may be readily translated into political power, so that those who have knowledge can also have influence. This traditional correlation is reaching its zenith in the Information Society because of the technological revolution. Technology has enabled some people to formulate and communicate great quantities of information and thus concentrate large amounts of power. If this trend continues, there are many interesting and important possibilities in the near future. Whether one or another of these possibilities materializes will depend on how the political system handles technological innovations and information structures.



The intervention of public institutions in the shaping of the factors of social change has become evident in advanced countries such as Canada. As information technology is becoming a major factor of development, it figures more and more prominently both in national and international politics. Governments are forced to consider it in their foreign and domestic policies, so as to keep up, if not control, the rapid and radical changes it brings about. For this reason, the capacity of political institutions to understand what is going on and what might happen in this area has to be increased tremendously. If people are to maintain some control of this complex and dynamic world, they must improve their political technology at the same pace as they do their information techniques. Such improvement can only come about when people realize what is happening and thereby concentrate a lot of effort and energy on the task. This essay has only been a first step in this long and arduous process.



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