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COMMUNICATIONS
TO THE YEAR 2010:
SOME SOCIAL, POLITICAL
AND ECONOMIC ISSUES

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Classification P.N.

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The views expressed in this paper are those of the author and do not necessarily represent the views of the Commission For the Future.

COMMUNICATIONS AND TELECOMMUNICATIONS
TO THE YEAR 2010 :

SOME SOCIAL, POLITICAL AND ECONOMIC ISSUES

INTRODUCTION

It is impossible to predict the future with certainty, but it is widely recognised that New Zealand, along with other industrialised nations is becoming a society where the production, processing and distribution of information is increasingly important.

This dominance of information has come about largely through the combination of computer and telecommunications technologies.

A number of terms have already been coined to describe societies where information plays a dominant part. The "information society" has been defined as a set of social relationships based on an information economy. In turn the "information economy" exists wherever over 50% of the GNP belongs within the broad information sector.

Indications are that information occupations (jobs which involve the production, processing and distribution of information) are reaching this level in many OECD nations. Even the more traditional industries of agriculture and manufacturing require more and more information as an integral part of their work.

Communications technologies are another development which has led to the concept of the information society. These technologies are capable of linking cities and countries with each other and the individuals within these places. The "wired city" and the "network nation" are labels used to describe these developments.

New Zealand appears to be following overseas trends. We already have a good communications infrastructure. To an extent we are

already a network nation of wired cities. The actual number of information-related occupations is increasing in all sectors of the economy and our communications technologies are fast being updated. How long will it be before we are an information society?

The change possible is more or less determined by a complex set of inter-related factors. The available technologies are one group of factors. Others are:

what values New Zealanders hold;

what political party is in power and its ideologies;

pressures from outside New Zealand for markets and resources;

what happens outside New Zealand in the way of markets open to us, the price and availability of oil and other energy sources and the prices people will pay for our products;

the international political events.

Only a consensus about the preferred future can help us work out priorities in a coherent fashion. The preferred future should be used as a context within which to make decisions. The major problem will be in negotiating differences between people's individually desired futures and those of New Zealand as a whole.

THE PREFERRED FUTURE

What evidence we have about the future preferred by New Zealanders shows that they want a society which conserves and sustains the use of natural resources, provides employment for all those who want work, relies on import substitutes rather than concentrating on exports, encourages industries which are mixed in scale and

in technology levels, and a society which is more co-operative with social and economic equality, more regional and community government and which has stronger links with the Pacific nations.

The characteristics of this future New Zealand are that it is conserving, co-operative, egalitarian, participatory and democratic. This future, so far as we can tell is attainable if we follow certain policies and select technologies that are appropriate to our needs.

As much of the infrastructure already exists, we can assume that the technologies to the provision of and communication of information will play a large part in the New Zealand of the future.

Our preferred future is not incompatible with widespread communications and the growth of and information industry.

TYPES OF CHANGE

It is widely accepted that changes will be rapid and uneven in their effects. Changes occur not only as communications improve and information becomes more available. Economic, trade and defence agreements and the spreading influence of large business and banking firms over international boundaries make nations more and more interdependent. At the same time, each nation is becoming more complex. This web of factors means that a change in any one area can cause rapid reactions in all others and New Zealand is part of this.

Then, changes are paradoxically uneven in that, in the same country unexpected failures in business or in the social order can occur in one region and leave others quite unaffected.

These types of changes have been described as spasmodic or turbulent. We need strategies that will deal with this. Effective communication and the transfer of information between groups becomes critical in situations where little is stable. Therefore, while information technologies may cause some of the changes, they can at the same time be used to modify the effects of the changes.

The type of change and the speed of change in communications technologies is well known. What is less clear are the effects on society of these changes. We can be sure that such technological changes will cause adjustments in every other

aspect of society; the family, work, political and legal structures, transport, community involvement, are just some examples.

Information technologies not only have the potential to provide unlimited opportunities for communication and access to information, but, at the same time, have the potential to allow either extreme political and social manipulation of New Zealanders (or any other population) or equally allow an open and participatory society. The political climate of the future will ultimately depend not only on the technologies themselves but on the values of those in power.

The character of any future society is shaped by decisions made now. It is this aspect which has a bearing on policy-making and its function in guiding the direction in which society moves.

POLICY MAKING

To ensure that New Zealand follows a chosen direction towards a preferred future, we need guidelines. Policies provide these guidelines for making the most appropriate decisions to help us reach our goals. Policies also help us focus the development of New Zealand society more clearly.

National policies on communication and information exist explicitly or implicitly in many forms. We have the: Broadcasting Act (1976); Copyright Act (1962); Indecent Publications Act (1963); Libraries and Mechanics Institute Act (1957); National Library Act (1965); National Art Gallery, Museum and War Memorial Act (1972); New Zealand Film Commission Act (1978); Newspapers and Printers Act (1957); Official Secrets Act (1957) and the Post Office Act (1970)

These Acts in total deal with communication, through radio, television and the postal services, with information in printed form or in the form of art, artefacts, film and sound. The Indecent Publications Act covers censorship of written material, the Official Secrets Act deals with the censorship of official information.

A glance at the list of selected acts shows that many of them could be out of date in thirty years time; others will no longer be relevant. Few appear to cover the issues which will be raised by the combining of computers and telecommunications. New policies and new laws are needed. Most important, policy and law should anticipate rather than react to changes.

Good policy relies on clear objectives. While policies which exist now may have been made on an ad hoc basis with no overall objectives clearly in mind, some objectives related to the desired future are:

- 1 Conservation of resources;
- 2 Equitable access to information;
- 3 The freedom to communicate;
- 4 Participation in making decisions, particularly political decisions.

More specific attention should be paid to policies on information technology, communications and on information itself. Each of these areas, of necessity, overlaps with the others and all address important issues.

TECHNOLOGIES AND THEIR CHARACTERISTICS

The assumption I make is that the technologies involved with communication and information (computers, word processors, telecommunications, optic fibres, satellites, telephones, video screens as some examples) will be able, in their various combinations, to provide any or all of our information and communication needs in the next thirty years.

Their major advantage is not so much in the wider opening up of communication and information opportunities but in the conservation of energy and the minimal physical and environmental pollution associated with the manufacture and use of these technologies.

With the high premium placed on energy as a resource energy saving of any kind is likely to have high priority in the future as it does now.

Another major advantage is the flexibility that information technology allows. Technology which is adaptable to quick change is preferable to technologies with limited functions and capabilities. With information and communication technologies this is one of their strengths as a great deal of flexibility can be built into them through the software designed for them.

Trade Offs

Travel is popular today as it provides opportunities for people to see and speak to each other. It is also very energy intensive. Communication through mechanisms such as videophones and teleconferencing is now possible but not widely used. These technologies use significantly less energy than does travel and, at the same time provide two-way communication which can be a satisfactory substitute for personal meeting.

If travel can be even partially substituted by these relatively cheap and effective two-way communications then travel and information technologies will be involved in fairly direct trade offs.

In this case it is quite likely that physical movement from place to place may be restricted from time to time in the next thirty years. The flexibility of the technology will cause other types of trade offs.

Already software exists whereby the automatic control on machines has several communications functions built in. They can be programmed to carry out a wide range of functions on their own and some have the capacity to provide feedback.

The use of numerically controlled machine tools which can be programmed to carry out a range of functions is one example. There are, on the other hand, disadvantages.

Two major fears are that information technologies, like other automated technologies, will replace people thereby reducing the number of available jobs and, at the same time, make redundant many of the skills which people have learned to carry out their work.

There seems little argument that information technologies will have a significant effect on jobs in the service sector. While

there will be jobs created with the growth of the information industry, it seems that they will not be enough to replace the numbers of jobs lost.

Many communications and information functions are likely to be automated in the next thirty years. The "Electronic office" where business information is transferred from one place to another by machines is likely to replace the conventional offices of today and the office workers of various kinds.

The exchange of money for goods and services is likely to become redundant with the spread of electronic funds transfer - a process which is already with us in the form of credit cards. This will obviate the need for many bank employees and accounting staff.

Assuming that many households will have efficient "communication centres" in their combined telephones, television, personal computers and terminals, there will be facilities available to provide self services such as funds transfer, travel bookings (if travel is possible), information retrieval without other assistance.

Again this will have repercussions for people working in various service occupations.

With greater personal access to information, people will also be able to carry out for themselves functions which are today the preserve of professionals. It is possible, if not probable, that the diagnostic side of medicine, much of teaching, many legal contracts and the like could be carried out from the home communications centre without the aid of professionals. Their role would increasingly become that of developing programmes for lay use.

It is likely that the professions will lose much of their aura as people are given the tools to generate and use knowledge and skills on their own.

Society will still have to maintain a system of law and order and here again, electronic surveillance systems could effectively replace many security staff, police and traffic officers.

Although there are optimists who believe that information technologies will open up new types of employment we do not really know if these will compensate for the jobs lost. Some foresee the growth of the "black" or informal economy (where people are occupied without wages or salaries - household maintenance is a good example). One trend could be the revival of a barter economy where people pay each other in kind instead of with cash or funds transfer.

The important point is that information and other automated technologies may force us to reconsider work in the conventional sense and make us come up with ideas for helping people occupy themselves in ways which give them dignity and which are useful to themselves and to the community.

The growth of an informal economy could offer more choice to people so far as work is concerned. The abolition of some institutional work or its abandonment to automated technology could provide enough for a basic income for entire populations which they can supplement with other income if they can earn it.

The Nora-Minc Report from France, a country which is planning for a telecommunications and information future, predicts a move towards the automation of large-scale export industries, the growth of high technology small-scale industries which will develop customer-designed products. The third level of employment will be in the socially oriented industries which provide types of services. These will not only provide increased employment opportunities but will also employ a majority of people.

The Issues:

- 1 The trade off between energy efficiency and social equity in opportunities to travel against limiting communications opportunities involving distance to those experienced through machines.

- 2 The trade off between economic efficiency and social equity in the use of automated machines and systems against the provision of jobs and the maintenance of human skills.

COMMUNICATIONS

Communication is the process by which information is transferred from one source to another. This process can operate between people (still considered the most effective) between machines or between people and machines.

New Zealand now and in the future relies on social co-operation to function as a society. While communication is necessary for this group co-operation to exist, it is not, in itself sufficient. What is needed as well is an appropriate social organisation that assists communication on a large-scale basis.

Structures for Communication

These ways of organising communication are often referred to as centralised and decentralised (or bureaucratic and democratic). Although it is open to argument, the assumptions generally held about these structures are:

Centralised

(Bureaucratic): power vested in a few people; communication mainly one way, from the top down; communication primarily as instruction rather than understanding; access to information the prerogative of the few rather than the many; system noted for inflexibility; decisions made by the few for the many, with authority for this being vested in the position held.

Decentralised

(Democratic): power delegated to the most people possible; communication two way and geared to understanding as well as to information and instruction; access to information available (with few restrictions)

to those who seek it; decisions made after discussion by all those likely to be affected.

One of the most important issues is whether or not information technologies are made to act as centralised or decentralised. The central areas affected are economic activity and decision-making.

Economic Activity

Centralisation is not only a political issue at the national level. It relates also to the distribution of work - regional development - and the part information technologies have to play in this. The major populated areas in the North Island could continue to draw off industry and population from the rest of the country and form a huge concentration of industry and population.

However, if a policy favouring regional development is adopted, the technologies equally have the ability to link 'head offices' in any location with subsidiaries in any other part of New Zealand. Where information is the prime commodity this means that remote parts of New Zealand in present day terms could become viable commercial and industrial locations in the future with the distinct advantage of low energy use and no waste disposal problems.

Another aspect of the flexibility in communication and organisation allowed by information technologies is that they should give people more choice in where they work.

It is possible now and will be increasingly common in the future for people to work from regions, as was mentioned before, or from home.

There is the danger that employers could insist that staff work from home. Another caution is that moves such as these could once more lock many women into a situation where they stay at home not only for child care but also for work and become even more isolated.

Using information technologies for such purposes can be justified only if the choice is made freely by people about where they work, if this is an option open to them.

Nevertheless, it seems likely that in the next thirty years, changes in work patterns and in travel patterns will mean that there could be surplus office space. The same could also apply to space now occupied by classrooms and lecture theatres.

Besides affecting work organisation and urban planning, information technologies will have impacts on culture.

Cultural Impact

The import of technology from other cultures is as old as the development of technology itself. Today we are familiar with the idea that imported technology from another culture often modifies the host culture, not always in acceptable ways.

The use of television is one example. Some countries complain that the content of television programmes bought from others such as the United States or the United Kingdom, impose both a cultural dependency and a speeding up of cultural homogeneity around the world. Television and the universal availability of transistor radios mean that there are very few places where people do not have access to one or other forms of the mass media.

Therefore there is likely to be a merging of expectations, lifestyles and consumption patterns as more people are exposed to a limited number of programmes.

The effects on language should also be considered. Language carries the culture of a society. It forms the way in which people think. It is possible that language will become more homogeneous with widespread exposure to the mass media.

Information technologies apart from the mass media, could also affect language. As computerisation and teleprocessing techniques

become common a broader relationship between people and these machines will develop. Machine language will become widely used. In practice two languages will co-exist.

The spoken and written language we now know is threatened, in that its adaptation for machines would cause it to lose much of its flexibility and nuances. It is likely to become more standardised not only in written form (through the use of keyboards and encoding), but also in spoken form (through the influence of television).

As the language we use is a tool for social differentiation, the existence and the use of two language types in our society ("human" languages such as Maori and English and the "machine" languages) could cause a split between an elite who will master both types of language and others who are likely to use an impoverished version of the human language and the machine language, which could replace much of the traditional human idiom.

The difference between "human" and machine languages is in their concept. "Human" languages grew from the needs of people to communicate with each other. "Machine" languages have grown from the requirement that humans communicate with machines.

There is no reason to be confident that New Zealand will be able to resist modifications to its culture and language if the use of information technologies becomes commonplace. What happened to the Maori language in the past gives some idea of the effects of a dominant culture on a human language and machine languages of various kinds could easily become culturally dominant for "written" work.

Other aspects of culture likely to be affected are our leisure-time activities - TV games, playing the stock market or learning a new language from one's personal computer are examples of the kinds of options there will be. The differences possible have to do with whether or not the activity requires active or passive participation and whether or not it encourages or limits contacts with other people.

Culture is also embedded in art, drama, sport, dress. All these can be made more bland, more universal by contact through the mass media with dominant cultures outside New Zealand.

While some people argue that the "global village" concept is one which will enable us to understand each other better and more able therefore to co-operate with each other, the losses would be in retaining identity and individuality.

Culture is a communal phenomenon. The individual effects of information technologies are also important.

Psychological Effects

In many societies information is already abundant, but not necessarily accessible. Accessibility to information is essential for an individual to be able to make educated decisions at the personal or community level.

For freedom of personal choice a person must also have a realistic understanding of the alternatives which exist. Each person should have information which enables them to criticise or reject other information.

When someone is misinformed, deceived, hindered from obtaining information or bombarded with more information than they can handle, their ability to make choices is impaired.

The potential of information technologies to be used to manipulate is a serious danger. Manipulation by the selective provision of information can be criticised on ethical grounds.

When information is freely accessible there is another danger, that of information overload. By finding that there are innumerable facts to weigh and many options to consider, an immediate response may be for a person to do something or anything rather than to consider what is the best decision in the long term.

The ideal balance will be for free access to information which has already been "sorted" into a coherent form and which provides options. The person is left to make the decision from the options given.

However, the provision of "sorted" information is not enough. A person must be able to use computers so that two-way communication is possible - a question and answer type exercise, otherwise the use of a computer, as usually happens with television, is that the person is only a receiver of information and has no opportunity to provide feedback.

All this indicates that we shall, many of us, be using computers and terminals as part of our daily lives. A phenomenon which already exists is that, with the daily use of such machines, people may spend more time with them than they do with other people. In some instances, people are already being treated for their inability to communicate with people as they have become emotionally tied to their computers.

Information technologies will be effective only to the extent that they offer two-way communication or interaction between a person and the machine as well as encouraging communication between people in a way that satisfies their needs for face to face and one to one communication.

Education

Education is an information-intensive industry which historically has concentrated on the first ten to twenty years of life. Its major function has been to teach basic skills and to prepare young people for occupations.

In the next thirty years, young people will still need to acquire basic skills and specific work-related skills but because of changes in knowledge and the need to change occupations a number of times, education will be a recurring requirement rather than one which happens once in youth.

Information technologies can be used now and in the future to make education more flexible and adaptable to individual needs.

Teachers at all levels will play a key role in assessing a person's information and skill needs. They can put students in touch with other people who are able to communicate specific information through video, by teleconferencing or through software designed to teach certain skills or knowledge.

Future options for education which accept the use of information technologies could include classrooms or lecture theatres with the teacher augmenting learning by using video and various programmes which teach either numbers of people or individuals.

Another option could be along the lines of the learning exchanges which operate now from public libraries. This would be a cottage industry education where one teacher catered for a small number of students on a personal basis.

Information technologies will make it possible for students and teachers to have the choice of working in the conventional way, by attending classes at fixed times in fixed locations, or of working at their own time and pace from any location of their choice.

Issues

Information technologies used for communication have powerful influences. Issues which concern their use are:

- 1 The flexibility offered by the technologies makes it possible to organise work in almost any way. The problem here is whether to allow their use to open up a democratic, participatory way of working (and organising the political systems) or allowing them to be the tools of bureaucratic systems which allow little choice from the majority and minimal feedback.

- 2 The flexibility made possible by using information technologies where one works or is educated, against the effects this will have on urban planning, on the education systems and, most of all, on the household.
- 3 The trade off between improving communication throughout the world by encouraging some cultural convergence, against the loss of some cultural individuality and identity.
- 4 The widespread use of machines which assist in the storage, processing and distribution of information, against the possibility that this will increase the isolation of at least some people and increase dependence on machines rather than on other people.

What we communicate is information.

Information can be defined in several ways. For instance as a resource which is renewable and as a commodity to which we can attach a monetary value and buy and sell.

Information also affects the relationships between people. Those who have access to information usually are in a more powerful position than others who have limited information access.

INFORMATION AS A RESOURCE

As a resource, information can be stored and used many times. It generally loses its value only if it is inaccurate or out-of-date. It can take the form of words, pictures, film or sound.

The storage of such information in the future will be less in written form and more in the form of data banks on disk, on microfilm, and on cassette for both sound and film recording.

The same information can be possessed by many people at the one time. It cannot be depleted by use.

INFORMATION AS A COMMODITY

As a commodity which is bought and sold there are certain strictures which apply to information as well as to other merchandise. Some of these involve ownership, payment, quality, and illegal practices.

Ownership

Whoever generates new information or buys information from another can be called the owner.

Difficulties over the ownership of information are:

- 1 The secure storage of information such as trade or defence intelligence.
- 2 It is difficult to prevent persons, who wish to do so, from possessing particular pieces of information. This may reduce its value when some people pay and others obtain for no price the same information.

This leads into the next area, payment for and price of information.

Payment and Pricing

Placing a value on information poses other problems.

- 1 It is difficult to determine the value of information without disclosing its content and thereby lowering its value.
- 2 Unless the information is in an identifiable package, the costing may be a problem.
- 3 Pricing information goods and services to obtain a profit may make them too expensive for some consumers.
- 4 The protection of information by copyright or patent, and charging for its use, encourages the creation of ideas but limits their use.

Quality

The accuracy or the quality of information which is available should be able to be checked and guaranteed. Today, much written information gives its source. Already the accuracy of information stored in computers is in question. In the future there must be mechanisms to ensure the integrity of those storing information in data banks and to enable information to be checked for accuracy and corrected if necessary.

Illegal Practices

The piracy of information, or its use for illegal purposes, is a growing problem now. Access without payment or authorisation to various data banks is possible by breaking encryptions.

The detection of such practices is often by chance rather than by investigation.

This whole area of legal and illegal practices requires the law to anticipate contingencies which at present it is unable to conceptualise or even define.

INFORMATION MANAGEMENT

The organising of information storage, transmission and use poses management difficulties of its own.

The New Frontiers

There no longer exists a communication network bounded by geography. Information technology is so interconnected that international networks already operate. The large computer companies such as IBM have their own networks and thus their own "territories". These are connected by compatible technologies and have access to common data banks.

Such international communication territories will only grow in the future. They may eventually become more constraining to communication than geographical boundaries. The new frontiers will be electronic not physical.

The monitoring of "travel" between these territories is one which will have to be considered. Allowing all information to pass freely from one area to another has many advantages but there could also be difficulties with the definition of responsibility between governments and businesses for the information flows and, to some extent, the content of information.

Just now laws regulate the transmission of money from one sovereign territory to another. If information becomes the "currency" of the future, its disposal may have to be similarly treated in some instances.

Data Banks

The whole question of data banks is another which will have to be thought out carefully. Firms will have their own data bases which will be their own property.

However, at present governments and local bodies take the responsibility of building up certain data banks such as libraries and museums, for use free, or at a nominal price, by the public. It is important that this continue in the future.

Those responsible for the public data banks should develop them to meet the needs of their particular culture rather than relying on the purchase of foreign data bases which will often contain information not appropriate to the needs and the culture of another nation. The exception to this may be the building up of data banks containing highly technical information. Some sharing of this expensive and specialised information may be possible between nations.

In less technical fields data banks will involve different cultural models and each nation will have to build up its own for comparison with other nations.

So far as tariffs are concerned, the OECD note that, in the future, there will be interworking between public and private networks within countries and some similar tariff structures will have to be decided as will some kind of standardisation of coding in communication networks.

Content of Information Transmission

Convention assumes that a state may not exercise influence on the content of private transmissions. This apparent disregard for the content of information has been due in part to the fact that no independent economic value has been placed on information. It is not regarded as a commercial good, nor as an item subject to separate tariffs.

Moves to introduce new laws about international data transmission are greeted with caution. One area of concern is that there can be evasion of national laws by operations carried out at a distance and across borders through the use of information technology.

While we may need regulations which govern the import and export of electronically transmitted data there are reservations as new laws imply a new form of protectionism which could disrupt international economic ties.

Information Producing Dependence

National policies on data use will vary in the future and may relate to a country's level of development.

While the costs of research and development are so high it is convenient for small or less developed countries to be able to purchase both hardware and software from other nations. This is economic and convenient. The same applies to the purchase of data-processing services.

In the future information-based society, however, a state could become dependent on data processing. If this is done in another country then the first nation will be vulnerable to disruptions of its data supply in much the same way as we are now sensitive to variations in our energy supplies.

Use of foreign-made hardware could produce the same effects. A country's information system could become irreversibly dependent on other countries and therefore vulnerable in a crisis affecting the "donor" nation.

Issues

- 1 The electronic frontier blurs whose is the sovereignty and control over data banks. What are the respective roles of government and business in this situation?
- 2 Various firms and network managers will build up separate territories. How can equitable access to information in these territories be assured?
- 3 The use of copyright becomes difficult to monitor in these situations of electronic frontiers and territories. Can information in practice be "owned" or only made secure? What new laws or practices should be considered in this area?
- 4 To what extent should New Zealand buy hardware, software and services from other countries? How independent should we aim to become?

Information is not only a resource or a commodity but has the characteristic of being able to affect relationships between people.

INFORMATION AND RELATIONSHIPS

The network nation and the wired city give opportunities to register and categorise people quickly and efficiently.

Privacy

For example, information technology gives public bodies the power to integrate and maintain personal dossiers about private individuals. This is already possible to a degree but with the gradual spread of electronic funds transfer and the computerisation of personal records such as births, deaths and so on, the movements of people about the country and the maintenance of criminal records, it will be possible to build up profiles of people and their behaviour very quickly.

This makes people more "transparent" to any government and its employees than they have been before. (The same has always applied in small communities where everyone knows everyone else, but there the information is moderated by close human relationships).

There is a fear that this transparency could result in the breakdown of protection normally afforded by the separation of government departments.

If the model of the Wanganui computer is adopted as the ideal, large amounts of personal information will be stored in a way which limits access to a few. They become then very powerful in terms of their potential knowledge of the many. Laws allowing individuals limited access to their personal file is not enough to counter this power. All it can do is to provide a check on the accuracy of the information stored but does not guarantee that.

Then, the proliferation of personal computers offers any person with one the capacity to build up their own files of information and this could include personal information about others.

The right to privacy which is threatened by computerised data bases can conflict with the right of access to information.

Access to Information

Free access to information, particularly information held by local bodies and government agencies is crucial to a democracy where people expect to have their views considered over many issues.

In New Zealand at present there is concern over the Official Secrets Act which the Danks Commission has suggested should be changed to a Freedom of Information Act.

In countries such as Sweden there has been formulated a public access principle which assures any citizen access to official documents with certain exceptions involving information that affects national and individual security.

This public access principle will be critical in an information society. It is one way of providing information for people who wish to debate government decisions. It is also a means of increasing the confidence in governments as it gives the public opportunities to examine their actions and decisions and to ensure that incorrect information can quickly be detected and amended.

Such information access also enables objective judgements about a government's actions and criticism of them if necessary. It means that a more informed population can make its views known more confidently over certain issues.

The future may see this power of governments decline, however. The largest business concerns may take over many of the functions which governments hold today as they are adapting more quickly to and, indeed, initiating the opportunities offered by information technologies to make invisible national and geographic boundaries. Their influence may be exponentially increased through the use of information technologies as our present legal and political systems are not designed to cope effectively with the information explosion.

There are certain powers which have been touched on from time to time in this paper, associated with ownership of and access to information.

Issues

The issues here in the future will cluster round:

- 1 Free access to official information, which has just been discussed.
- 2 Power to buy and own information. If prices for the use of data banks restrict their use to those with most money, then this will make the wealthy the most powerful in information terms. The access to public data banks of right or at minimal cost must be a principle which is retained.

- 3 The definition of information is important. Public and private organisations should not have the right to select and enter personal information about citizens without the provision of alternative judgements from other sources or the provision of references to the source and credibility of that source.
- 4 The power to collect information is another. Some groups in society such as government officials have more power than do others to ask for and collect information. In such a situation the questions asked, if they are of a personal nature, should be negotiated between those who want the information and those supplying it.

Another aspect has been highlighted lately by the court ruling in Norway that information on military installations gathered from public sources and put together in one document constitutes a threat to national security.

- 5 Again the balance between public and private sectors so far as influence and power is concerned may change. Discussion and monitoring of this is essential as are adjustments which may be necessary.

These are questions for law which must be sorted out, not as reactions to what might happen in the future but anticipating the likely situations which will occur.

While information technologies may help us to achieve a conserving, participatory society with more equitable access to resources, including information, this will not come about by leaving the developments to market forces. We must ourselves play an active role in determining our future.

The issues raised in this paper only scratch the surface of a very complex issue. They, and any others, need wide discussion so that New Zealanders reach a consensus about:

- 1 To what extent we wish to become a network nation and information society;
- 2 How appropriate information technologies and services can help us achieve what we want in social, political and economic areas;
- 3 What policies we need to move in these directions.

SOURCES

Boorstin, Daniel J.

1978 The Republic of Technology. Harper and Row.

Goehlert, Robert

1980 "Information, Persuasion and Freedom: Implications of Communications Technology" in Information Processing and Management. Vol 16, pp 109-114 Pergamon Press 1980. Great Britain.

Hammond, Kenneth R. and Jeryl Mumpower

1979 Formation of Social Policy: Risks and Safeguards in Knowledge: Creation, Diffusion, Utilization. Vol 1, No 2, December 1979, pp 245-258.

Hiltz, Starr Roxanne and Murray Turoff

1978 The Network Nation: Human Communication via Computer.

Hoffman, Kurt and Howard Rush

1980 "Microelectronics, Industry, and the Third World." in Futures, August, 1980, pp 289-302.

Nora, Simon and Alain Minc

1980 The Computerization of Society. The MIT Press, Cambridge, Massachusetts.

O'Brien, Peter

1980 "The New Multinationals: Developing Country Firms in International Markets." in Futures, August, 1980, pp 303-316.

OECD

1979 Technology on Trial: Public participation in decision-making related to science and technology.

OECD Informatics Studies

1978 Local Government and Information Technology.

OECD

1980 Policy Implications of Data Network Developments in the OECD Area.

OECD Informatics Studies 2 G.B.F. Niblett

1971 Digital Information and the Privacy Problem.

OECD Informatic Studies 3

1973 Computers and Telecommunications.

OECD Informatics Studies 4

1973 Automated Information Management in Public Administration.

OECD Informatics Studies 5

1973 Towards Central Government Computer Policies.

OECD Informatics Studies 7

1974 Information Technology in Local Government.

OECD Informatics Studies 8

1972 Applications of Computer/Telecommunications Systems.

OECD Informatics Studies 10

1974 Policy Issues in Data Protection and Privacy.

OECD Informatics Studies 11

1975 Conference on Computer/Telecommunications Policy.

Peterson, Richard A.

1979 "Revitalising the Culture Concept." in Annual Review of Sociology Vol 5, 1979, pp 137-66.

Pym, Denis

1980 "Towards the Dual Economy and Emancipation from Employment." in Futures, June, pp 223-237.

Saldich, Anne Rawley

1979 Electronic Democracy: Television's impact on the American Political Process. Praeger: USA.

Westin, Alan F. (ed.)

1971 Information Technology in a Democracy. Harvard University Press: Cambridge, Massachusetts.

Williams, Patrick and Joan Thornton Pearce

1978 The Vital Network: a theory of communication and society. Greenwood Press, Westport, Connecticut.