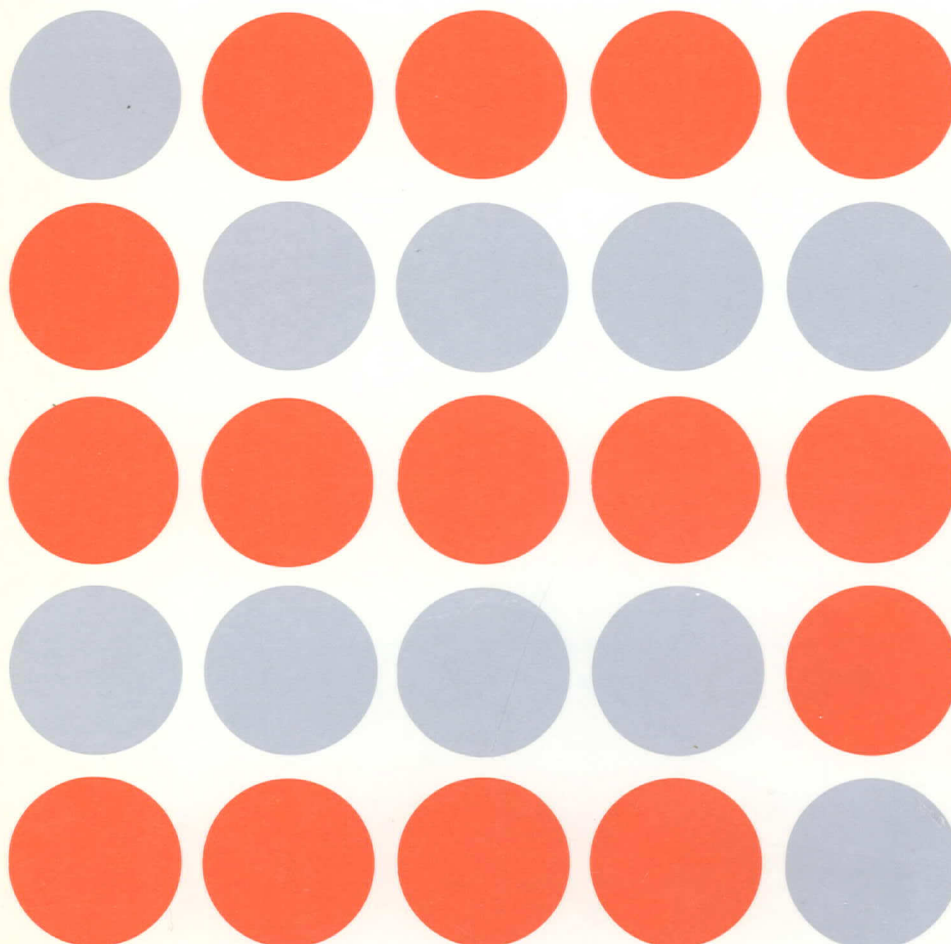**Francis Spiller Associates**

Consulting in Audio-Visual
Communications

6 Parkland Crescent
Nepean, Ontario
Canada K2H 7W3

Tel: (613) 820-0585
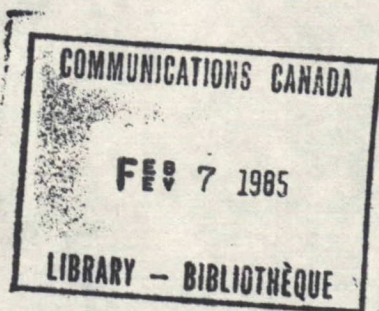
POTENTIAL USES OF THE 1605 to
1705 KHz MEDIUM FREQUENCY BAND

POTENTIAL USES OF THE 1605 to
1705 KHz MEDIUM FREQUENCY BAND

DOC Contractor Report

<div align="center">

Department of Communications

Ottawa, Ontario

Spectrum and Radio Systems Policy Directorate

</div>

②

TITLE: **Potential Uses of the 1605 - 1705 KHz Medium Frequency Band**

Authors: Frank Spiller ①
                 Kim Smiley

Contractor: Francis Spiller Associates

Department of Supply and Services Contract

File Number 02GS.36100-4-4091

Serial Number OGS84-00463

Project Authority: Max Melnyk
                    Gwen Andrews

Classification: Unclassified

TABLE OF CONTENTS

Executive Summary

Preface

PART 1

Radio Past and Present

PART 2

The Impact of Social and Technological Change

PART 3

Services for the 1605 – 1705 KHz Band

Executive Summary

The study concludes that radio broadcasting will have to undergo major change and adaption if it is to provide relevant and effective services for the needs of the Canadian society in the 1990's and beyond.

At present there appears to be little incentive to change established practices, at least not to the degree required to adequately prepare for the future.

Although technological advances which impact directly on radio broadcasting are very much in evidence, and while contemporary society already reflects changing values, much of what radio does now is little changed from a decade ago.

This is not to suggest that radio broadcasters are unaware of the need for change; by and large the problems to be faced are so complex that it is difficult to decide how to begin to alter current operations.

In the past radio has shown an enormous resilience. When television threatened to diminish radio the industry responded with new service concepts and in the process discovered further facets of its uniqueness.

The present forces of change are too dispersed to be as visible or cataclysmic as the arrival of television, but they are

just as threatening, perhaps more so, because the competition is emerging not as a single force but many separate forces.

Furthermore, the identity of the threats is more diffi-cult in that they might be as diverse as a sudden growth in the use of audio cassettes, in home recording, or in the rise in popularity of music television.

What appears to be needed is the opportunity to begin to change present radio, to experiment with new formats and services and to open the field to new entrepreneurial forces, while giving present broadcasters a better facility to develop new operational strategies.

Given the foregoing, the conclusion of the study is that the 1605 - 1705 KHz band must be used to introduce new service concepts more relevant to the needs of society in the 1990's and beyond when the new band is likely to be commissioned.

An extensive review of social and technological trends confirms the importance of such a step since it leaves no doubt that the society of the future will seek ever increasing levels of specialized information. Furthermore, technological advances place radio in an excellent position to provide an effective response to these needs since the quality of radio, together with improved transmission and distribution techniques, reaffirms its

potential as a versatile mobile medium with unique character-istics.

AM radio of the future will be able to provide stereo sound and data services as well as interactive (two-way facilities in conjunction with fixed and mobile telephones. All this can be done at improved levels of quality while still retaining radio's ability to serve the growing population of mobile receivers.

But it is in the social sphere where radio can be most effective, bringing an enormous range of services to special interests, minority groups, and people of all ages. As well, it can offer selected services to both sexes, to a variety of family units from single parent families to retirees, at all times of the day, whether they are in fixed or mobile locations.

Because of the large degree of service specialization involved it is highly unlikely that such services can be provided without major changes in current operating practices. The old mass audience concepts are breaking down, to be replaced by com-munities of interest which do not lend themselves to the old mass marketing philosophies.

Service specialization will also require new content providers, often with expertise in limited fields, yet at the

same time imaginative new ways will need to be devised to exploit the potential of radio.

The study recommends that the new band be opened to applicants who can provide new and alternative radio services. As well, it recognizes that certain types of service, although able to fill an identified need, will not necessarily be commercially viable.

To resolve such difficulties it is considered necessary to adopt new operational policies allowing portions of transmitter time to be leased, either free or at a charge. In this way the economics of program production and exhibition can be brought down to a level where smaller independent content providers, whether community or minority groups or special service providers, can still gain the benefits of radio distribution.

It is also recommended that consideration be given to operating whole transmission facilities as common carriers.

To enable specialized programming to benefit from the collective addition of small groups of listeners, radio networks are thought to be essential. However, this practice should not be allowed to detract from the local value of radio.

Use of the improved sky wave characteristics of the 1605 - 1705 KHz band has been rejected in favour of generally assigning it to low-power applications.

Adequate time should be allowed for applicants to come forward with new service concepts. As well, a suitable period should be provided for service development. This should be followed by an evaluation and, if necessary, adjustments made to the original band utilization policies.

Every effort should be made to encourage the manufacturing industry to develop new equipment for the new band and to incorporate state-of-the-art technologies, especially developments like AM stereo. Legislative action should only be considered as a last resort and only if new receiver production to meet the needs of the new band is not forthcoming.

Overall, it is felt that a more flexible regulatory climate is required, not only to encourage the development of new and innovative services for the 1605 - 1705 KHz band, but to facilitate change and adaption in all radio services so as to better respond to future needs.

Opening the new band to new service development is considered to be an essential step in the future and effective evolution of radio in Canada.

PREFACE

Although the objective of this study is to outline possible uses for the 1605 - 1705 KHz band it has not been considered feasible to undertake such a project without a broader examination of radio as a whole.

Overall, the intention has been to offer a provocative look at the present and future of radio in Canada, and in this way to bring the broadest possible perspective to the task of commissioning the 1605 - 1705 KHz band.

PART 1

RADIO PAST AND PRESENT

Because this study is about radio, and particularly about future applications of radio, it is useful to touch upon some of the factors which have marked radio's development in Canada from its inception to the present day. Chosen with our particular task in mind these factors can shed some light on why radio has taken its present form, and how its qualities have been applied.

There is also value in looking at some selected examples of how radio has been used in other countries, both as a means of reinforcing ones own experience and as a method of introducing alternative approaches.

Radio in Canada

a)   The Early Years

Regular radio broadcasting began in Canada in 1919 when station XWA Montreal received a licence to broadcast. This coincided with similar radio broadcasting activities in the United States.

In the beginning years considerable difficulties developed between the United States and Canada over the allocation of broadcast frequencies. One of the principal problems was the interference being encountered by Canadian stations operating on the same frequencies as the more high powered U.S. stations. As a consequence of this, much of the early discussions between

- 1 -

the two countries were directed at resolving frequency allocation problems.

It was not long before concern was expressed about the dependence of Canadian stations on U.S. sources of programming. Not only did U.S. programs occupy a large proportion of Canadian radio broadcast time, many Canadian stations were essentially affiliates of U.S. broadcast networks.

A speech delivered in Toronto in 1930 by President Aylesworth of The National Broadcasting Company (NBC), which was then operating radio stations and a network in the United States, dramatically reflects the difficulties being encountered at this time. The NBC President pointed out;

> "That the provision of service from the United States to Canada had the effect of making the boundary between the two countries invisible or non-existent. The American broadcasters were laying claim to Canada, by network connections to Canadian stations and by direct broadcasts, as an area for them to serve. The Federal Radio Commission formally recognized those claims in its reports to Congress and its reasons for rejecting Canadian requests for more channels. The Commission informed Congress that American stations were serving Canada. It informed Canadian officials that Canada did not need broadcasting stations to relay U.S. network programs when the programs could be received direct from U.S. stations."[1]

Such were the problems and tensions which resulted in the appointment of a Royal Commission on broadcasting on December

6, 1928. Subsequently known as the Aird Commission, the results of its deliberations resulted in the establishment of the Canadian Radio Broadcasting Commission and four years later, in 1936, the Canadian Broadcasting Corporation. (CBC)

> "Canada acquired a dual system of local, private radio and national, public radio housed in a single regulatory framework. Immediately the CBC embarked on an ambitious strategy of expansion and organization: new powerful stations were built, new broadcast regulations promulgated, network programming filled out, and services using private affiliates established for French and English Canada. By the end of the Depression the percentage of Canadian households owning a radio had jumped to seventy five per cent, proof that radio was fast becoming a necessity of life."[2]

Until the end of the Second World War in 1945 radio broadcasting in Canada was dominated by the CBC. Because private broadcast stations were restricted to low power they were regarded as local community stations even though many of them were affiliated to the CBC. As a consequence of this the influence of private broadcasters on Canadian broadcasting was relatively limited.

All this changed after the war as private AM broadcasting began a period of rapid growth, the regulatory function passed to the Board of Broadcast Governors (BBG) and subsequently in 1968 to the Canadian Radio Television Commission (CRTC). The most significant event for radio was the intro-

duction of television into Canadian Broadcasting. This occurred in the early 1950's.

b) Radio Content

In these early days of radio there was a strong emphasis on drama and light entertainment much of which emanated from U.S. sources. There was also extensive radio networking in the United States which accelerated the introduction of popular shows which were successful on both sides of the border.

The arrival of television had a dramatic impact on radio in that it laid claim to radio's preeminence as a source of drama and light entertainment programming. Unable to compete with the power of the visual medium the focus of radio broadcasting soon shifted to music programs. Over time radio was to gradually evolve as a strong local medium offering popular music recordings, news and public affairs programming, and sports programming.

The relationship between the sound recording industry and the radio broadcast industry increased in importance as record producers relied on radio as a means of presenting new record releases, and the radio broadcasting industry relied to a larger and larger extent on records for the bulk of its programming services.

In the late 1960's most radio programming, particularly in the private sector, consisted of a mixture of commercially available records and talk. While most of the talk was Canadian, most of the music was not. This eventually led to the introduction of the 30% Canadian music content regulation for AM radio, the principle intention being to ensure greater access by Canadian musical talent to Canadian broadcast stations. [3]

c) **Radio Diversity**

Whereas the principal objective of the AM regulations was to increase the proportion of Canadian content, the primary objective of the regulations and policies for FM, which were introduced in 1975, was to achieve a greater diversity of radio programming.

To a large extent the FM policy was driven by a desire to find an alternative to existing AM services, many of which were being simultaneously broadcast over FM transmitters.

In retrospect, the FM policy may well be seen as the culmination of a series of steps designed to single out radio as a primary contributor to Canadian cultural objectives. As the role of radio changes, and as it is more and more beset by competition, it will likely be necessary to give it more operational flexibility than preceding policies have allowed.

Such difficulties are already apparent in relation to Canadian AM services.

d)   **AM Radio Today**

While AM radio continues to maintain a strong position in the marketplace there are signs that not all is well. AM finds itself facing increasing competition from a variety of sources and while overall AM listenership in Canada presently remains around the same level individual stations are often suffering significant audience losses.

It is difficult to ascribe these developments to any one specific cause chiefly because there are so many new factors capable of influencing AM listenership. For example:

-   The dramatic shift from records to cassettes. Not only are more people using audio cassettes but they are also recording their own cassettes.

-   The introduction of portable playback units such as the walk-around radios, which although providing radio listening capabilities, are used primarily for the playback of prerecorded cassettes.

-   The growing shift to FM primarily because of the increase in the availability and portability of FM stereo receivers and the improved sound quality which results.

- The increasing popularity of music videos not only as
  alternative viewing and listening options but as a
  promotional vehicle for recordings.

All of these factors are forcing AM broadcasters to
look to new ways to exploit the particular capacities of AM
radio. As well, technical developments are presenting new
programming possibilities for AM. For example, AM stereo
promises to place AM in a more competitive position with FM
stereo while at the same time the continuing exploration of the
use of AM subcarriers, especially for data services, opens up new
service possibilities for AM radio broadcasters.

In spite of the overall challenges to AM the subject
areas and formats of AM remain fairly constant. Overall, AM
stations have tended to design their schedules with various
permutations and combinations of local news and information,
sports and music programming. In the area of music the popular
formats such as Middle of the Road (MOR), Top Forty, and Country
tend to dominate. Even here, however, stations are being forced
to invent new music format descriptions as the tastes and inter-
ests of listeners change.

In general, content sources are still records, local
production which is largely news and public affairs, and some
local sports, and national and international news and sports

programming. Various efforts are being made to improve the quality and versatility of radio services. This is resulting in a return to radio networking particularly in the United States, and a consequent decrease in locally oriented services.

Many of the U.S. radio networks are designed to operate in a digital mode. As well, extensive use is made of satellite technology. This means that the sources of music programming can be of extremely high quality, probably using digital discs, and thereby laying the groundwork for a potential improvement in the quality of local delivered radio services.

The whole matter of AM radio quality has been the subject of a recent study by the National Association of Broadcasters in the United States. In essence, the study advocates that a concerted effort be made by the broadcasting industry and equipment manufacturers to improve the quality of AM transmission and reception. [4]

e)   **The Trend to Specialization**

This focus on the need to improve AM is very much in evidence in the United States. Whereas in Canada AM continues to be a primarily popular, mass appeal, service, in the United States there is a strong and growing trend towards the use of radio for special programming services. These specialized uses run all the way from services to business, community, minority

groups, and to specific subject area programming such as medicine, health, and travel information.

The specialized uses of radio in Canada, if indeed this is a fair categorization, are largely for native, community, and ethnic services. Particularly imaginative and effective use is made of radio in a community context by native communities in the north. Here radio is used both as a community communications device, as a means of social and cultural expression, and as a means of entertainment and information. At present there are some 125 community radio activities in the north. While some 30 of these activities provide their services as a result of access to existing CBC transmitters, the balance are operated entirely as community stations by the communities themselves. Although both FM and AM transmitters are used the bulk of the service is provided via FM, primarily because the initial capital cost of the equipment for FM is much lower than AM. Of particular interest is the fact that a very high proportion of these communities are quite small, often with populations of below 200 people.

The local community services, which are financed and operated by the communities themselves, are supplemented by services provided from regional production centres in the north. This latter activity is financed by grants from the Federal Department of Communications.

While, as demonstrated in the north, radio is ideal for direct community use, community radio stations have not developed to any large extent in the southern parts of Canada. The exception is the Province of Quebec where some 21 community radio stations are in operation. The Quebec stations rely very heavily on government grants to sustain their operations although in recent years the CRTC has allowed them to carry limited forms of advertising. While in many cases these community stations provide alternative forms of radio service, particularly in the large centres, in the smaller communities they often represent the only local radio service. At present there are only two community radio stations operating outside of Quebec, one in Vancouver, Vancouver Cooperative Radio, and one in Kitchener, Ontario, operated by Wired World.

Student radio has developed relatively strongly in Canada with some 16 stations now in operation throughout all parts of the country. The services provided by these stations are of particular interest because they not only provide an alternative radio service in the areas where they are located, they have also shown themselves to be capable of interesting and innovative experiments in radio. In this latter context they have often provided a useful contribution to the radio industry as a whole because they have often been able to try new approaches which are not always possible within the constraints of regular public or private broadcasting.

As far as ethnic broadcasting is concerned, at the present time some 46 AM radio stations carry multilingual programming, five of these being licensed to carry up to 40% of weekly schedules in other language formats. [5]

The CRTC has recently issued a proposal for an ethnic broadcasting policy for Canada, see CRTC Public Notice 1984-237, and this is likely to greatly increase the interest in, and use of, the AM radio spectrum for ethnic broadcasting purposes.

While all of these latter examples of specialized programming do not necessarily utilize AM frequencies they do demonstrate a variety of alternative uses for radio which can point the way to new uses of the AM band.

Alternative Uses of Radio in Other Countries

The U.S. approach to ethnic broadcasting provides a very interesting comparison to Canada. In 1980 there were some 899 stations in the United States broadcasting multilingual programs. Of this number some 719 were broadcasting in a single language other than English. The dominant language was Spanish with some 76.8% of the hours broadcast per week being devoted to this group. [5]

In Australia an even more novel approach to the provision of ethnic services has been developed. Here the government established a special government agency, known as the

Special Broadcasting Service, to provide ethnic broadcasting. This service presently uses a combination of AM and FM stations to provide some 577 hours per week of multilingual radio broadcasting.

The interesting aspect of this situation is that multilingual broadcasting was virtually nonexistent in Australia in the 1950's and the 1960's. Even by 1973 only 19 of Australia's 118 commercial stations regularly broadcast multilingual programs for a total of 36 hours per week, while the Australian Broadcasting Commission, the publicly funded system, had only two programs. [5]

In the United Kingdom various efforts have been made to use radio in a more effective way in a community context. When the British Broadcasting Corporation's local radio concept was started in 1967 it was described as a new form of radio "created in the public interest".

"According to the BBC and the British Government, its object was to revitalize communities by combating the latent crumbling of contemporary society, by encouraging cohesion and integration, by maintaining contact between members of the community, by stimulating them to play a part in local affairs, by permitting new forms of expression and by bringing out the distinctive characteristics and individuality of the different communities." [6]

At the time of writing, some 40 BBC Independent Local Radio Stations are in operation. In many cases the services are broadcast in both AM and FM wave to the areas being served. In all cases, the transmitter powers are relatively low ranging from 0.1 to 2 kilowatts in the AM band and from 0.01 to 7.5 kilowatts in the FM band. At present these 40 stations cover some 90% of the population of the United Kingdom.

In spite of an optimistic beginning, high degrees of community participation and control have not proved to be practical. Almost all of the stations are now run by BBC staff and advice and participation from the community is carefully supervised and controlled.

The IBA, the Independent Broadcasting Authority, also operates local radio services. Known as Independent Local Radio (ILR) it consists of some 45 local stations operating at similar powers and frequencies to those of the BBC.

> "The style and programme planning of the ILR is quite different from that of the BBC local stations. With its star animateurs, its disc jockeys, the lively tempo of its broadcasts, necessitated by that of the advertising flashes, an ILR quite closely resembles the major European commercial stations."
>
> Generally speaking, keeping the public informed and allowing it to participate are far from being the stations' priority objectives. For the most part, contact with listener occurs during the customary broadcasts of "request" records, and during debates and "phone-ins" which enable the public to take part by telephone."[6]

By contrast to the BBC's and local radios relatively structured approach to broadcasting is the phenomenon of the free radio station which has found its greatest expression in Italy. "In July 1976 the Constitutional Court declared radio and television broadcasting over the air to be legal, so long as it was local and did not interfere with the RAI[*] channels".

"After that date, there were more and more 'free' radio...stations. From about 500 radio stations...in the middle of 1975, the figures rose to almost 2000 radio stations...by October 1977. Some sources even suggested a figure of 3000 radio stations...."[7]

The so called "free" radio stations reflected a generally unstructured approach to broadcasting. Funding for the stations came from various sources and the production and transmission facilities were often very primitive. Because of the difficulty of sustaining funds, and because of the tendency of groups and individuals running the stations to lose their enthusiasm over time, the life expectancy of the stations was often relatively short.

Nevertheless, the free radio phenomenon enabled a considerable amount of experimentation, created excellent oppor-

---

[*]   RAI, Radiotelevisione Italiana, the state broadcasting service

tunities for community participation and control, and provided real alternatives to conventional broadcast radio.

These various examples provide useful perspectives on how some other countries have attempted to utilize radio. Much the same attempts have been made in Canada. The CBC has experimented with forms of access, and the existing community radio stations in the north and in Quebec provide interesting models of community radio in a North American context.

Summation

Even this brief examination of past and present experiences with radio illustrates the extent to which its evolution is shaped by government policy and commercial determinants.

From the very beginning government intervention was deemed to be necessary both to secure frequency spectrum for Canadian stations and to develop a distinctly Canadian broadcast service.

As the private radio industry gained strength commercial factors began to have a greater and greater impact on the kinds of services being offered.

One might conclude, if the public sector activities of the CBC are excluded that much of the struggle in the last two

decades has been between commercial imperatives and public service objectives.

The search for profitability has meant a search for popular programming and mass audiences, and the commitment to a "Canadian" system has resulted in increasing regulation, in essence the creation of program services to satisfy the objectives of broadcast legislation.

Understandable and laudable though these goals may have been they are not always sufficiently open to a free spirit of innovation and adaption, nor do they necessarily encourage an ongoing sensitivity to the needs and expectations of a rapidly changing and evolving society.

Unless these forces are present the incentive to drastically change a particular operating philosophy seldom occurs unless a very specific challenge to the status quo occurs. Radio's response to the beginnings of television represents one such example of this.

At present the challenges to radio appear to be many and varied yet far less focussed. As we have seen there are many factors acting to challenge radio's past and present role. The private radio broadcasting industry seems to be aware of the need to change but it is becoming much more difficult to determine desirable future objectives. Furthermore, regulatory and policy

controls often tend to inhibit the industry's ability to make rapid and unconventional changes in present operating philosophies.

The public sector, the CBC, faces similar difficulties. Even though CBC radio is regarded as being highly successful, it is often criticized for being somewhat elitist. Even here the need for change is being recognized. For example, a recent internal report on radio clearly demonstrates the need to reassess current practices in the light of future needs. [8]

The present radio environment is therefore best characterized as comprising a mixture of well established and somewhat conservative practices which are being more and more challenged by the reality of technological and social change.

During the last decade the proponents of new uses for radio, particularly in a community context, have been finding ways in which to implement their ideas. However, it is important to note that most of these new uses of radio have come about not through the initiative and support from the private sector but from the injection of public funds from various levels of government, from publicly funded broadcast organizations, or from communities themselves.

This growing contradiction between the objectives of commercial radio and the existing priorities of public radio, and

changing societal needs and expectations is likely to grow much more acute in the future. The existing radio broadcasting environment is changing. The nature and extent of the changes, however, have yet to be fully understood. One thing appears to be certain, however, and that is that the degree to which radio can remain of value to society depends directly on the extent to which its new technological potential can be exploited and new service concepts created.

By the time the new 1605 to 1705 kilohertz band is ready for commissioning considerable changes will have taken place in Canadian society, and in radio broadcasting and receiving technologies. Before we can effectively determine how the new band might best be used it is important to try and obtain an understanding of the conditions which might exist in the 1990's and beyond.

References Part 1

1. Extracted from Broadcasting Policy Development by Frank Foster, 1982, Page 25, Para 4.

2. Extracted from The Making of the Canadian Media by Paul Rutherford, 1978, McGraw-Hill Ryerson Ltd., Page 80.

3. The Canadian Broadcasting System and Telecommunications System in a Period of Rapid Change, 1980, CRTC, Page 12.

4. AM Technical Improvement, A report prepared by the National Association of Broadcasters in the United States, October 1984.

5. Extracted from The Accommodation of Language Diversity in Canadian Broadcasting, 1981, DOC Ottawa, Pages 13 and 14.

6. Extracted from Community-Media? by Paul Beaud, Council of Europe. Circa 1981.

7. Community Media, Page 113.

8. See The English Radio Development Project, CBC, September 30, 1983.

PART 2

THE IMPACT OF SOCIAL AND TECHNOLOGICAL CHANGE

Future radio services will evolve in a period when major technological and economic changes are occurring. The future success of radio is therefore inexorably linked to its ability to take advantage of technological progress and to successfully adapt to changing social conditions.

Just what order of change is likely to be expected is now examined. In this way it will be possible to gain a better appreciation of the kinds of services which might be allowed to develop using the 1605 - 1705 KHz band.

Technological Change

Technological change is affecting all aspects of radio activities from content creation, station operation, and signal transmission. Because this report is primarily concerned with the kinds of services which might be developed in the future, and the possible content of those services, only those technological factors which have a bearing on service design will be examined.

a)   Satellites

Perhaps the most dramatic development is occurring in the area of satellite transmission. Because each video carrier can support several subcarriers a variety of additional services can be carried at relatively low incremental costs. For example, subcarriers can be used to add stereo or multilanguage tracks to television, to provide data services, and to distribute radio

services. In the United States satellite radio networks, usually delivering services in a digital format, are being widely used.

Among the benefits of satellite distribution are a transmission cost that does not change with the addition of new points to the network, the possibility of easily adding new points independent of traditional economic and other barriers, and uniform, high quality reception.

All these potential advantages must be viewed in the context of a rapidly increasing satellite distribution capacity worldwide. Already the commissioning of new satellite frequencies in the higher 17-30 GHz band is being considered. Because use of such higher frequencies enables very narrow spot beams to be transmitted from the satellite, more selective distribution is possible using smaller reception antennas.[1] In this way it might be possible to serve major metropolitan areas with discreet services. By some estimates, satellite television channel capacity could rise to almost 1000 channels by the 1990's with a consequent increase in subcarrier capacity.[2] As well, because subcarrier technology is advancing it is likely that more subcarrier capacity per satellite transponder will be possible, a development which will have major implications for future radio distribution.[3]

Radio services can also be delivered by direct broadcast satellites, and although many of the more optimistic

scenarios for the introduction of DBS have proved to be unfeasible, nevertheless DBS will eventually become another readily available distribution technology. As a result, many people can eventually be expected to receive their radio services via DBS.

b) Mobile Services

While radio is increasingly becoming a mobile medium, the mobile receiving station, i.e. walkabout radio, etc. obtains signals from a conventional broadcast (point-to-mass) source.

At the same time radio has proved valuable as an interactive medium, using the telephone as a return path and allowing recipients of the broadcast signal to communicate with the broadcast source.

This "return flow" is likely to be capable of more sophisticated development if a variety of new mobile communications technologies are employed in relation to the traditional broadcast transmission activities.

For example, cellular radio facilitates the introduction of more efficient mobile telephone services. This could provide a mobile return path for broadcast radio extending the interactive use of radio to mobile receiving stations.

This type of process could be further enhanced by the use of the facilities which will be available via MSAT, the new mobile satellite communications concept. MSAT will allow the relaying of calls from cordless and portable telephones to conventional wired telephone networks.

It can be seen that technology is creating a situation where radio can move away from its conventional broadcast (one-way) image to become an effective device for interactive (two-way) communication for both voice and data services.

c)   **Data Services**

While the use of terrestrial radio subcarriers has been generally associated with FM, effective use can also be made of AM subcarriers. Although their bandwidth is lower than FM they can be used for slow speed data services. For example, radio teletext services could use AM subcarriers.

Because technological advances in transmitter and receiver design and operation can be expected to improve, this subcarrier capability is likely to be of increasing value in the future.

Such developments can increase the versatility of AM while at the same time opening up new revenue earning possibilities which can be offered simultaneously with regular AM services.

d) AM Stereo

In spite of initial development problems, especially in relation to the design of receivers able to handle the various current AM stereo systems, it is clear that AM stereo will represent an important new service opportunity for AM.

Not only will this allow it to be more competitive with AM it will also spur the development of improved AM receivers. Because of this it makes practical sense to envisage a new line of receiving equipment which not only results in better basic AM signal reception quality but also includes the expanded AM band, plus an AM stereo reception facility. [4]

e) Transmitter Design And Spacing

There are already indications that transmission facilities can be made more efficient as well as more rugged and more portable. This is gradually resulting in cost savings and greater ease of operation. Because of improved designs transmitter spectrum spacing is likely to undergo a progressive reduction opening up the prospect of more spectrum availabilities especially for low-power applications.

These trends are especially significant for specialized service applications where the need is often to reach small areas or limited audiences, and where the cost of operation can spell success or failure.

f)   Digital Operation

With the increasing trend towards the use of digitized services it will be possible to not only increase the quality of radio services but to contemplate increasing creative possibilities as it becomes easier to manipulate the components of the sound production and recording processes. As well, the electronic packaging and transmission of the services can be handled more efficiently while at the same time allowing interfacing with other services. For example, telephone services are now being converted to digital operation.

The introduction of digital sound recording will also contribute to an enhancement of the quality of AM sound. At the same time it will provide for improved techniques of storage, increasing the life-span of the sound library resource.

Social Change

If technological change is drastically altering the way radio services are created and distributed, social change is resulting in a profound alteration in the way Canadians use radio. More than perhaps any other factors, it is the changing societal attitudes and expectations that are likely to have the most decisive impact on the nature of future radio services.

1) **The Canadian Public - Present And Future Radio Listening Trends**

a) **An Aging Population**

The average number of hours a week spent listening to radio per Canadian increases steadily with each older demographic, reaching a peak in the 50 to 59 age bracket. Following are the figures for both sexes in 1983. [5]

AGE	% POPULATION OVER 6 YEARS	AVERAGE # HOURS LISTENED PER WK IN 1983
7-11	7%	5.6
12-17	11%	13.3
18-24	14%	18.7
25-34	21%	19.1
35-49	20%	20.4
50-59	11%	20.9
60+	16%	20.6

The greatest proportion (41%) of the population over age 6 is comprised of the two demographics 25 to 34 and 35 to 49; however, in the 35 to 49 demographic, the amount of radio listening increases dramatically by well over an hour per week from the preceding age group. In the 1983 census, this 35 to 49 demographic does not place at all in the four largest age groups but by 2004, projections indicate that it will be the 25 to 34 demographic which will not place in the four largest age groups. [6]

Projections of Largest Age Groups at 7 Year Intervals 1983 - 2004 (In Thousands)

Age	1983	1990	1997	2004
15-19	2148.9			
20-24	2388.7	2010.3		
25-29	2282.4	2430.8		
30-34	2073.0	2355.4	2324.2	
35-39		2153.9	2406.0	2132.5
40-44			2225.6	2426.6
45-49			2005.6	2275.9
50-54				2034.7

In 1983, 20% of the population over 6 was between 35 and 49 years old and they listened to 2.4 more hours weekly than the national average of 18 hours a week. By 1990, 23% of the population will be between 35 and 49.

Similarly, in 1983, 16% of the population over 6 was 60 years old or more and listened to 2.6 more hours weekly than the average. By 1990, over 18% will be in this high-listening age group.

A population which is aging incrementally will not only swell potential radio audience size but will also determine the types of services and formats offered by broadcasters.

An interesting perspective on changes in listening habits is provided by the CBC. CBC researchers are concerned that the "baby boom" generation is not tuning in to either of its

services. By far the greatest proportion of listeners to both CBC AM and CBC FM are over 35. [7]

Crude figures may indicate a swelling radio audience in general and a potential audience for more talk radio such as CBC AM offers, but the fact that the 35 to 49 demographic in 1994 will be made up of the same people who now constitute the 25 to 34 demographic, the people which CBC is currently not reaching, should be kept in mind. If there are to be more talk services on AM radio in the 1990's then these services will need to be well researched and designed for the specific needs of this particular generation and of society as a whole at this future time.

Do people, as they get older and gain responsibilities, grow more interested in information programming, and less insistent on "wall-to-wall" music? [8] Probably: particularly if the factor of greater educational attainment in the Canadian population is considered together with the aging factor.

b)   **A Better-Educated Population**

The heaviest listeners to AM MOR (Middle of the Road) and AM Country are elementary school graduates. As Canadians become more educated (some or completed post-secondary education, which does not include community college, is increasing by about 5% every decade) [9] there will be less demand, presumably, for AM MOR and AM Country and more demand for the type of programming

CBC presently offers. The trend towards taking continuing adult education courses which do not necessarily result in degrees or diplomas is also changing listener preferences, although such personal intellectual development will not show in census data reflecting educational attainment.

The level of education related to preferred leisure activities show degree holders watching 9 hours a week of television as compared with 16 hours a week for elementary graduates. Both groups are prodigious readers; in fact, the least-educated of Canadians spend large amounts of time on all three of the common media forms of passive (escapist) entertainment: reading, radio listening and T.V. watching. The fact that degree holders as a group listened to radio only 16.9 hours a week in 1983 and elementary graduates listened 18.8 hours may indicate a more active approach to leisure time on the part of the university-educated, or it may indicate their unmet listening needs.

If greater educational attainment and a higher average age in the Canadian population by 1990 indicates a potential demand for more quality talk radio such as CBC offers, then AM would seem to be the logical medium in which to satisfy such a demand, since sound quality is less important for talk radio.

c) **The Current Radio Listening Reality**

The AM-FM situation in Canada is sometimes confusing.

FM is popularly considered to be the choice for enthusiastic or serious music listeners and yet FM is bound by regulations to include a liberal dose of talk. Since FM is seen as taking care of the music side of radio, AM is sometimes thought to be the province of talk radio. AM programming is, in fact, full of talk, but much of the talk outside news and sports consists of endless commercials and cheerful but meaningless patter from announcers. People who enjoy hearing a limited number of selections in a particular style, such as country or top 40, choose AM, and those who want to be introduced to new music will tune to FM. Generally, Canadians probably tune to private FM stations strictly for the music and put up with the talk, tune to private stations for the music and a pick-me-up, and tolerate the talk, and tune to CBC AM for "real" talk radio.

BBM (Bureau of Broadcast Measurement) President Peter Jones says listener surveys indicate that the majority of people want what they want undiluted. If they turn on the radio to listen to music they don't want to hear a lot of talk; conversely, if they tune to a talk show of interest they don't want it padded out with musical selections. [8]

In large urban centres where many stations are available, informal specialization has already occurred, of course. Listeners know where to tune for good football, where to tune for 50's and 60's rock, and so on. Without a recognizable character,

i.e. a specialty, radio stations cannot attract audiences. Satellite U.S. all-music services offering all jazz or all rock established with border station outlets can, however, be assured Canadian penetration through cable.[7]

d)   **Current CBC Listening Reality**

In their current AM programming, CBC researchers have identified two problems which they believe account for their poor ratings amongst the under 35 public: Canadians today are less interested in political reporting -- they want information which concerns them directly, i.e. on health, family, how technology will affect their jobs, etc. -- and they want only the specific information in which they are personally interested. CBC has found that, even in already specialized arts programming they are losing listeners who want to hear about dance but not about drama, and listeners who want to hear a concert but not a concert interspersed with reviews and interviews. Broadening, both of the range of voices and opinions and of the variety of special-ized information programming, claim the CBC researchers, is mandatory. In any event, CBC's specialized programming is more popular than its general interest fare, and every survey examined indicates that audiences want specialized information about medicine, science, technology, food, housing, family problems, education, and other lifestyle information. Researchers believe that Canadians will pay for audio of a specialized nature, citing

the U.S. prediction of 60 million cable radio subscribers by 1990. At present, American broadcasters interested in audio cable are not pushing subscriptions because it is not yet lucrative to do so: 1.5 million people paid about $1.50 a month last year totalling only $27 million as compared with the total U.S. cable revenue of $4.4 billion. A block converter, however, capable of doubling the number of available radio channels, has been recently developed by two U.S. manufacturers. [7]

CBC researchers forecast, through extrapolation of survey figures, that there will virtually be no AM audience by the 1990's. They are not referring to their own services. CBC FM listening claims only about 2% of the total listening shares across the country, remaining quite constant from centre to centre and year to year. CBC AM listening shares are at least 6 times as great, on the average, fluctuate dramatically from centre to centre across Canada and change yearly, sometimes radically. [10] **It is the audience for private AM that is declining as the audience for private FM grows.** Private AM broadcasters have concluded that the medium, not the message, is at fault, and are counting on the coming of AM stereo to stem the tide. [7] But they may be wrong. Studies have shown that a surprisingly large number of Canadians are not even able to distinguish between mono and stereo sound in cars. It is not only the sound quality of FM which is more sophisticated than AM: FM programming is also more

sophisticated; that is, less "commercial" and more assuming of an intelligent audience. There is no evidence to suggest that the proportion of "audiophiles" (people cognizant of state-of-the-art developments in sound technology, and open to new music and audio experimentation) is growing. There is evidence of an aging and better-educated population who may increasingly require more sophisticated, quality programming.

e)   **Women Listeners**

There are additional statistics available which point to an increase in radio audience size, despite the declining birth rate, by 1990. For example, women listen to the radio more than men: [6]

SEX	AGE	% POPULATION OVER 6 YRS	AVERAGE # HRS LISTENED/WK IN 1983
Male	18-49	28%	18.4
Female	18-49	27%	21.1
Male	50-59	5%	19.1
Female	50-59	6%	22.7
Male	50 and over	12%	18.3
Female	50 and over	14%	22.4

Not only do women listen more in general but in the demographics where listening levels for women are highest (50-59 and 50+), women outnumber men. These figures are significant when the greater life expectancy for women (75 years by 1990 as

- 33 -

opposed to men's 68) [4] is taken into consideration. "Homemakers account for the high listening levels for women, and there will be increasingly fewer women at home by 1990", some might argue. But homemakers actually listen to radio less, on the average, than do clerical and sales employees. [6]

OCCUPATIONAL GROUP	% POP OVER 6	# HRS LISTENED/WK
Homemakers (both sexes)	14%	21.8
Managers/professional	14%	19.6
Clerical/sales	10%	23.0
Blue Collar	9%	18.2
Retired	7%	20.2

Full-time female workers listen to radio 3.3 hours a week more than full-time male workers. [6] Between 1982 and 1990 there will be a 9% increase in the number of women working if this increase continues at the same rate as it has since 1966. [11] Full-time female workers, in all occupational groups, actually listen to radio just slightly more than do homemakers, further, if, as is the customary pattern, a large proportion of the projected increase of women workers go into clerical fields, the total number of radio listening hours will again escalate.

Women listen more to Top 40 and private AM MOR than men do, in both French and English language programming, while men listen more than women to FM Rock and CBC FM. [6]

Middle-of-the-Road AM is by far the most plentiful and popular type of programming in Canada. But trends in education

and labour may gradually be producing a new audience with new listening needs - that of the educated, often single and childless, working woman. The gap between the number of men with degrees and the number of women holding degrees is closing. In 1961 there were 5 men with degrees for every 2 women; by 1995, if educational tends continue at the same rate as they have since 1961, there will be only 3 men possessing degrees for every 2 women. [9]

f)   **Labour and Leisure**

Working Canadians have been gaining a half hour of lesure time per week every 2 years since 1975. At this rate, the employed Canadian will work only 32.5 hours a week, gaining an hour and one-half more radio listening time from 1984. [6] Trends towards more part time and self-employment, as well as early retirement incentives and re-training programs, all partially the result of the employment situation in Canada, are affecting both potential hours available for radio listening and formats. The traditional weekday broadcasting format with its early morning and late afternoon prime time programming, produced for the early morning and late afternoon rush hours, is almost certain to be the first to reflect the impact of these changes.

If a sizable minority of the public is, by the 1990's working out of their homes, and computer technology will make

this more and more prevalent, then the greater proportion of talk radio (phone-ins, etc.) now heard during weekdays will no longer be as commercially viable. Background music to work by may be more in demand than today's morning talk aimed at the disappearing housewife. Already broadcasters are increasingly surprised by the number of men phoning in during traditional homemaker hours on radio, and the very gradual smoothing out of the peak listening hour curve. [7]

Another factor to be taken into account in tallying the greater potential hours for radio listening is the growing tendency towards in-office and in-store radio listening. More relaxed attitudes in the workplace account for the managers allowing in-office listening and the desire for an up-tempo shopping atmosphere which provides stimulation and pleasure for shoppers has caused more and more stores to invest in a high quality sound system. Such stores play, not Muzak, but radio (usually FM) at a middleground amplitude level. While there are no hard statistics to support this trend, complaints of "music pollution" provide some evidence of a growing syndrome towards broadcasting in public places.

Summation:

1. Radio listening increases with age: the size of the radio audience by 1990 will be larger due to an aging population.

2. Canadians over 35 and university-educated are the heaviest listeners to CBC: higher levels of education combined with aging may increase the demand for quality talk radio. In addition, the unique characteristics of the aging "babyboom" generation may call for innovations in talk programming.

3. Canadians want highly-focussed and personally relevant talk programming when/if they want talk at all: the majority desire more music on radio, less talk.

4. Women, the high-school educated, clerical and sales employees, and older Canadians are all heavy radio listeners. As the female life span lengthens and increasing numbers of women enter the work force, many of them into clerical fields with a high-school education, the size of the radio audience will increase. The growing contingent of well-educated female professionals, on the other hand, may comprise a presently unserved market whom, like the "baby boomers" mentioned above, will require new and innovation programming.

5. Due to various adaptations to the job shortage and to technology, leisure time is increasing: as a result, the amount of time available for radio listening is also increasing.

Conclusion:

The projected increase in the average number of radio listening hours per Canadian by 1990 (approx. 2 hours) provides justification and motivation for offering new services through the proposed expansion of the AM spectrum. Since this listening increase exists in potential only; that is, if the public is offered the same old programming and services, the projected increase will not occur, or at least not to the extent possible in view of the statistics, new opportunities must be provided. If **radio is to be used to its full potential new service development is essential.**

2. Social Trends and Value Shifts

Something unique, in terms of social history, seems to be occurring in late 20th Century civilization. Lifestyle options are increasing as areas of knowledge and interest, and the number of social variables operating, multiply. The result is a splintering effect. At last the individual is free to pursue any interest, hold any personal belief he/she chooses: but can someone be found with whom to share these interests and beliefs?

The uniqueness of the 1980's lies in the fact that, existing side by side with this splintering trend -- the phenomenon of choice overload producing minorities of one -- is a

seemingly contradictory trend: the generalized division of the public into only two groups, each with values strikingly at variance with the other.

The table below identifies, under two major headings, the two value directions which appear to exist simultaneously in our culture. The left hand column represents the mainstream, and the factors which have affected most people.

The right hand column represents an alternative value system which is the result of unfulfilled needs created by the existence of the social trends of the left column and the desire for alternative solutions.

WHAT HAS BEEN AND IS:	WHAT IS AND WILL BE:
FRAGMENTATION	**HOLISM**
specialization	cohesion
isolation	belonging
disconnectedness	unity
compartmentalization	integration
rigid time structuring	flexible time structuring
passive leisure	active leisure
political powerlessness	personal empowerment
OUTER-DIRECTEDNESS	**INNER-DIRECTEDNESS**
consumerism	self-reliance
disposability	conservation
concern with acquisition	concern with feelings
concern with image	concern with personal fulfillment
trust in authority	independent thinking

Purpose of Social Analysis:

The trends and values so far identified are very inter-related, making any discussion of them both complex and conjectural. such a discussion may, however, be worthwhile in light of the following points:

(1) There is evidence that a significant and growing minority of the Canadian public is at present <u>not</u> included in targeted audiences and whose needs are therefore going unmet by the media. Broadcasting appears to be lagging behind today's rapid social change, still serving the outer-directed majority.

(2) The development of services for the 1605 - 1705 KHz band, geared towards sizeable, identifiable minorities within the general public, in addition to uses aimed at much smaller minorities such as Native Canadians and third language groups,[*] is worthy of consideration.

(3) If broadcasters could be encouraged to comprehensively analyze current and future listening needs produced by rapidly changing values, and to create new services to fill these needs, advertisers would likely be attracted and, possibly, the economy enhanced.

---

[*] Some of these groups are already being served by conventional radio.

i)   Fragmentation and Holism

Unless Western Civilization is suddenly plunged into a new Dark Ages, ever-increasing specialization, due to the rapid proliferation of knowledge, is inevitable. The trend towards specialization is seen as existing mainly in the workplace, but it seems to have pervaded every aspect of life, including values. There is not only more knowledge and correspondingly more job titles, there are more groups to join, more courses to take, more services and entertainments to enjoy, even more potential sexual partners. In response to a situation of choice-overload, people are forced to "specialize" in their personal, as well as their professional lives; thus some get "into" fitness and do little else in their leisure time while some get "into" Dungeons & Dragons, playing the game whenever possible. Just as specializing professionally is desirable because it usually means a higher income and more status, so specializing in private life has become one of the few remaining avenues for the average person to receive public attention, since the media will cover individuals with eccentric hobbies and obscure areas of expertise, as well as risk-takers and personal dream fulfillers.

a)   Effects of Specialization

In broadcasting, the corollary to the specialization trend is, of course, narrowcasting. In a society where time is money, free time is valued. Because as well information overload,

with its consequent over-stimulation, is rampant, narrowcasting on radio is desirable because it frees time. With it, it is no longer necessary to wade through an hour of magazine programming for one item of interest. Narrowcasting reduces unproductive stimulation: it means no surprises and that in itself is less stimulating than generalized broadcasting, particularly that produced by music constantly interspersed with talk. Narrowcasting also represents a source of personal power stemming from the element of personal choice involved on the part of the listener.

The phenomenon of fragmentation is a less desirable but unavoidable by-product of over-specialization resulting from the information explosion. It produces feelings, in the individual, of disconnectedness and isolation, and a society more and more coming to resemble the type of thinking necessary for understanding computers; that is, a society composed of a succession of bits of information.[12] This trend is reflected in the game "Trivial Pursuit", where people who are able to retain many unrelated bits of information are rewarded. Another manifestation of the trend towards fragmentation can be observed in the popular children's television show, "Sesame Street". Shows are composed of brief highly-edited scenes which switch rapidly from serious to humourous, cartoon to real characters, fiction to non-fiction, and so on. It has been found that certain isolated

African tribes can make no sense of such shifting images, even when translated into their own language, yet our children are being trained from an early age to follow and enjoy rapidly changing scenes and topics. The ability to do so is sometimes called visual sophistication: a more pessimistic term might be collective schizophrenia at the incubation stage.

In modern novels also, the number of scenes or chapters is increasing while being reduced in length to brief vignettes of sometimes only half a page. This fragmentation tendency, which, in entertainment forms, creates a faster and more stimulating pace, can also be explained by the visual invasion. As novelists are writing scene-like novels with action and contrasting settings in mind, hoping for phone calls from rich movie producers, so musicians are writing songs with the flickering images of music video in mind.

The public seems to have an almost insatiable desire for visual dramatization, or simply, for stories. Innovative fashion lay-outs in magazines are now being unified through a narrative thread; there is also a greater tendency to use fewer different models (sometimes only one) for a multi-page spread. Informative, non-fiction articles are often personalized by the use of introduction or interspersed fiction. "Old radio revival", consisting of serialized, audio drama and comedy, is one of the 10 specialized services U.S. broadcasters believe

their public would buy (although pay radio is not considered lucrative enough for the 1980's to merit intensive development).

The public's craving for stories is an indication of the need for unity and personalization produced by the fragment-ation effects of over-specialization in the machine age. No matter how fragmented plot elements in novels and visual fiction become, consumers can at least rely on there being characters who remain constant and with whom personal identification is possible. Characters provide the unity and cohesion in many of today's over-edited products in both the advertising and enter-tainment fields. In music video, it is the music, with its soon recognizable themes and repetitive choruses, cropping up like familiar faces, which provides that necessary unifying element (and which also ensures the potential for unlimited, creative visual experimentation).

In summary, much in specialization and its corollary in broadcasting narrowcasting, may be essential to cope with today's individually narrowed but collectively multifarious interests which result from choice-overload. The negative byproducts of disconnected and isolated feelings have produced in people an equally strong desire for unity and cohesion (generalization and interdisciplinary thought), and personalization, all of which reduce the negative effects of fragmentation. A further trend supporting the existence of these new needs is the increasing

- 44 -

publication of qualitative, journalistic research, as opposed to the quantitative research of scientists/academics. Gail Shecky's still popular non-fiction work, Passages, is an example of the new journalistic research. Passages blends the sugar of personalization, through interspersed fictionalized narrative -- this comprising the quantitative aspect -- and cohesiveness, through leaps of logic and models which serve to connect and relate concepts, with the medicine of keeping informed, represented in the book by a valid survey with statistics -- the quantitative aspect necessary for credibility.

On the interpersonal level, the need for unity and belonging expresses itself in the proliferation of groups organized for every conceivable minority, interest and cause. In keeping with a view of society as a complex mass of opposing trends and values, the late 20th Century could be called the Age of the Group or the Age of the Individual, and both statements would be true.

The Holistic movement, which, interestingly, came into being at about the same time that the significance of developing technology could no longer be ignored by the public, is the most widespread and organized response to the trend towards fragmentation. "Teaching to the whole child", "holistic health", person-centred psychotherapy: all the service, person-oriented professions, including Personnel Management, have been influenced by

the desire for a oneness which will counteract the unavoidable effects of a fragmenting society.

b)   **Integration**

The prevalence of compartmentalization -- a time, a place, a name for everything, role-playing, etc. -- has catapulted the notion of self-integration into a modern ideal. The borderlines between living, learning, working and playing are gradually dissolving due to more productive use of greater leisure time. According to the Canadian Trend Report (CTR), time structuring has traditionally been predictable and the passive use of leisure regarded almost as a status symbol.[5] Today, because of the flexibility in time structuring caused by part-time work, self-employment and working out of the home, unemployment, staggered work hours, maternity leaves, periodic re-education, etc., using leisure time productively in do-it-yourself fitness or educational activities, is highly regarded. The mass media and the mass market were successful because it was possible to predict where most people would be at a given time. Less rigid structuring of time is not only causing the gradual disintegration of the mass market, while encouraging more specialized services, but is also creating an optimistic outlook for the future of radio as the ideal medium for a more mobile population less regimented in its use of time. [6]

c) Empowerment

CBC researchers have found that people today believe they cannot change anything. Many feel powerless in the face of a massive bureaucratic/political/technological machine which seems to grind inexorably on with or without their consent or input. CBC attributes this trend as being responsible for their listeners' current disinterest in the kind of political reporting CBC offers in abundance. [6]

The recent proliferation of workshops on "personal empowerment", offered in urban centres, are evidence both of the powerlessness people are experiencing and of how they are dealing with it; that is, by taking charge in the personal sphere and focusing inwards on the things they _can_ change.

ii) Inner-directedness and Outer-directedness

The CTR has identified what they call the "new conservatism" as replacing the "old consumerism"; the latter characterized by affluence, a high demand for more and better products and services, the mass market, a lifetime job, a highly structured working life and a traditional view of leisure as "time off". The "new conservatism" is characterized by frugality, a desire for self-reliance, scepticism in consumer behaviour, flexibility, more attention to quality less to quantity, and a demand for information as opposed to "image".[6] According

to the CTR, these attitude shifts away from the traditional values of the consumer society are a response to the state of the economy and are long-term. What the Canadian Trend Report has called the "old consumerism" and the "new conservatism" could be termed the old materialism and the new person-centred trend, or simply, outer-directedness and inner-directedness.

The striving towards self-reliance is often indicated by conservationist attitudes: its adoption as a new value, often accompanied by extreme caution is a result not only of the state of the economy, but also of disillusionment in personal relationships -- a sad reflection of the disposability of spouses and consumer items alike. The rise in independent thinking, contrasted with the more traditional collective trust in authority, can in large measure be attributed to greater educational attainment.

The new inner-directedness has both a positive and a negative aspect. The positive lies in the new concern for feelings and personal fulfillment as opposed to living only to keep-up-with-the-Jones'; many people in the 1980's are as concerned with the state of their spiritual lives as they are with outward success. The negative aspect of the trend towards inner-directedness is, of course, the danger of unproductive self-centredness.

3.   (i)   **Response of the Broadcast Industry**

How are current broadcast services responding to the divergent social trends of fragmentation and holism, innner-directedness and outer-directedness?

Canadian radio services are perhaps still satisfactory, but as every year brings more information and change, redundancies such as the traditional airing of news every hour on the hour on almost every station, may become insupportable. The reliability factor of news, sports and weather on the hour is valid but the duplication of services seems wasteful.

Competition for the attention of consumers in a mass market situation consists of duplication of essentially the same services, each striving to be better than the others. Competition for the attention of consumers in a fragmented market will be based on filling the needs of new targetted groups of consumers and the deliberate avoidance of duplication. Radio stations will offer the reliability factor in the form of new narrowcast services but dispense with the increasingly impractical duplication factor.

The broadcaster's response to a fragmenting society will be to want to offer more and more highly-specialized, and therefore narrow, services. Some of these, however, could be developed with counter-trends in mind; for example, a service

aimed at the rising number of holistic-thinking people, most of whom are inner-directed. In such a way, the negative effects of increased specialization-fragmentation -- might be mitigated through the very use of greater specialization in broadcasting. Another specialized service which would answer the need for community arising from societal fragmentation might be an audio networking service. The major programming objective of such a service would be to help people with like interests, beliefs or concerns find and communicate with one another.

After careful analysis of audience surveys, CBC researchers compiled the following priorities for specialized audio services: [7]

1. classical music, not much talk;

2. pop music, not much talk;

3. all news and current affairs analysis;

4. children and youth;

5. business and resources - information

6. health, consumer information, how-to-do-it, religion, etc.

7. arts - 75% talk and 25% music;

8. variety - comedy, plays, games, quizzes;

9. experimental music for "audiophiles".

U.S. priorities include four, as opposed to CBC's two, specialized music services (all jazz, all classical, all country, all

rock and roll); a news and information and a childrens service similar to those in the CBC outline; separate services for comedy, sports and religion; and the "old radio revival" service. Missing from U.S. plans are a fine arts service and the practical information/ consumer service described in number 6 above, which the Canadian Trend Report indicates Canadians want and need. The other major difference between the two lists of priorities is the preponderance of talk in the CBC plan, something which does not correspond with BBM (Bureau of Broadcast Measurement) audience surveys. These indicate that Canadians want more music and less talk on radio. In a U.S. study looking at future employment opportunities in broadcast journalism, it was found that jobs in radio are expected to increase for outside program suppliers as radio broadcasters increasingly rely on syndicated and network programming. The programming situation in U.S. radio will be almost the opposite of that in television, with radio concentrating on music, supplemented by networks providing specialized programming, and TV experiencing an increase in the amount of local news and locally produced programming. [13]

The apparent contradictions in audience needs, and the way in which these needs can be satisfied, is symptomatic of the problems which will continue to arise as a predominately mass audience philosophy is challenged by the necessity to accept increased service specialization.

Because audiences have only experienced radio as it is now, their perception of how it can respond to changing needs is also somewhat unreliable as a guide to radio's future role.

What is required are new techniques to assess listener needs and to define audiences.

(ii) New Methods to Target Audiences

An undercurrent running through this year's U.S. conference for the Radio Advertising Bureau and the Association of National Advertisers was the dawning realization that past buying strategies, based mainly on listener ratings, are no longer satisfactory for either stations or advertisers; instead, changing social trends must be considered along with the traditional target methods of demographics, in buying radio.[14] New research services presented at conference workshops included Arbitron Ratings Company's Target AID, which breaks down station listeners by lifestyle and product potential, and McCollum/Spielman's SHAPE, which groups consumers according to attitudes towards health and fitness, the products they use, and their use of radio.

The most comprehensive system yet devised, however, is called VALS - a marketing system developed by the Values & Lifestyles Program of SRI International in California, formerly the Stanford Research Institute.[15] VALS has broken consumers into nine types, as shown below:

```
                    Integrators
                   ↗         ↖
                  /           \
    OUTER-DIRECTED      INNER-DIRECTED    | ← NEED-DRIVEN →
       Achievers      Societally-Conscious|    Survivors
       Belongers         Experiential     |    Sustainers
       Emulators          I-Am-Me's       |
```
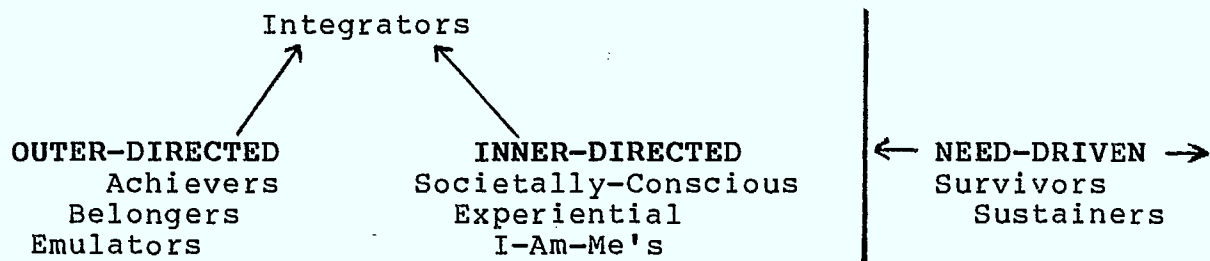
Integrators, who currently represent only 2% of the American population, have transcended the three general attitude categories of outer-directed, inner-directed and need-driven. The oblique arrows leading towards "Integrators" signify that, initially, either an outer-directed path or an inner-directed path may be taken on the journey towards the VALS ideal of integration: where and when these paths cross, in the individual, is the point at which he or she becomes integrated.

The horizontal arrows around the need-driven category signify that this path leads nowhere. The "Survivor" type is need-driven in terms of basic needs for food and shelter while Sustainers are represented in VALS by the down and out alcoholic or addict. Although 11% of the American population is in the need-driven category, they are understandably of little interest to the advertising industry.

Currently, 68% of the American population has been identified as being outer-directed, and 19% as inner-directed. SRI projections, made by psychologists and academics, indicate that by 1990, inner-directeds will make up 60% of the population.

More conservative estimates in the marketing field predict inner-directeds will increase to one third of the population by 1990.

According to VALS theory, the outer-directeds make up the conformist acquisition population, while the inner-directeds are characterized by individualism, experimentation, direct experience, naturalism, appreciation of diversity and taste, and the valuing of processes rather than things.

In the outer-directed category, Achievers are the affluent fast-track winners of today's materialistic competitive society, although many of them may share some of the new directions in values of the inner-directed. Belongers comprise the remains of the mass market (Mr. and Mrs. Middle America), and Emulators, who are the least affluent of the outer-directeds, are made up of all those still looking for that lucky break and longing to be Belongers. Amongst the inner-directed, many of the societally-conscious may also be quite affluent, although affluence for its own sake has not been their goal. The Experiential type, now composing 5% of the population, is the fastest growing group and of great interest to marketing researchers. I-am-me's, symbolized in VALS by a defiant young rock musician, comprise 3% of the population.

The Achiever and Societally-conscious types, through very different means, show a tendency to ultimately arrive at the

same place; that is, to affluence and ideally, to integration. Belongers and Experientials represent most clearly the old and the new values. Emulators and I-am-me's are polar opposites -- both types have a long way to go on their respective paths towards contentment and integration.

In Canada, CBC keeps, through its research department, a close check on listening trends for both public and private radio, across Canada. An extrapolation from recent CBC Audience tables [16] shows that CBC AM listenership in St. John's, Nfld. dropped from a 21% to a 14% audience share between the Fall of 1983 and the Spring of 1984, due to the addition of only one FM station. Since CBC AM has a reputation for delivering relevant local programming and the Eastern provinces constitute the lowest percentage of FM listeners by far in the country, examination by broadcasters of the reason for the dramatic shift in listener loyalties could be useful. It would appear that, in the example of St. John's, a previously unmet listening need in the community was suddenly filled.

Close analysis of local listening needs in Canada does not always seem to occur. Broadcasters tend often to offer programming based on time-worn assumptions. Extensive listener surveys are conducted but these don't indicate what people really want, only what they will choose given a limited number of available services.

Identified trends towards greater self-reliance, independent thinking and personal empowerment might seem to indicate an increasingly more vocal public, demanding the services they want, more community access to radio, etc. These same trends, however, considered together with the do-it-yourself phenomenon which has spread from home repairs to health and self-help to entertainment (home video music production, airband contests, breakdancing) may result in simply turning off the radio if it is not providing relevant services and doing-it-yourself. As outlined earlier, the potential exists for Canadians to listen to radio several more hours a week by the 1990's than they currently do. It may not be realized if broadcast services do not keep pace with the diversification of listeners' values and needs.

The findings outlined in a 1981 document from Aleph Consultants [17] lead to a conclusion that there is no detrimental effect on audiences associated with large numbers of competing AM stations and that it may, in fact, be beneficial to increase the number of competing stations in order to provide diversity. The authors make this comment:

> "...results show that the current broadcasting environment does not appear to cater to the needs of all sectors of the population equally and that the under-representation occurs most clearly with respect to minority mother tongue."

What results, in terms of under-representation, might show up if socio-typing techniques such as VALS, and penetrating local research, were conducted to determine listener needs and potential audiences?

To conclude: in determining future radio services it will be useful to take into account:

1. The increasing demand for specific information/ specialized services;

2. The answering need for community;

3. The emergence of new target audiences based on changing values and local needs.

4. Existing Special Services

Canada has already acquired a considerable amount of experience in relation to the provision of community and minority services. What has been achieved represents a significant development in alternative uses of radio. Nevertheless, much more needs to be done if the full potential of radio is to be utilized. In many ways the progress made thus far points up some of the difficulties which are likely to develop as other specialized forms of radio service are introduced.

a)   **Native Services**

Although considerable progress has been made with the use of radio in serving the needs of native communities, the future needs of native peoples will force an increasing reliance on the use of broadcasting and the newer communications technologies, such as satellites. As well, all indications point to the fact that radio will continue to be an essential element of community communication and cultural expression.

Because of the increasing invasion of programs from other cultures the demand for the use of, and the control of, radio services by native populations can be expected to grow. These demands are likely to take two forms, the improvement of existing native radio services and the creation of more opportunities to access the present broadcasting system as well as to establish new radio broadcast·facilities and services.

In addition to the locally owned and operated community radio facilities, considerable progress has been made with the provision of government assistance to set up and operate regional production centres, designed to ensure that a significant amount of broadcast programming relative to the needs of native people is available on radio and television services in the region.

At present, native communications societies in a total

of thirteen regions across the north are now receiving funds to produce Native-language regional broadcast programming.

The relation of such activities to those undertaken by the individual communities is likely to be one of the most critical matters to be addressed in the future. Obviously the local community operated radio services should be able to access and use the regionally produced materials, but a way needs to be found to achieve this so as to not weaken the autonomy of the local community stations.

Ideally the local communities should be able to select those programs produced by the regional centres which they wish to include in their own local services. In finding a solution a balance will probably need to be struck between operational efficiency, cost, and the retention of local autonomy. In this respect the technology chosen to achieve the distribution of the regional programmng becomes a prime factor in improving the utilization of native radio.

At the local community level there is likely to be increasing pressure to extend the range of local transmitters. At present low-cost radio transmitters, primarily operating in the FM frequency band, serve small pockets of populations. These community transmitters are extremely effective in meeting the

needs of the immediate community. Because the communities are small, often with less than 200 people, low power transmitters can be utilized enabling costs to be kept low.

Finally, there is a need to expose southern societies to native cultures both with the objective of dispelling misunderstandings and to bring the rich cultural heritage of Canadian native peoples into the mainstream of Canadian life.

While there is an understandable focus on the needs of northern communities there are also significant native populations in the south. If radio is to become of increased value in a social context these needs must also be taken into account. Often the needs of native peoples who have migrated to southern towns and cities are more complex and more pressing simply because effective integration and acceptance in a southern society takes time, and is fraught with difficult social and behaviourial adjustment problems.

The difficulty is that most of these populations work on the land, often spending long periods out of reach of the present community transmitters. If effective community services are to be established they must be able to cover both the fixed and mobile aspects of community life. This is clearly a need which exists now, and which will grow in the future as more isolated communites elect to use radio facilities.

b)   **Ethnic Minorities**

Some 13% of Canada's total population of 24,343,180 reported a mother tongue other than English or French in the 1981 census.   Some 1% of this 13%, or 267,175 people, represent Canada's original native peoples while the balance, some 12%, represents persons other than those of English or French origin who have reached Canada as a result of immigration.

There appears to be two primary ongoing needs of these peoples.   They must face assimilation into a predominately English and French speaking society and culture.   They seek to retain links with their cultural heritage through visits to their country of birth or origin or through exposure to the customs, events, and expressions of life in the homeland.

In this latter regard the media fulfil a prime role, offering an effective way of keeping-in-touch with ones cultural roots.

The role of multiculturalism in a bilingual society has been the subject of much debate and discussion in Canada but the prevailing view seems to be that recognition of the existence of Canada's multicultural heritage can only serve to enrich the society as a whole.

In October, 1971, the Government announced a multi-culturalism policy:

"Termed a 'policy of multiculturalism within a bilingual framework' (Prime Minister's statement, House of Commons, Oct 1971) it sought to encourage the retention of characteristic cultural features by those groups which desired to do so, and to encourage the sharing of these cultural features with other members of the larger Canadian society. The policy was based upon the assumption that if an individual is to be open in his ethnic attitudes, and have respect for other groups, he must have confidence in his own cultural foundations. Given this assumption the policy is also designed to 'help break down discriminatory attitudes and cultural jealousies'. In essence the policy asserts that in Canada, 'although there are two official languages, there is no official culture, nor does any ethnic group take precedence over any other....'

18

Nothwithstanding the value of broadcasting in realising such objectives there is no specific reference to multicultural or multilingual services in current broadcast legislation. As a consequence of this the provision of multicultural/multilingual services has represented a service option. In practice, almost all of the initiatives taken in respect to the provision of multicultural/multilingual services have come from the private broadcasting sector.

Until the advent of cable television such activities have been limited by the availability of frequency spectrum and by the difficulties of deriving sufficient funding for ethnic services.

This situation is likely to change in the future because of the increasing capacity of the broadcasting and commu-

nications system, and as ethnic groups become more aware of the value of using the electronic media to provide ethnic programming, specialized information, and increased opportunities for community communication and self-expression.

Nevertheless, a number of difficulties will have to be faced:

- Ethnicity tends to be measured in terms of the numbers of people whose mother tongue is neither English or French. This group contains some 60 individual languages and dialects.

- The result of the foregoing is that the area-by-area distribution varies greatly. Even within large metropolitan areas ethnic population concentrations vary by municipalities and neighbourhoods.

- Ethnic minorities demonstrate a strong desire to control their own programming.

The use of broadcasting and communications has therefore evolved in two ways, the use of radio frequencies to provide composite ethnic services, and the use of cable to provide program services directed to specific ethnic minorities.

It is evident that in the future there will continue to be a need for both types of service although the demand for the

latter will likely grow as more space becomes available in the broadcasting and communications system.

These needs will also be influenced by immigration patterns. For example, in 1984 net immigration to Canada is estimated to be between 40,000 and 50,000 persons. Furthermore, net immigration is expected to climb steadily in the period 1984 to 1995 reaching a figure of between 50,000 and 100,000 persons per year by 1995. [19] *

Given these factors, and bearing in mind the CRTC's recent proposal for An Ethnic Broadcasting Policy, there is bound to be an increased interest in, and demand for, ethnic broadcast services in the future.

c)   **Community Radio**

The use of the broadcast media in Canada for community communication and self-expression has largely devolved upon cable television.* It is difficult to understand why this has happened given the fact that radio is much simpler to use than television and much less costly to operate. Certainly, a primary reason is

---

19 * Immigration is directly affected by Government policy and changes in this policy could change such predictions.

*   The exception is represented by northern native communities who have made full use of the potential of radio.

that the resources of cable community channels are provided at no cost to citizen participants, and as well the concept has been the subject of specific CRTC policies.

By contract, community radio stations in Canada have not generally been able to find stable sources of funding, except those stations in Quebec which have been financed by the Provincial Government.

Overall, there is little evidence to suggest that a strong need exists for community-run radio stations. Even the CRTC's encouragement of community access to conventional radio stations does not seem to have generated much excitement.

This dilemma is also reflected in the gradual shift of community cable programming from high orders of citizen participation and control and influence over programming, to cable company produced programming assisted by community volunteers.

In spite of this, radio broadcasting will continue to represent a simple and effective medium for community use. Its value in the past has probably been neglected because of the emphasis given to cable and the community channel but this would not appear to be sufficient reason to ignore its value for direct community use. It may well be that the immediate future will see an increased interest in community radio. Ironically, this interest may develop out of Canada's extensive experience with

cable community channels and out of a more realistic appreciation of the possibilities and problems of using television as a means of community communication and expression.

In any event, the problems of finding more effective ways to finance community radio will remain, even though the ability of the broadcasting system to provide capacity for this purpose will increase.

d) Student Radio

Like community radio, student radio in Canada has faced considerable difficulties in sustaining adequate levels of funding. Only the CRTC's willingness to relax its rules regarding the carriage of advertising has prevented its possible demise. With some 16 stations now in operation across Canada, immediate needs have probably been satisfied. As well, it seems unlikely that the demand will increase to any significant degree in the future unless the concept is given greater encouragement and new revenue sources become open to it.

Nevertheless, it is important to recognize the enormous value of this type of service and its persuasive influence on conventional radio. It is from student radio that many interesting and innovative ideas have emerged to challenge the long established practices of conventional radio.

As a group, the student community should be recognized as an important resource of creative ideas which must be encouraged to continue to participate in radio broadcasting.

e) **Government, Business and Educational Uses of Radio**

As has been established, societal changes, coupled with major changes in the working environment, will create a steadily increasing future demand for specialized information. As well, the need for instructional and educational programs, particularly those oriented to re-training and adult education will also increase dramatically.

The flexibility and mobility of radio is ideally suited to the more mobile lifestyles which can be expected to evolve over the next decade.

Given the impact of new technological developments (already outlined) radio will be well equipped to handle data and information and to provide interactive facilities which can enhance learning and instruction at-a-distance.

Decoded signals can also facilitate privacy and enable fees to be charged to users for instruction and for the provision of specialized data and information.

There is also likely to be an increased interest in using radio spectrum as a supportive element of other media

services. Using radio as a sound channel for drive-in theatres is an example of this.

Conclusions

Technological and social change is creating the possibility for, and the necessity of, a wide range of specialized radio services.

Ideally, new radio services should be developed with the following basic objectives in mind, to:

-   Improve service diversity;

-   Seek out and serve communities of interest;

-   Serve the needs of individuals;

-   Improve community communication and expression;

-   Serve minorities;

-   Create new entrepreneurial and business opportunities;

-   Develop and give opportunities to Canadian talent;

-   Allow scope for Canadian innovation.

References

1. See, Communications Satellites Move to Higher Frequencies, High Technology, November 1984, Page 48.

2. Extracted from the Home Satellite T.V. book, by Anthony T. Easton, Wideview Books, U.S.A., Circa 1982.

3. See, Radio Distribution Via Satellite, A technical paper prepared for Telemedia Broadcasting Systems by Philip A. Lapp Ltd., 1983.

4. Multi-mode AM Stereo receivers are being developed to handle the problem of receiving four different stereo broadcast modes. See Electronic Media, September 27, 1984, page 26. See also, CFRB tests AM Stereo Receiver. CFRB of Toronto installs Sansui Electric multi-mode AM Stereo receivers in several of its cars to test its AM Stereo broadcasts, Globe and Mail Report on Business/Marketing and Media, May 2, 1984, page B.9.

5. Population Projections by Sex and Age Groups, for Canada, Provinces and Territories, 1984-2006, Demography Division, Statistics Canada, 1984.

6. How People Use Radio: A Review of Radio Listening Habits, CBC Research, 1983.

7. The English Radio Development Project, CBC Research, 1984.

8. Telephone interview with President of Bureau of Broadcasting Measurement, Nov., 1983.

9. The Changing Education Profile of Canadians, 1961 to 2000: Projections of educational attainment for the Canadian population and labour force, G. Picot, Statistics Canada, 1980.

10. Audience Report: Weekly Audience to CBC-owned Radio Stations Spring 1984, CBC research, 1984.

11. An Overview of Employment Developments: 1980-1982, Labour Force Activity Section, Statistics Canada, 1983.

12. An interesting perspective on this question is provided by "The Second Self, Computers and the Human Spirit" by Sherry Turkle, Simon and Schuster New York, 1984.

13. "Study Scans the Future of Broadcast Journalism", Craig Leddy, Electronic Media, Sept. 6, 1984.

14. "New Ways to Sell Radio are Emerging", Elizabeth Jensen, Electronic Media, June 14, 1984.

15. "Beyond Demographics", James Atlas, The Atlantic Monthly, October, 1984.

16. Audience Report: Audiences to CBC-owned Radio Stations: Fall 1983, CBC Research, 1984.

17. The Social and Economic Considerations of 9 KHz Spacing for AM Radio in Canada: Opportunity for Development, Aleph Consultants Limited, 1981.

18. Extracted from Multicultural and Ethnic Attitudes in Canada, Minister of State for Multiculturalism 1977, Pages 1 and 2.

19. Based on data provided by the Policy Development Division, Employment and Immigration Canada.

20. For more information on this subject see "Cable Community Programming in Canada", Rogers Cable Systems, Toronto, 1982.

PART 3

SERVICES FOR THE 1605 – 1705 KHz BAND

Defining Service Parameters

Given the importance of developing new types of radio services to respond to both present and future needs and expectations, what form might these services take?

Whether any particular type of service evolves at all depends on many factors such as economic viability, competition, the regulatory environment, and technological advances. Nevertheless, given the preceding survey of likely future service needs, and taking account of the potential of radio to fill these needs, it is possible to identify various types of services which are likely to be required.

It can be seen that what is involved here is no less than a review and reassessment of all radio services, not with the objective of necessarily changing what has or is being done, but with the expectation that radio broadcasting can be more effectively utilized to respond to changing conditions in Canadian society.

With these factors in mind it can be seen that the opening of the 1605 - 1705 KHz band provides a unique opportunity to allocate new radio spectrum space to new service development. Because this can be done without disrupting existing services a fresh start can be made which does not have to follow past practices. Perhaps most important of all, it allows for the

entry of new ideas and new entrepreneurial skills without the necessity of interfering with established radio broadcasting activities.

Because of the enormous importance of this opportunity for the future of radio it is the conclusion of this study that any attempts to regard the opening of the 1605 - 1705 KHz band as a mere extension of the present AM band, with the implication that it should simply allow the improved accommodation of the present genre of radio services, should be strenuously resisted. Radio broadcasting must be given the opportunity to change and adapt if it is to survive as an effective element of future broadcasting and communications systems. Opening the 1605 - 1705 KHz band to new service concepts can provide an essential catalyst to effective change in radio broadcasting in Canada.

What follows is a description of various types of services which might be developed to occupy the new spectrum space. Such a listing cannot be offered as a definitive pre-scription for new radio services. It is meant to provide ideas, to stimulate interest and to create a greater awareness of the need to effect major changes in how we regard and use radio. Overall, it is offered as the beginning of a planning strategy which can be used to introduce new radio services in the 1605 - 1705 KHz band.

To aid in an understanding of the problems, possibilities and operational considerations likely to arise in considering new service concepts each of the services described will be examined, where relevant, in a number of ways:

a) The type, format and content of the service. this will look at such factors as the possible subject matter, likely users, sources of content.

b) How the service might be funded. For example, advertising, grants, subscriptions. This will involve some assessment of how the revenue might be obtained, i.e. classified advertising, government and large corporation sponsorship, etc.

c) The structural and administrative arrangements for providing the service. This would examine various forms such as commercial, non-profit, and public institutions, independent groups and individuals. Where appropriate, consideration will be given to ownership arrangements, levels of responsibility, etc.

d) Operational factors. The expected time allocations required. The arrangements for production and distribution of content. Types of staffing, etc.

e)   Impact on other services.   This will be generally expressed as a value judgement since little in the way of hard data can be obtained in advance of the introduction of the service.

f)   Competition.   The types of services which might represent competition to the new service.   For example, videotext and teletext, cable-based services and cable networks, electronic mail services, etc.

To aid in this presentation it is convenient to group the services under various general headings, such as:

1)   **Commercial**

In general, these are services which might have commercial possibilities.   This means that they might represent a reasonably attractive business prospect, and are likely to be taken up by entrepreneurs wishing to explore new service possibilities.

2)   **Community Services**

These are services created primarily as the result of community initiatives.   They may initially involve individuals and small groups.   Overall, they are services not generally motivated by commercial considerations or by the informational and social service

objectives of government or other public service type programs.

3) Government Services

This covers services which are largely funded by public service institutions. As such the services are not likely to be commercially viable, i.e. public funding is an essential component of service viability.

It is important to stress that these categories are merely being used to aid this presentation. In practice, as we shall see later, the various types of services may well be combined. While there is a primary stress on the use of AM for "talk" programming, since the dominant need is for information, it should not be concluded that music is excluded. In fact, music will form an important component of many of the services although it is less likely to be used as a "background", i.e. a passive listening device.

1) Commercial

a) Health Services

Under this heading a number of specialized needs can be identified such as self-diagnosis, nutritional advice, exercise programs, leisure activities, various types of relaxation programs, medical advice. As will be apparent in other cases any

one of these topics could be broken out to form a special program service of its own, such as nutrition or exercise programs. [1]

The content and format of these various topics would likely be oriented to specific target groups. As a result, a variety of special formats are possible. For example, exercise and leisure programs might be designed to exploit the portability of radio as a direct element of the actual activity. Joggers might be provided with pacing or background music programs or business persons with relaxation techniques that can be under-taken in a mobile work environment.

The funding of such services are likely to come from advertising and/or sponsorship although pay-per-use funding may also be practical. This latter method might be especially appro-priate for the more specialized services for which a price could be placed on the value of the information being provided.

The structuring of the organization providing the service would probably need to be different from that used in conventional broadcasting. for example, a group of experts in a particular field might constitute the source of the program content which is then bought by the distributer, i.e. the radio station.

The scheduling of the programming would likely be especially critical in view of the fact that most of the activi-

ties relate to a specific time of the day. On the other hand, some topics clearly reflect the need for a sort of on-demand capability, where the information can be accessed as and when required.

The impact on other services would appear to be generally low given the fact that the content is fairly specialized. It is therefore unlikely that these kinds of services would have a major impact on existing mass-appeal services.

As far as competition is concerned it is likely that service specialization of the type described will be occurring simultaneously in other broadcasting and communications media as well as in publishing, particularly as it moves towards electronic publishing. Competition is likely to be strong with radio holding the primary advantage that it is a mobile medium.

b)   **Family Services**

Because family structures are likely to continue to change there will be an increasing need to recognize special needs such as, single parent families, mixed marriages (especially racial mixes), day-care services, in-house counselling for parents and children, family planning, etc. As in the case of health services, any one of these topics could constitute the basis for a single service.

The content and format of the services would likely be designed so as to establish a continuity with particular family structures. For example, a program service devoted specifically to single parent families would already fill an existing need. In this case mobility of the listening location might be less important than in the case of health services. This is an example of how the style of the service might provoke collective activities rather than necessarily an individual experience.

The funding could be advertising and/or sponsorship. Pay-per-use might also be practical.

As with health services, considerable expertise would be needed to develop effective content. As a consequence, the content might be developed by commercial or non-profit groups operating under a separate organizational structure or ownership from the distribution facility, i.e. the radio station.

The impact on other services is likely to be low although such specialization will likely create fragmentation of audiences to existing radio services.

As with health services competition is likely to intensify with all media seeking greater subject specialization.

c)   **Home Upkeep**

This general area is likely to embrace a number of

topics such as do-it-yourself projects of various kinds, information on maintenance, budgetting, mortgaging, real estate, automobile operation, etc.

With single home dwellings decreasing in favour of multiple dwellings a whole host of new issues are likely to emerge such as security measures, privacy, property rights, fire prevention, etc.

The content and format of the programming is likely to be considerably influenced by the special needs of the target audience. For example, it is not unreasonable to imagine special formats beamed to the residents of high density dwellings, especially in large metropolitan areas. This might result in specific programs for specific areas of a city, even specific building complexes.

The funding would likely be advertising and/or sponsorship. As well, subscription services might be offered based on product or service promotion, for example, the buying or selling of accommodation or automobiles.

Since existing radio services already cover some of these matters in a general way it might not be too difficult to re-orient present activities to produce these kinds of services. At first, it might be prudent to include such activities within

the present operational structure, providing the specialized service only at selected times within the broadcast day.

These types of service, perhaps tied more to commercial product retailing and commercial services of various kinds than is the case with Health and Family Services, are more likely to have an impact on establshed services. In general, however the impact is not likely to be overly severe.

Because of the somewhat greater opportunity for commercial support these services are likely to be offered by competing media. For example, teleshopping via videotext and teletext.

d) **Services Based On Sex And Age Groups**

As we have seen, conventional radio has long recognized the importance of demographics in selecting target audiences. Clearly, this trend will intensify as more sophisticated methods of searching out audience needs and preferences are devised.

Tastes in music and entertainment, requirements for news and information, and the ongoing search for content appropriate to ones lifestyle, all represent quite different and often very distinct needs which can be identified with various age groups, from the very young to the very old and oriented specifically to male and/or female listeners.

In the light of this, it is possible to envisage separate services targetted to very specific age groups, and to either or both sexes, for example, young children, teens, young adults, middle-aged and older persons.

While it might be argued that this will result in creating a further degree of isolation between generations and sexes, the reverse effect may in fact occur. After all, much of the present radio programming is generalized and directed at large segments of the population, a situation which could be improved upon with a more determined effort to serve all members of the community with programs more oriented to individual needs.

The funding for such services could come from commercial advertising and/or sponsorship.

Existing radio stations already tend to target their programming to specific age groups and what is being envisaged here is but a further refinement of this practice.

As far as scheduling is concerned, existing daily broadcast schedules place various age groups into differing time slots, an understandable outcome given the existence of a limited number of radio stations. As system capacity expands and programs specialization becomes more practical, one might expect to see schedules which follow a given age group and/or sex

through a full days activities. In this way a more meaningful
response to any given audience's needs becomes possible.

This type of programming illustrates the way in which
the present "mass" audience philosophy will give way to special
interest programming. Because of this, the impact on existing
service formats will be high. [2]

As well, increased competition can be expected as
various other media such as cable and television seek to intro-
duce the same strategies.

e)   **News Services**

News and public affairs represents one of the most
popular forms of Canadian broadcast programming. The concept of
all-news stations is not new although the economic viability of
the concept in Canada was in doubt for a considerable period of
time. [3]

A great deal of discussion has also centred around the
question of what constitutes the most preferred news medium, for
example radio, television or newspapers.

While the jury may be still out as far as answers to
these questions are concerned, there seems to be little doubt
that future service specialization will include news and public
affairs.

As news reporting and dissemination techniques become more effective, news reporting at all levels, whether local, regional, national, or international can be expected to provide more in-depth coverage and analysis. [4]

To a large extent, news and information services are more likely to be joined, for example, to give local communities, much better continuing information about what is going on whether it be traffic, weather, accidents, etc. or the specifics of local events.

While this type of focus represents a shift from the way news is generally handled now it can be seen that such factors as, changing work patterns, and the increased impact of external events on local communities, all suggest the increasing importance of specialized news and information services.

The funding of such services could come from commercial advertising and/or sponsorship.

Of all the potential changes in station formats this is probably one of the easiest to envisage because most of the existing radio broadcast facilities already place a high priority on news services.

Nevertheless, the commercial justification for such specialization may still be elusive. Economics alone do not

presently encourage such changes. All in all, it seems doubtful whether present operational practices could be utilized inasmuch as entirely new economic operating parameters would probably need to be introduced.

This would suggest that new entrepreneurs are more likely to attempt to offer such services than are the established broadcasters.

Because news is such an important component of present radio services the impact of specialized news services is likely to be high. [5]

As in all the other cases described, extensive competition can be expected from other media as the means to distribute news and information multiply and consumer demand for specialized news and information increases.

f) **Sports**

The other popular Canadian broadcast service is sports. This factor has long been recognized by established broadcast interests but their traditional role is now being challenged by alternative distribution technologies such as cable and satellites.

In the light of this, there is likely to be an

increasing pressure on broadcasters to reasses their current practices.

If this factor is coupled with consumer tendencies to accept more diversified sports activities both as spectators and as participants it can be seen that an increasing emphasis on specialized sports raises the possibility that all-sports services via radio could become a more viable proposition.

At what point private interests will see this as a valid commercial risk remains to be seen but the fact remains that the opportunity should exist for entrepreneurial initiative.

It may be that such services would not just extend the number of types of sports events and activities but would provide for a new and more specialized type of reporting, as well as direct assistance to personal sports involvement. For example, more technically detailed coverage of tennis, windsurfing, hang-liding, ultralight flying, and marathons. Some idea of the increased ability provided by newer technologies to participate directly in every stage of a sports event was demonstrated by the coverage of certain aspects of the 1984 Olympics, especially the marathon. In this case, sound and visual coverage of the runners was provided throughout the event.

Like news, many existing stations are well placed to extend their coverage of local sports events although extensive

rethinking of current operating philosophies would obviously be needed. Clearly, the cost of the kind of coverage and reporting is an important factor, raising again the question of economic viability.

The impact of this type of specialization on existing services is likely to be quite high. As well, radio would have to exploit its unique qualities, covering sports in new ways, if it is to remain competitive with other media.

g)   **Business Services**

The increasing automation of the office and the high orders of adaption needed among office workers from senior managers to clerks and typists poses a special challenge to radio. Can radio provide effective and specialized services to the "office of the future"?

Much depends on whether specific needs can be serviced by radio and that presupposes that these needs can be identified and assessed as being capabile of fulfilment through the use of the radio medium.

In spite of these difficulties some possibilities can be identified. Radio can be used as an instructional tool either in the office or at home. Radio can reach people with specialized information even when they are away from fixed locations. In other words, the mobility of radio can be an asset in reaching

people with specialized information when they are away from a fixed location or familiar surroundings.

Live radio can be combined with recordings. For example, walkaround radios offer both radio reception as well as tape playback and recording capabilities.

In addition, radio can handle slow-speed data transmission via sub-carriers.

While specialized business services via radio may seem somewhat more problematical, the fact is that business activities are less and less confined to specific locations. In effect they are more flexible and more mobile. Because of this, radio with its own unique capacity as a mobile medium, seems well placed to search out new business needs.

Although funding for this type of activity could come from commercial advertising and sponsorship it is clear that pay-per-use services could also be highly relevant. This would be especially so in respect of data services, and training and instructional programs.

Not to be ignored in such considerations is the value of radio as a device to control technological processes. For example, the use of radio as a data channel for the control of electrical apparatus providing a more efficient load-shedding facility for hydro companies.

As well, radio can provide data to activate video displays and to facilitate either audio or video shopping in conjunction with the telephone.

Such services are probably more likely to be introduced by new service providers since the organizational structures and programming expertise will likely be different from that available in present radio broadcast operations.

On the other hand, it would not be too difficult to introduce data services via sub-carriers while continuing to provide a conventional radio service. [6]

Although such services do not appear likely to have a significant impact on existing services it must be recognized that radio will enter a highly competitive marketplace if it offers specific business services. At the same time there are likely to be services which radio could offer which cannot be provided by other media.

h)   **Pay Radio**

Extensive reference has already been made to pay-per-use radio services. In general, such a technique would involve the scrambling of the radio signal with subsequent de-scrambling occurring through de-coders provided to subscribers who elect to pay for the service.

This method of content delivery is ideal for specialized services, particularly where a specific value can be attributed to the content being delivered to the subscriber.

This technique can also be used for more traditional services as well. For example, music programs can be delivered to pay-per-use subscribers, enabling them to record selected programs on their own audio cassettes. The source can be high quality digital discs. [7]

There are a number of advantages to this type of service. The user can select specific programs to be listened to, and/or recorded. The source of the programs can be high-fidelity digital discs. The rights-holder of the work being performed can be re-imbursed as part of the subscription fee. Furthermore, compensation is directly related to a specific work, rather than being part of a collective performance of several works.

Although the technology required to ensure discreet use of the service by paying subscribers is complex, the concept does provide for additional sources of revenue.

Another advantage is that the service can operate outside of regular broadcast hours since in most cases it will be operating as a program delivery service.

This type of service is likely to have a minimal impact on conventional services while at the same time it allows broadcasting to provide a legitimate means of offering a home-taping service.

2) Community Services

a) Community Programming

As indicated elsewhere in this study, community radio has proved to be an effective means of enhancing community communication and expression, particularly in Europe. In North America community programming is usually associated with cable rather than radio.

Nevertheless, radio is a much more flexible medium than television. It is less costly to establish and operate than television, and because of its high degree of mobility is often more effective. The highly satisfactory results achieved by northern native communities with simple community radio facilities bears testimony to radio's great potential to serve small pockets of population.

Given radio's great value in a community context it is highly desirable to make available additional spectrum space for community use. Furthermore, there is a need to allow for a variety of administrative and structural arrangements which allow

the maximum degree of operational control to be exercised by communities.

Part of the difficulty with any community-run enterprise is sustaining a continuity of effort and in obtaining capital and operating funds sufficient to ensure day-to-day operations. For this reason the normal licensing practices are often far too stringent.

To overcome these difficulties it may be necessary to allow for time-sharing with other programming, to allow free or leased access, or to combine existing, and separate activities, such as community television and community radio, to increase the opportunities for success.

It may be that limited forms of sponsorship (presently allowed) should be supplemented with limited forms of commercial advertising. While this represents a danger to the community programming concept in that it may influence the content of the programming, it may be a necessary way to ensure adequate funding.

Certainly the funding aspect of community radio has not been satisfactorily resolved and almost all existing community radio relies on grants from various governments.

In spite of these difficulties, community radio should be encouraged since it still represents the most inexpensive and

effective way to provide communities with access to the broad-casting system.

In general, community radio provides an important alternative to conventional radio. It does not directly compete with established radio, unless it seeks revenue from the same sources as established radio.

While community television via cable, and the possible opening up of spectrum for low-power, off-air, television which could be used by communities, represent competition to community radio, nevertheless, radio is still a highly cost-effective medium for community use.

b)   **Native Services**

Community radio is already well established in northern native communities. The advent of the low power, inexpensive, FM transmitters has greatly assisted the introduction of radio to even very small communities.

One of the disadvantages of current FM use is that it does not permit effective coverage beyond the immediate community being served. As a consequence, people "on the land" cannot be served.

In the light of this, it is clear that AM could be of great value in achieving better local coverage in the north and

- 92 -

new AM spectrum space should be reserved for this use.

At present there is also considerable pressure coming from the operators of regional native services to improve their ability to deliver their programming to local transmitters. As a consequence, it has been suggested that high-power AM, operating in the 1605 - 1705 KHz band, could be used to provide sky-wave coverage over relatively large areas, enabling regional programming to reach local communities.

While this may represent a more cost-effective method than using satellite facilities it appears to have some important disadvantages:

- The sky wave pattern is uncertain. Even with relatively long periods of darkness this method would be too unreliable.

- Blanketing an area with a regional signal removes from communities the power to choose which regional programming they wish to distribute locally.

- It would be far better to utilize the AM spectrum to introduce enhanced forms of local service, i.e. to reach people on the land.

Bearing in mind that this study is looking at the period 1990 and beyond it is highly likely that satellite costs

for audio channels will be much more competitive when the new band is opened. If this occurs, satellite delivery of regional programming will not only be more appropriate it will also be more cost-effective.

Current practices tend to confine native program services to northern communities. This is unfortunate because southern populations would probably not only find such programming of general interest, it would also provide southern populations with a better understanding of native cultures.

As well, given the high proportion of native peoples living in the south, there is a need for specific programs and services oriented to these peoples.

Consideration should therefore be given to providing spectrum space on southern transmitters for native programming.

What is particularly interesting about the existing local native community radio services is that they are generally established and run by local communities, with all the necessary funds raised in these communities. As such, they provide excellent models of the community radio concept at work.

Because native services are quite different from conventional radio services they do not represent a competitive threat to conventional radio. As well, there is no direct competitive threat to native services, at least not in their own

languages and cultures. The difficulty for native peoples has always been far more subtle and far more devastating; the threat provided by radio and T.V. programs from the south.

c) Ethnic Broadcasting

The CRTC's proposed ethnic broadcasting policy deals at length with the establishment of services for linguistic minorities using languages other than Canada's two official languages or native languages.

From the standpoint of this study, however, the question can be looked at in at least two important ways. The use of spectrum space to create stations capable of providing a composite multilingual service, and the use of spectrum space to serve individual minority language needs.

While these two needs may seem similar they are in fact quite different.

In the first case, an entrepreneur is presumably faced with deciding whether a radio station serving a number of language minorities can be commercially viable. If licensed, the entrepreneur will be responsible for the programming service.

In the second case, individual linguistic groups seek the opportunity to create a local community service which they initiate and control. By contrast to the first case, this is

usually a relatively modest service serving a limited part of a larger community. This is the type of situation presently served by cable audio.

Clearly, the new AM spectrum can be used for the first, relatively conventional, purpose. Use of the spectrum for the second purpose is more difficult because:

- It will probably be difficult to justify full time use of the frequency.

- There will be the usual uncertainties associated with community - run activities, i.e. lack of continuity, difficulty of funding, etc.

- There will be an understandable tendency to seek out funds from the same sources sought by the larger ethnic station.

It can be seen that the second case, although much more difficult to deal with, represents a more effective community use of radio. To achieve this would clearly require a modification of present policies. For example, part-time leasing of spectrum space, free access, and perhaps advertiser supported community broadcasting.

If the 1605 - 1705 KHz band is to be used for new forms of radio, such issues need to be explored.

One of the ironies of this situation is that while conventional linguistic broadcasting*. does not pose a threat to conventional English and French language broadcasting it does pose a direct threat to the development of community – based ethnic services where the community initiates and controls the service.

d) Community Access

Although the matter of community access arises frequently in any review of various types of community services it warrants a separate examination if only because it reflects a key element in the evolution of new and improved community – based services.

In its simplest form, access means getting the opportunity to use the broadcast distribution system and/or to obtain the facility to use content production resources.

But it also means creating and distributing content under ones own control, a factor which is becoming important not only to communities but to a variety of groups and individuals, both public, private, and commercial, who wish to control the content they create.

---

* That is assigning a whole frequency to the task of providing a sort of umbrella ethnic service.

This issue is raised here because access arises most frequently in relation to community services although the concept clearly has far-reaching implications for a variety of services.

What we are witnessing might be more accurately described as a desire to publish content. The fact that it is electronic content rather than print content does not weaken the underlying principle.

3)   **Government Services**

a)   **Environmental Services**

While radio has long been recognized as being an effective medium for the distribution of public information about the environment, the type and the extent of the information is changing rapidly.

For example, with better weather forecasting techniques it is possible to develop a variety of specific types of weather information specifically oriented to the needs of farmers, travellers, forest operations, marine activities, etc. This is in addition to the already well established marine and aviation weather services.

Added to this are special techniques for measuring pollution, tracking the movement of dangerous gases and/or radiation, and forecasting upper atmospheric effects.

While many of these services are already carried by conventional radio stations there is likely to be a growing demand for a continuously available source of this kind of information. Furthermore, because many activities and occupations affected by environmental conditions are not conducted in fixed locations the mobile capability of radio is particularly appropriate.

Most of this type of information is developed by departments of government but since agencies of governments are not permitted to operate public broadcasting facilities they must rely on existing public and private facilities to disseminate such information.*

This is another example of specialized content being developed by independent entities, in this case government agencies, which do not have easy access to the broadcast distribution system.

As in other cases, the solution would appear to be to permit some type of free or leased access.

---

* Public funding does, of course, support broadcasting at both the Federal and Provincial levels of government but the licences are issued to independent agencies. One exception is the issuing of licences to enable the federal government to operate transmitters to provide an information service in National Parks.

Although information of this type is normally provided free there is no reason why selected services could not be offered on a pay-per-use basis.

In general such services do not compete with existing broadcast services. In fact this is a case where there would be little value in continuing to support such services if at any time they can be provided by the private sector.

b) **Travel Services, Including Wilderness Information And Emergency Services**

Because of the extreme fluctuations in Canada's climate detailed information about travel conditions both in developed parts of Canada as well as in wilderness areas is of vital importance.

Here again there is value in finding ways to provide such information on a more regular basis.

If this is to be successfully realized it will be necessary to allocate radio spectrum space specifically for this purpose and to place considerably greater emphasis on ways to design and package the content so that it can be more relevant to local area needs.

c) **Welfare And Assistance Programs**

Radio can provide a continuing source of information

and guidance for people receiving welfare or other assistance programs.

Often it is not just information that is needed but the chance to learn about the experiences of other people faced with similar problems. It is here that radio can provide hope and positive motivation, helping people to put their present difficulties into a better perspective.

Such assistance is not generally provided by conventional radio with its emphasis on the reporting and documentation of events by people whose exposure to the problems is usually transitory.

d) Education, Training And Employment

With little prospect of a society where full employment is the norm, and with people facing a continuing updating of skills as well as more frequent changes in types of employment, there is likely to be a continuing need for information, advice, and training.

As in the other cases examined, radio can be both a medium for education and training and the imparting of information, as well as a medium for the exchange of experiences. In this latter role it can serve as a means of providing motivation and inspiration, a sort of catalyst, suggesting new ways to look at familiar problems.

4) Other Types of Services

There are certain types of activity which do not fit easily into the preceding categories, yet they are immensely important to the effective future evolution of radio.

a) Talent Development

While talent development is an accepted part of existing broadcast activities the selection and development process is under the direct control of the broadcast licensee who has the ultimate responsibility for the content being carried.

Because of this the number of opportunities for new talent is somewhat limited. Furthermore, the chances that ideas which do not conform to accepted broadcast needs and practices will gain acceptance is doubtful given that broadcasters must generally take account of popular, mass tastes and interests.

In such a situation risk-taking with novel ideas and talents is certainly not a high priority.

Although public broadcasting activities are less prone to such restrictions because they are not as dependent on commercial constraints they still bring their own institutional biases to talent selection and development.

What is badly needed is a space in the radio broadcast system for talent which is unable to gain acceptance through the

regular broadcast channels. A need exists to bring this talent to the public so that the public may decide in a more direct way what it wishes to hear.

This is not to suggest that the basis for talent assessment should be widespread public acceptance. What is desirable is a space to present talent which might have limited appeal. Rather than being inconsistent with the future evolution of radio such a practice would recognize the changing nature of radio and its need to provide for special interests rather than continuing to be simply a mass appeal service.

The financing of such activities would undoubtedly present problems but there may be ways to pool private and public funds to support the concept.

Access to spectrum space would also need to be assured, perhaps on a first-come, first-served basis, devoid of the established criteria for talent selection. Providing the content is not obscene or harmful to community values, and this would need to be open to interpretation by the courts, the content should be carried.

b)   **Experimentation**

In the past there has been a tendency to regard any broadcast activity which does not fit established norms as

experimental. Usually the activity is allowed for a set period of time with some condition that an evaluation will be undertaken at the end of the experimental period.

While this at least allows experimentation to occur it conveys the feeling that experimentation is a separate activity from the regular broadcasting activity. In an ideal situation it would be far better to let experimentation become an on-going process which may or may not result in changes to established practices.

In this way it would not be necessary to announce an experiment or to define the term of it. Only when it became a regular aspect of normal operations would its value or impact on broadcasting objectives be assessed.

Such a capability will be a necessary component of new service activities to be introduced on the 1605 - 1705 KHz band.

While it is impossible to define specific areas where experimentation is desirable some idea of the types of experiments are possible, for example.

- Designing content to exploit the improving quality of AM, especially new developments like AM stereo.

- The investigation of novel ways to use AM stereo. For

example, adding to the impact of discussion programs by presenting the participants through left and/or right speakers or earphones.

- Combining the flexibility of cellular radio and/or personal radio communications service (PRCS) with AM to develop improved forms of interactive radio.

- Encouraging the development of portable radio receivers combining several functions such as recording, radio reception and telephone capability.

- Investigating the use of MSAT (Mobile Satellite Services) with local AM transmission facilities to extend interactive radio capabilities.

Such investigations can not only result in a more versatile use of radio, they can also result in creating opportunities which provide for new and innovative ways to develop content.

5) The Need For Flexibility

The preceding categories of services cannot constitute a definitive prescription. Clearly, the number of types of services that might be offered is virtually unlimited. What the listing does provide is a sense of how radio programming concepts must change to reflect social and technological evolution. A

composite presentation of the services reviewed is provided by Tables 1, 2 and 3, following page 106, to page 107.

Attitudes to the use of the 1605 - 1705 KHz Band

While the preceding review of potential services for the expanded AM band illustrates that ample opportunity exists to use radio in new and innovative ways, the response to calls for comments in both Canada and the United States vary greatly. Given the relatively few radio channels which can be added as a result of the extension to 1705 KHz (some 10 in all) there is a body of opinion which favours allowing an increase in the number of conventional AM services. This view is evident in submissions made to the F.C.C. in the United States.

For example, the National Association of Broadcasters (NAB) expressed the view that, the F.C.C. should give primary consideration to using the band for resolving incompatibilities that have developed among existing and proposed AM stations. The NAB stated, "It is our view that where such incompatibilities exist, these new channels should be used to afford foreign nations opportunities to provide service while freeing up for United States operations, those frequencies where conflicts already exist."

A similar position was taken by the National Radio Broadcasters Association (NRBA). Urging the F.C.C. to give

- 106 -

POSSIBLE SERVICE CATEGORIES

TABLE .1

L - LOW IMPACT
M - MODERATE IMPACT
H - HIGH IMPACT

COMMERCIAL

TYPE OF SERVICE		METHOD OF DISTRIBUTION	MODE OF OPERATION	IMPACT ON OTHER SERVICES	COMPETITION
AGE GROUPS	COMMERCIAL ADVERTISING	LOCAL/ NETWORK	LOCAL PRODUCTION NETWORK AFFILIATION	M	CABLE NETWORKS
MEN — WOMEN	COMMERCIAL ADVERTISING	LOCAL/ NETWORK	LOCAL PRODUCTION NETWORK AFFILIATION	M	CABLE NETWORKS
TEENS — CHILDREN	SPONSORSHIP	LOCAL/ NETWORK	LOCAL PRODUCTION NETWORK AFFILIATION	M	CABLE NETWORKS CONVENTIONAL T.V.
HEALTH	COMMERCIAL ADS, SPONSORSHIP	NETWORK	LOCAL PRODUCTION NETWORK AFFILIATION	L	CABLE NETWORKS
FAMILY	COMMERCIAL ADS, SPONSORSHIP	NETWORK	LOCAL PRODUCTION NETWORK AFFILIATION	L	CABLE NETWORKS CONVENTIONAL T.V.
ETHNIC	COMMERCIAL ADS, SPONSORSHIP	LOCAL	LOCAL PRODUCTION	L	CABLE NETWORKS
BUSINESS	COMMERCIAL ADS, PAY—PER—USE	NETWORK	NETWORK AFFILIATION	L	CABLE NETWORKS VIDEOTEXT/TELETEXT
ENVIRONMENTAL	GOVERNMENT SPONSORSHIP	LOCAL/ NETWORK	LOCAL, NETWORK AFFILIATION	M	CABLE AND CONVENTIONAL T.V.
DATA	PAY—PER—USE	NETWORK	NETWORK AFFILIATION	L	TELEPHONE VIDEOTEXT/TELETEXT
PAY RADIO	PAY—PER—USE	NETWORK	NETWORK AFFILIATION	L	CABLE, TELEPHONE
NEWS, SPORTS	COMMERCIAL ADVERTISING	LOCAL/ NETWORK	LOCAL PRODUCTION, NETWORK AFFILIATION	H	CABLE NETWORKS, CONVENTIONAL T.V.

POSSIBLE SERVICE CATEGORIES

TABLE .2

L - LOW IMPACT
M - MODERATE IMPACT
H - HIGH IMPACT

GOVERNMENT

TYPE OF SERVICE	FUNDING	METHOD OF DISTRIBUTION	MODE OF OPERATION	IMPACT ON OTHER SERVICES	COMPETITION
WEATHER	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
ENVIRONMENT	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	LM	
WILDERNESS INFORMATION	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
TRAVEL INFORMATION	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
WELFARE	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
EMPLOYMENT	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
EMERGENCY SERVICES	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
HEALTH	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
HOME SERVICES	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M
EXPERIMENTATION	PUBLIC FUNDS	LOCAL, SATELLITE	LEASED ACCESS	L	M

POSSIBLE SERVICE CATEGORIES

L - LOW IMPACT
M - MODERATE IMPACT
H - HIGH IMPACT

COMMUNITY/MINORITY

TYPE OF SERVICE	FUNDING	METHOD OF DISTRIBUTION	MODE OF OPERATION	IMPACT ON OTHER SERVICES	COMPETITION
COMMUNITY PROGRAMMING	GRANTS, CABLE/ BROADCASTER ASSISTANCE	LOCAL	FREE OR LEASED ACCESS	L	NIL
ACCESS	GRANTS	LOCAL	LEASED ACCESS	L	NIL
LANGUAGE MINORITIES	ADVERTISING	LOCAL	LEASED	H	ETHNIC RADIO AND T.V. STATIONS
NATIVE SERVICES	LOCAL CONTRIBUTIONS, GRANTS	LOCAL, SATELLITE	FREE OR LEASED ACCESS	L	NIL
TALENT DEVELOPMENT	PUBLIC FUNDS, GRANTS	LOCAL, SATELLITE	FREE ACCESS	L	NIL
EXPERIMENTATION	PUBLIC FUNDS, GRANTS	LOCAL, SATELLITE	FREE OR LEASED ACCESS	L	NIL

attention to the incompatibilities in the existing 535 - 1605 KHz band the NRBA stated, "The incompatible assignments are those assignments which (1) cannot be utilized because stations operating thereon could cause or receive unacceptable interference or (2) are being utilized by stations which are suffering severe interference problems. A large number of existing stations in the United States fall within this category." The NRBA went on to suggest, "To resolve this problem the Commission should consider reserving the spectrum from 1605 - 1705 KHz for the reallocation of as many of these incompatible assignments as possible."

Opposite views were expressed by the National Black Media Coalition which requested that the band be allocated to minority services; the Department of the Interior which wished to see further spectrum allocations to the Travel Information Service; and the Corporation for Public Broadcasting which urged that the band be used for non-commercial educational broadcast services. [8]

The response to a similar call for Canadian comments on possible uses of the 1605 - 1705 KHz band (see Canada Gazette, page 1202, Part I, February 11th, 1984) followed a very similar pattern to the U.S. reponses. For example, the Canadian Association of Broadcasters (CAB) concluded, "that the new band should be used much as the present band is, and not be segregated into channels for special services". [9]

On the other hand, other submissions favoured more specialized uses. For example, the Ontario Department of Communications and Transportation commented as follows:

> "In principle, Ontario supports the concept of extending the MF band. Such an extension could result in new, additional and innovative services being made available to the public that otherwise might not be possible or practicable. Simple extension of the MF band therefore seems the least that should be done.
>
> It appears that this band is ideally suited for low power applications which could result in such localized services as community radio, drive-in theatre radio and real estate radio as well as nationwide weather, broadcasting and travellers advisory services."

Petrie Telecommunications Limited commented as follows:

> "Staff within our company believe that portions of these new bands should be exclusively used for
>
> a) Low power remote community broadcasting
>
> b) Low power advertising and information purposes.

The preceding views have been taken into account in preparing this study. While the rationale for the arguments presented is not in dispute, the findings of this study lead to the conclusion that the new band should not be used to consolidate existing AM practices.

All radio activities need to come to grips with the urgent need for change and adaption to meet future demands and to better exploit the potential of radio.

Our research demonstrates the order of social and technological change which is already upon us and as a consequence it is imperative that ways be found to change the present course of radio broadcasting.

In our view, this task can begin by devoting the 1605 - 1705 KHz spectrum to new services.

The Characteristics of the 1605 - 1705 KHz Band

While it is not within the scope of this study to undertake an extensive examination of the technical characteristics of the new band it has been necessary to give attention to those factors which impinge upon the program service development. For example, at the upper end of the AM band ground wave propagation is less efficient than at the lower ends of the band. On the other hand sky wave propagation is more efficient at the higher AM frequencies.

This has led some people to suggest that the improved sky wave propagation features should be used to advantage, for example, for regional AM services.

This factor has been carefully considered, and many persons expert in such matters consulted. As a result, we have concluded that while there may appear to be some advantage in attempting to utilize sky wave propagation for some services, in general there are too many uncertainties to allow this feature to be used with any degree of confidence.

Because this is a nighttime phenomenon, and because the hours of darkness vary throughout the year, it is difficult to plan to use this characteristic in deciding what services might be offered. Furthermore, by the time the necessary facilities are in place for services in the new band -- 1990's and beyond -- there are likely to be improved, and more cost-efficient satellite radio channels available. In this way, national and regional radio services can be provided by a combination of satellite channels and local re-broadcast transmitters.

In view of these considerations, and taking into account that AM is generally more expensive to install than FM, we have concluded that the new band should be allocated to low-power AM services.*

Factors Bearing on Suitable Strategies
To Introduce Services in the New Band

---

* This should not be taken as a rigid prescription given the rapid developments in technology, but given present information this seems to be the most prudent course of action.

a) Economics

It can readily be seen that the various services which have been outlined tend to fall into the specialized service categories. Because of this they present new and difficult financing problems. For example:

- It is unlikely that some services will be able to obtain sufficient revenue support from a local market alone.

- Many services will not be able to draw sufficient audiences and revenues to justify use of a whole channel for a full day.

- Many services do not lend themselves to conventional forms of commercial advertiser support.

- If pay-per-use type services are contemplated, complex and costly coding and de-coding equipment is needed.

It is clear, therefore, that solutions to such problems must be built into service planning strategies.

b) Channel Allocations

Taking into account the problems relating to co-channel interference, it is assumed that no more than 3 channels can be usefully allocated to any given area.

Bearing in mind the financing difficulties referred to in (a), and taking into account the importance of placing the services in suitable time slots, it is clear that some type of service packaging will be desirable.

Many permutations and combinations would likely be used to suit the particular needs of each community but some idea of the time allocations that might be adopted are presented in Table 4, following page 112.

c) **Program Origination, Delivery and Exhibition**

Although some of the content will be locally produced and distributed, much of the special interest content production could come from regional or national centres. In fact, it makes more economic sense to centralize production because of the need to draw upon experts in various specialized subject areas, and to design programming not just for local communities but for communities of interest.

Under such circumstances the content providers for special services would likely use audio satellite channels to deliver services to local transmitter facilities. In this way the potential audience base for the specialized services can be increased by ensuring that regional, national, and even international coverage is possible. [10]

A similar structural arrangement could be used for regional community services such as those which might be needed to serve northern native communities or selected groups of communities in the south.

ALLOCATION OF TIME
(3 CHANNEL SERVICE)

TIME	CHANNEL .1.	CHANNEL .2.	CHANNEL .3.
6 — 7			
7 — 8	WEATHER	ENVIRONMENTAL INFO	EXERCISE
8 — 9	TRAVEL INFO	LOCAL NEWS	NUTRITION
9 — 10	LOCAL EVENTS	BUSINESS INFO	WOMEN — SENIORS
10 — 11	HOME LISTENING	BUSINESS INFO	DAYCARE PROGRAM
11 — 12 NOON	HOME LISTENING	WOMEN IN THE WORKFORCE	HIGH DENSITY DWELLERS
12 — 1	WORK AT HOME	LOCAL NEWS	HIGH DENSITY DWELLERS
1 — 2	WELFARE SERVICE	BUSINESS INFO	MEDICAL FACTS
2 — 3	SINGLE PARENT FAMILIES	BUSINESS INFO	MEDICAL FACTS
3 — 4	SINGLE PARENT FAMILIES	COMMUNITY PROGRAMS	PROGRAMS FOR BLIND
4 — 5	TEENS	CHILDREN	PROGRAMS FOR BLIND
5 — 6	TEENS	CHILDREN	HANDICAPPED
6 — 7	COMMUNITY PROGRAMS	ETHNIC PROGRAMS	DANCE
7 — 8	COMMUNITY PROGRAMS	ETHNIC PROGRAMS	THEATRE
8 — 9	TALENT	EXPERIMENTATION	FILMS
9 — 10	MUSICAL STORIES	EXPERIMENTATION	BOOKS
10 — 11	WEATHER	ENVIRONMENTAL	SINGLES
11 — 12	MEDITATION	READING BOOKS	SINGLES
12 ——	MEDITATION	READING BOOKS	RE RECORD
	MEDITATION	READING BOOKS	PAY—PER—PROGRAM

In the light of this the service package for each AM station will likely be a mix of local content and satellite delivered content. The latter might be obtained as the result of some kind of affiliation agreement between the local station and the satellite service providers. Alternately there could be some arrangement which facilitates cherry-picking from a variety of satellite services - perhaps based on costs developed in relation to local audience levels - allowing a service package to be created which best satisfies local needs.

Given that satellite channel capacity is likely to increase in the future[*] it becomes far more practical to design a variety of special services, which by virtue of satellite reach, can be brought to a sufficient number of people to ensure their economic viability. It is important to note that it becomes necessary to enlarge ones thinking about potential audiences beyond strictly territorial boundaries so as to take full advantage of the coverage represented by satellite signal footprints. Only in this way will it be possible to add many local pockets of special interests to form significant audience levels overall.

None of these larger possibilities should detract from the value and importance of strictly local programming. There will be many cases where localism is the prime justification for

---

[*]   Already consideration is being directed to the use of the Ka band (17-30 GHz) the next highest among a group of hertzian wave bands being allocated to communications satellites.

the service and in these cases regional and/or national program-
ming should not be allowed to weaken this primary objective. In
practice, such difficulties are unlikely to arise as long as a
clear distinction is drawn between communities of interest and
local community needs and interests.

d)   Methods of Operation

It is evident that it will become progressively more
difficult to set up and operate radio services in established
ways. Because the common focus provided by mass audience service
concepts is giving way to specialization, new techniques of
station operation will have to be introduced.

What these might be will depend on the area to be
served and the order of innovation which can be brought to the
structuring and operation of the service. Some indication of the
approaches which might be necessary is already evident in what
has been examined thus far. For example, it may be necessary to
consider the leasing of program time. This leasing opportunity
might be combined in some way with a more traditional style of
operation where the station licensee also creates and controls
the content. In other cases transmitters operated wholly as
common carriers might represent the most satisfactory solution.

Transmitters may be operated for only limited portions
of the day, or be used primarily as the means to deliver data and

other specialized services on a pay-per-use basis.

Stations may be affiliated to satellite network services, in effect be simply local re-broadcast facilities, while at the same time providing for local community access.*

It can be seem that a great deal of operational flexibility will be needed if new service concepts are to be allowed to evolve.

e)   Implementing New Services

It seems highly desirable to allow new services which will occupy the 1605 - 1705 KHz spectrum to develop as naturally as possible. For example, although this study has identified a variety of service possibilities it would be unfortunate if this was used as a specific prescription for new services. It would be far more effective if the ideas represented in this study were used to encourage others to apply their own initiative and imagination to the development of new service concepts. After all, the creators of the service idea must ultimately be the ones who give it a practical interpretation and realization.

For this reason ample opportunity should be provided for individuals, groups, organizations and institutions to come forward with ideas.

---

*   This concept is already a part of the CANCOM service plan for Manitoba.

Providing the concepts represent real alternatives to conventional radio they should receive serious consideration..

After specific concepts have been accepted and introduced, time should be given for evaluation. This may suggest that spectrum use planning may need to be adjusted or changes made to the original service concepts.

The key principle is flexibility, a chance to explore new ideas in a responsible and pragmatic way.

The results should be examined, not only in relation to the use of the 1605 - 1705 KHz spectrum, but in relation to radio broadcasting as a whole. In this way changes might be gradually introduced to current radio broadcasting practices, allowing constructive adjustments to be made which can better equip radio activities to respond to future needs.

Certain other related factors will also need to be taken into account. For example, use of new services will depend on the availability of receivers and this in turn is related to the manufacturing industry's response to the new service opportunities. As well, it would clearly be desirable to develop receivers which combine both the expanded bandwidth with AM stereo capacity.

As in the case of service development, it would seem essential to allow sufficient time for the private industry to

assess the commercial opportunities before contemplating legislative or regulatory action to ensure that new receiver specifications are introduced.

f) Related Issues

Because new service concepts also depend on technological developments it is highly desirable to encourage the manufacturing industries to explore new equipment design. Often this will entail the marrying of established systems or the creating of new ones. For example:

-   Exploring the potential of mobile radio stations.

-   The combining of cellular radio or personal radio communications service (PRCS) with walkabout radios, i.e. Walkman, etc.

-   The early exploitation of new service concepts in a mobile context. This would include immediate development of walkabout radios able to receive the 1605 - 1705 KHz band and to reproduce AM stereo services.

-   The combining of the principles of MSAT with those of conventional radio to further explore the idea of intractive, phone-in type services.

These represent examples of the kinds of principles which need to be explored to further enhance radio broadcast services.

Regulatory Factors

If new types of radio services are to develop through the use of the 1605 - 1705 KHz band a number of important regulatory issues will need to be addressed. While new services of the type described could be introduced within existing licensing regulations and policies, the desired service operating flexibility would probably need to be sacrificed. This in turn could seriously inhibit the fullest exploitation of new service concepts.

For example, under present licensing policies it would be possible to offer a service from a single station providing the content came under the direct control of the licensee. This could mean that the licensee would preside over a complex schedule offering a range of differing specialized services each of which would likely require a different programming philosophy.

Administrative and licensing responsibilities of this type would not be impossible but they would create certain disadvantages. A single licensee might be less open to a broad range of programming ideas especially if some of the programs involved direct citizen participation in content creation.

a) **Leasing of Space**

An alternative would be to treat certain program time slots as though they were spaces for lease. Users would acquire use of the space either free or upon payment of a fee providing they adhered to certain pre-conditions. These conditions might range from the identification of the individual responsible for the content, an agreement to abide by a code of ethics, an agreement to protect the carrier against legal action,* and acceptance of certain technical standards.

A further elaboration of this concept would be to establish transmitters operated by common carriers. Although different, in the sense that it is not public broadcasting, Telesat's leasing of satellite space provides a useful analogy.

In this latter case all of the program time would be available for lease. The carrier would not have actual control of content although, as indicated in the preceding example, certain pre-conditions would have to be accepted by the content provider.

Any form of the leasing described would pose difficulties because of the existing broadcast legislation which clearly holds a broadcast licensee responsible for content. About all

---

* This is perhaps the more difficult issue since any legal action would probably be directed against the party with the largest economic resources.

that could be accepted would be forms of access where the licensee retains the ultimate control and responsibility for content. In any event, this arrangement would probably represent the most logical interim, or transitional mode, until the full carrier concept is evaluated and/or introduced.

b) **Networks**

Because of the fact that radio is generally regarded as a local medium, radio networking in Canada has not been encouraged. The extensive reliance on the network principle as a means of distributing special radio services forces a rethinking of this policy.

During the last few years networks have been licensed by the CRTC to facilitate the introduction of pay television and specialty program services and what is being advocated here is a similar policy for new radio services.

If the present legislative conditions pertaining to network licensing are followed each network operator offering a new radio service would have to reach agreements with two or more broadcasting undertakings (radio stations) before the legal requirements of the network licence could be fulfilled. This would not appear to represent a difficulty although the number of networks required to provide a wide range of special services could be somewhat daunting.

If local transmitters are rebroadcast transmitters, distributing the satellite delivered network programming locally, they would have to be independently owned, i.e. they could not be owned by the program service network licensee.

The matter is further complicated if the satellite network licensee leased time on the local transmitter under conditions described in the preceding section (a) since a licensed broadcaster would not be exercising control over the content.

Another possibility is for the licensee of the local transmitter to cherry-pick from a variety of satellite networks. This would not appear to present a problem except that the number of affiliation agreements required between network licensees and broadcast licensees would be very large.

Yet another question is whether a network operator, licensed in Canada, could conclude agreements with U.S. or other foreign radio stations to carry its programs. At present such agreements would appear to be precluded.

It can be seen that while existing legislation, and the regulatory and policy practices which flow from it, do not prevent the establishment of the kinds of services outlined, they do not provide for the order of flexibility which is required to facilitate the entry of a large number of new service providers

who may wish to offer only limited services as part of a larger package of services.

c)   Diversification of Ownership

Another way to increase the range and diversity of service providers would be to award licences to individuals and groups not connected with present broadcasting or cable activities. For example, licences could be issued to small businesses both at the network level and at the local level, i.e. the local transmitter.

The overall intention would be to try and introduce entirely new players who would not enter the field with the weight of established radio traditions and practices.

There are, of course, obvious risks involved in such an approach in that the quality of the service may suffer, but at the same time it might also provide opportunities for radio professionals seeking ways to make a more innovative use of radio.

d)   Joint Activities

Certain types of existing activity, such as the cable community channel, might benefit from being distributed, as an audio, radio, service. This could provide for further explor-

ation of the community access idea because radio is a much simpler medium for groups and individuals to use.

Many cable systems already undertake joint activities with radio stations and this would provide for a more structured approach using a transmitter dedicated to new types of radio service.

e) Other Regulatory Implications

Introducing new services in the 1605 - 1705 KHz band is bound to have an impact on existing services. As we have seen, this impact is unlikely to be severe as far as audience levels are concerned although it may well expose existing general radio policies to more questioning. For example, given that more spectrum is becoming available and technological advances are changing the relationship between AM and FM, is it valid to continue to retain the existing distinctions between AM and FM as far as programming is concerned?

Given that all radio must adapt to change, to what extent are existing regulations inhibiting this adaptive process?

Questions like this may be more amenable to different solutions if sufficient flexibility can be provided to experiment with the use of the new band.

If the 1605 – 1705 KHz band is commissioned through a series of policy hearings followed by licensing, in other words, through existing policy and regulatory making practices, it will be important to resist the temptation to resort to processes which diminish the opportunity to use radio in different ways. This danger should not be underestimated given the inevitable momentum to follow established precedents and to seek safe solutions. In essence, what is being proposed is risky yet it offers a unique opportunity to revive radio and to provide the new perspectives needed to respond to the challenges of the future.

Conclusions

- The past and present uses of radio have been largely shaped by government policies and by the dictates of the commercial marketplace. This has not necessarily resulted in radio being used to its full potential.

- In the future much more attention will need to be focussed on the needs and expectations of a changing society and the ability of a more technologically advanced radio system to fulfil these needs.

- Because societal attitudes are changing, and because major shifts are occurring in demographics, the well established and somewhat stereotyped services will no

longer be adequate. Future demand will be for more specialized radio services.

- Everything points to the fact that radio must face a period of extensive change and adaption both to respond to new needs and to more effectively deal with competing services.

- It is urgent that ways be found to enable radio to accomplish such changes.

- The commissioning of the 1605 - 1705 KHz band provides a unique opportunity to introduce new radio services. Because of this the new band should not be used merely to extend existing AM services. The new frequencies should be used to begin a process of change, enabling new programming and service initiatives, facilitating the entry of new entrepreneurs, and providing a catalyst for changes in current thinking about radio.

- Every opportunity should be provided for applicants to come forward with new program and service concepts for the new band.

- It must be recognized that not all of the services can be expected to be commercially viable under the established operating parameters. It is therefore

essential that new ways of funding, packaging and marketing services be explored.

- Given the particular characteristics of the 1605 - 1705 KHz band it is concluded that it be primarily used to establish local low-power transmitters. It is not recommended that general use be made of the improved sky wave characteristics of the band in that propagation of this type is extremely unreliable.

- Extensive use should be made of radio networking as a means of creating desirable audience levels for specialized programming. At the same time this should not be allowed to interfere with the strictly local uses of the band, especially for community radio services.

- Effective use of the new band will require an extensive review of existing policies and regulations so as to provide more operating flexibility. This involves the consideration of new licensing procedures to facilitate leased or free access to transmitter time.

- Some of the changes may not be possible within the scope of existing broadcast legislation, such as the suggestion that radio transmitters be operated as common carriers, but the exploration of such concepts

is felt to be highly desirable given the need to introduce new service concepts.

- After the introduction of new service concepts a period of time should be allowed for evaluation. The results of this evaluation should be used to further adjust policies and operating practices to make the best use of the new band.

- The results obtained through the introduction of new services on the 1605 - 1705 KHz band should be used as a guide to changes in the overall policies and practices for radio broadcasting.

- Time should be allowed for the manufacturing industry to develop new transmitting and receiving equipment but legislation should be contemplated if necessary to ensure that the equipment needed to operate the new band is in place. At the same time consideration should be given to incorporating AM stereo into equipment re-design.

- A major stress should be placed on the development of new forms of service. It is essential to inject new players and new ideas into the radio broadcasting arena, and to provide incentives which will encourage innovation and risk-taking.

References Part 3

1. "The Royal Bank of Canada has signed up 33 radio stations in 24 markets coast-to-coast to air a daily weekday and weekend information program covering topics such as consumer tips, business and financial matters, health, legal advice and current events."

   Globe and Mail, Report on Business, Marketing and Media, May 9, 1984, page B.8.

2. As an indication of the level of program selectivity which is already developing, a public radio station in the U.S. has launched, "Small Things Considered" which is aired from 5 p.m. to 8 p.m. weekdays and is directed to 4-14 year olds. Extracted from Electronic Media, October 4, 1984, page 4.

   Also, NBC radio runs a young adult radio network called, The Source.
   Electronic Media, October 18, 1984, page 10.

3. See, CKO Sees Operation Nearing Profitability, Globe and Mail, June 26, 1984, Page B15.

4. In an effort to improve news coverage a News Exchange, made up of five newspapers, five radio stations, and six television stations, has been formed in Boston.

Extracted from an article in Electronic Media, June 7, 1984, page 12.

5. There are already signs that conventional radio is showing a willingness to tailor its news and information to specific listener demographics.

> "Over the past five years (US) radio network revenues have grown about 20 per cent annually. Some of that has been generated by increased interest in and more novel use of news. ABC repackages its news differently for its three adult and three youth-oriented radio networks. CBS Radio Networks and NBC Radio Networks are striving to do the same."

Globe and Mail, April 11, 1984, Report on Business, Marketing and Media, page B.7.

Also,

> "Broadcast News Ltd., (Canada's largest news service) will offer its clients satellite delivery of audio services -- packaged newscasts, voice features, voice accounts from reporters and subjects at the scene of stories -- by year-end in a plan announced yesterday."

Globe and Mail, Report on Business, Marketing and Media, March 14, 1984, page B.5.

6. The authors are indebted to CBC Engineering, Montreal for additional perspectives on the provision of data services via sub-carriers.

7. "At the end of 1983 there were more than 600 compact disc titles, and by the end of 1984 there could be as many as 2000 titles...."
    Electronic Media, May 17, 1984, page 12.

8. The preceding review of U.S. attitudes is extracted from Broadcasting, July 9, 1984, and from copies of the submissions made to the FCC relating to the use of the new band.

9. See letter from the Canadian Association of Broadcasters (CAB) to the DOC dated May 11, 1984.

10. "....jobs in radio are expected to increase for outside program suppliers as radio broadcasters increasingly rely on syndicated and network programming."
    Electronic Media, September 6, 1984, page 4.