Communications Canada

Trip Report and Documentation on a

Department of Communications Mission

to the European Commission

EUROPE 1992

AND TELECOMMUNICATIONS

Brussels, April 11-14, 1989

TRIP REPORT AND DOCUMENTATION ON A DEPARTMENT OF COMMUNICATIONS MISSION TO THE EUROPEAN COMMISSION, BRUSSELS, APRIL 11-14, 1989

EUROPE 1992 AND TELECOMMUNICATIONS

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PREFACE

This trip report is intended for both the general and specialized reader and is structured, in its three parts, as a reference or source document on the efforts of European community member states to achieve a single European market for goods and services, i.e. Europe 1992. It provides information on the direction of the European Commission's regulatory policies in the telecommunications sector and some detailed information on its extensive science and technology programs in this and other information technology areas.

For the general reader, the most useful sections are the Executive Summary, the three overview memos in Part II by Strusberg, Breithaupt, Mulcaster and Tiger and the Reporting Telex from Brussels. Readers with specific interests should review the Summary Records of the High Level Consultations and the individual meetings with Commission officials. Moreover, the annexes list some sources of information on specific European Commission directives or programs; copies of official decisions of the Commission, such as regulations, directives or proposals are published in the Official Journal of the European Commission. Copies of reports or brochures are available from the Commission of the European Communities, Office for Official Publications, Rue de la Loi 200, Brussels 1049, Belgium. In Canada, publications of the Commission are sold by Renouf Publishing Co., 61 Sparks St., Ottawa, Ontario K1P 5R1, tel. (613) 238-8985. Some limited documentation is also available from the International Relations Branch, the Department of Communications library or the office of the European Commission in Ottawa.

A separate stand-alone section on Science and Technology(S&T) has been added as Part III. This section provides an introduction to the large scale European S&T programs but with a specific focus on the telecommunications and information technology sector. It also introduces the possibility of a Canada-European Commission S&T agreement.

EXECUTIVE SUMMARY
TRIP REPORT ON THE MISSION TO THE EUROPEAN COMMISSION
BRUSSELS, APRIL 11-14, 1989

Introduction

The Department of Communications mission to Brussels represented the first high level consultations with the European Commission and reflected a need to examine European developments at first hand. Three different series of meetings were arranged. The formal consultations of the full Canadian delegation with the Commission on April 13 and 14, 1989, included a senior representative from the Department of Industry, Science and Technology (DIST) and the Treasury Board. It followed directly upon a mission of senior Canadian officials to Germany, organized by the Deputy Minister of DIST, to examine that country's science policies. This provided a unique opportunity to review the policies of both the European Community and those of a leading Member State at the same time. The exchanges between the two delegations were highly informative and detailed and there was a general feeling that they be continued in the future.

European Context

The European Community is in the midst of a determined effort to forge a single European market for goods and services by 1992. This relaunching of the political ideal of a United Europe through commercial policy mechanisms is based upon the realization that the existing national markets will not allow Europe to compete on an international scale. To achieve its goal, the Community has put into play policies that: a) dismantle national protectionist barriers, such as state monopolies; b) introduce more vigorous competition policies at the European and national levels; c) provide long term scientific and technological (R&D) funding in sectors where Europe's perceived comparative advantages should lead to successful commercialization; and d) encourage a pan-European approach to the production of goods and services.

Since the late 1970s, the telecommunications and computer and information sectors have been targetted by the Commission and the Member States as sectors vital to the restructuring of their national economies and international competitiveness. These sectors were also perceived as a source of major internal economic growth in the 1990s. In their analysis, the Europeans recognized that they were burdened with two major impediments. First, in the telecommunications sector, the state-owned PTT regimes operated traditional monopolies and, as such, were required to fulfill numerous political, social and economic objectives including national procurement policies, cross-

subsidization of postal services, and general employment policies. Second, there were no apparent European competitors in the computer sector to match multinational corporations such as IBM. Moreover, the long-term strength of European electronics manufacturers was questionable. The concept of Europe 1992, and the policies that are being put into play in the telecommunications sector, respond to these challenges on an exceptional scale.

Strategies to Reshape European Markets for Telecommunications and Information Technologies

The European Community is pursuing two broad strategies in its drive to make the telecommunications sector competitive internally and, as a consequence, on an international scale. The first pillar is a step-by-step regulatory and policy process through Directives, Regulations, Recommendations and Proposals issued by the European Commission which will reshape the national and pan-European environments. This process is outlined in the Commission's extensive Green Paper on the Development of the Common Market for Telecommunications Services and Equipment issued on June 30, 1987.

The second pillar is a major scientific and technological support program focused upon strategic industrial sectors. The Commission's budget for the current five year cycle of this S&T Framework Program is ECU 5.4 billion or $7.5 billion (Cdn). As this is a cost-shared program, overall spending by government and industry is $15 billion (or $3 billion per annum). In addition, there are complementary R&D expenditures at the national level which, in countries, such as Germany, can exceed the German contribution to the Commission's S&T budget by a factor of 8 or 9.

Telecommunications and associated information technology industries (e.g., microelectronics, computers) account for 42% of the total Commission R&D expenditures. This is the largest allocation by far and nearly double the expenditures on the next largest sector, the energy sector, which includes funds for development of nuclear energy. In contrast, Canada allocates less than 5% of total federal government R&D expenditures to these two sectors.

The two major programs in the telecommunications and information sectors are ESPRIT (the European Strategic Programme for Research in Information Technologies) and RACE (Research in Advanced Communications Technologies in Europe) which, in combination with other minor programs, command a five year Commission budget of $3.2 billion (Cdn); when matched by

private sector contributions, the total expenditures are $6.4 billion. ESPRIT, the largest and broadest program in the portfolio (with a five year budget of $2.2 billion), is designed to develop large scale, pre-competitive consortia among European-based information technology companies, in addition to its basic research objectives. The present emphasis in ESPRIT is on the microelectronics industries. RACE, with a budget of $770 million, is directed at the next generation of telecommunications network infrastructure, i.e., integrated broadband communications (IBC). Taken together, these two programs indicate European determination to invest in advanced telecommunications facilities and to foster their integration with new European manufacturing capabilities.

The Community's Regulatory Agenda in Telecommunications

The policy objectives of the Community for 1992, as expressed by the Directives and Recommendations of the European Commission, are the following:

1. full terminal equipment competition based on common standards;
2. full network equipment competition based on agreed government procurement rules for the PTTs;
3. increased levels of competition in telecommunications services, such as, Value Added Networks (VANS), outlined in proposals for Open Network Provision (ONP);
4. a sustained movement towards cost-based pricing; i.e., rate rebalancing.

New institutional mechanisms to support the new arrangements are being put in place. These include:

1. encouraging the establishment of an independent standards body, ETSI (the European Telecommunications Standards Institute);
2. agreement to establish national regulators that are independent and separate from the PTTs;
3. delegation of authority to the Commission to formally represent the Member States in trade negotiations at the GATT-MTN round.

Two additional telecommunication services initiatives are scheduled over the short term. First, the Commission will issue a Green Paper on European satellite services. Second, there is the planned establishment of a pan-European digital cellular network in 1991; it will offer an alternative to the existing but incompatible national cellular systems.

Departmental Assessment of European Initiatives

In the area of telecommunications policy and regulation, the European Community is playing "catch-up" to the existing Canadian and U.S. environment. Ownership of most of the Canadian industry has been in private hands for many years and, in areas under federal jurisdiction (70% of the Canadian market), our liberalization and competition policies for services and equipment have for several years reflected policies similar to those now being adopted in Europe. Our infrastructure is relatively sophisticated and efficient and, in areas under federal jurisdiction, we are not hampered by differing technical standards for equipment or for interconnection of the basic system. However, we face some provincial barriers which continue to exist in some parts of the country. Therefore, to stay in step with international competitiveness, a national approach to Canada's telecommunications sector becomes increasingly important. Otherwise, we could be by-passed by the Europeans and their market of 320 million people sometime after 1992.

As noted in greater detail in the overview memo of R. Stursberg (see Part II), the Europeans face extremely difficult political decisions. Liberalization and competition policies could jeopardize the domestic and European positions of some national players as competition for market share heats up within the community. At the same time, the policies will open new doors to highly competitive foreign interests (e.g., U.S., Japan, Canada/Northern Telecom), especially those established within the Community. In their movement toward increased competition, the Member States have approved and encouraged consortia, mergers and acquisitions among European and foreign players, or joint ventures with foreign companies, that reposition European-based companies and assist them to capture sufficient market shares to succeed internationally. Examples include: a) the CGE/ITT agreement which merged ITT's telecommunications interests with CGE's Alcatel-Thomson subsidiary to create the world's second largest telecommunications manufacturer; b) AT&T's purchase of 22% of Olivetti; c) the 1988 merger of GEC's and Plessey's telecommunications interests which placed the new company among the top ten manufacturers of telephone exchanges; d) Siemens and Philips cooperation in advanced microchips (the Megaproject); e) Northern Telecom's participation in STC (UK) and numerous other corporate arrangements. Domestically, the Europeans have privatized and restructured some PTTs, encouraged them to diversify into new services, and have continued to use the PTTs to shore up European manufacturers through preferential procurement policies.

The motives for this extensive restructuring of the public and private sectors are founded in the industry's economics. Development costs for major telecommunications products - like central office switches - have accelerated rapidly. Without a unified European market, suppliers will be unable to offset or recoup rising product development costs in the world markets of the 1990s.

Given the complexity and breadth of the corporate and public policy adjustments underway, some of the milestones for Europe 1992 have been missed and others will be delayed by one or more years. For example, despite considerable progress on national procurement policies, national markets are unlikely to be fully open to competition by 1992. In another case, the Commission's 1988 Directive on competition in the telecommunications terminal equipment market was challenged, albeit on constitutional grounds, in the European Court of Justice by some of the leading Member States. The goal of a single market will require Member States to transfer elements of their sovereignty to the Community and force difficult economic adjustments upon industry; this will result in some short term national losses. Such an effort requires tremendous political will. In our estimation, Europe 1992 is unlikely to be achieved in the telecommunications sector by 1992, but is more likely to be attained closer to 1994 or 1995; this view is acknowledged by the Commission.

In the absence of legislative authority to impose European policies or harmonization, the Commission has focussed considerable efforts on the one area where its chances of success are reasonable, i.e. equipment standards and common interconnection policies. Standards represent the mechanism to attain a single, competitive market and play an important role, for example, in the proposed new European cellular digital network and in other new services, such as direct broadcast satellite programming (DBS), High Definition Television (HDTV) and an integrated broadband communications network (IBC).

The changes in Europe will affect Canada in different ways. First, there is the probability of increased penetration of Canadian markets by more competitive European equipment or services producers (i.e., increased imports), coincident with the displacement of Canadian products or services in third markets (loss of export markets). This suggests a need for adjustments to our commercial policies (i.e, industrial support or competition policies) and, possibly, to elements of our trade policies (GATT, FTA). Second, we should review the extent and forms of economic participation in Europe that benefit Canada in this sector i.e., direct exports, Canadian

direct foreign investments in Europe, joint ventures, licensing arrangements, etc. Obvious areas for early federal consideration are existing S&T programs, industrial support programs and our general telecommunications policy orientation. To meet the growing European challenge (and U.S. and Japanese thrusts) clearly requires closer cooperation among Departments and agencies and the possible integration of different industrial support programs with a focus on specific targets. Federal-provincial cooperation will become increasingly important if we are to lever our relatively small national R&D resources for maximum effectiveness.

The preliminary analyses fo the Commission's S&T programs (see memos by Mulcaster, Breithaupt and Tiger in Part II) indicate that we have much to learn on the design and management of large scale, "precompetitive" R&D projects. The Commission's market-driven approach is of interest to the government and to Canadian industry which, with the exception of Northern Telecom and some others, does not operate on a world scale.

In our judgement, Canadian participation in the growing European S&T programs will become an important means to acquire both technology and a market presence in post-1992 Europe. Common areas of interest have already been identified in an earlier study for the Department and for External Affairs (see the Wescom Communications Research Report by Peter J. Booth on "Potential for International Cooperation in Information Technology R&D in Western Europe", April 1988). However, as the participation of Canadian-based companies in European S&T programs in the telecommunications and information technology sector is limited by Commission policies to companies with research facilities in Europe, other means of association will be required. These may be more, or less, costly in the long run and would include joint ventures, acquisitions, or licensing arrangements, among others.

Conclusions and Follow-up

A. Short Term: Regulatory and Policy Initiatives

1. The Department and the Interdepartmental Working Group on Informatics and Telecommunications should refine and augment their on-going review of the European Commission's policy and regulatory initiatives. This will require a more structured monitoring and evaluation process to ensure that unanticipated events or conflicts, such as the recent audiovisual situation, do not arise. Closer coordination with the Mission in Brussels, and an

increased focus by External on the Commission's rapidly evolving telecommunications policies and initiatives, will be necessary. Other possible steps, such as periodic studies or missions should be planned.

2. Formal DOC consultations with the European Commission on telecommunications policies and on the computer-based information industries (which create new telecommunications-based networks) should be initiated at least once every 12 to 18 months, especially in the run-up to 1992. These consultations would be similar to the Department's formal policy discussions with Japan; they identify trade opportunities and assist in domestic policy development.

3. The successful outcome of the current GATT round, especially in the areas of government procurement, technical barriers to trade and trade in services, will be important in determining the extent to which the benefits of the single European market are available to Canadian industry. Canada's negotiating positions will, therefore, need to reflect both evolving policies in Europe and specific Canadian interests in the European market.

4. The Commission's request to re-open or continue consultations with Canada on a European standard for HDTV production (which, in their view, would become the world standard) should be pursued through established channels, i.e., the ITU, or informally. In Brussels, we reaffirmed our interest in a single world standard, our willingness to cooperate in this area and our readiness to continue the exchange of information.

5. The Commission's invitation to the Department of Communications to send a representative to ETSI's annual general assembly should be accepted. The possible establishment of permanent observer or special guest status should be pursued, following review within DOC and by the Interdepartmental Working Group on Telecommunications.

6. The Commission's expressed interest in the mutual recognition of terminal equipment type approvals and certification procedures should be pursued by DOC at an appropriate time; as there is no mutual certification process in operation within the Community, bilateral arrangements with Member States could be explored.

B. Medium Term: R&D Co-operation and Industry Programs

1. The extent of resources committed to this sector in Europe suggests a need to reassess Canadian R&D priorities and industry support programs in the telecommunications sector and in the closely related computer/information technology sectors. The domestic review should differentiate between major Canadian players (Northern Telecom, Bell) and small to medium size enterprises (SMEs). It should be based on DOC's recent Search conference which established a unanimous industry position on Canada's research priorities in this areas.

2. Consultations should be initiated by the Department of Communications, in association with DIST and other Departments or agencies, with Canadian industry, especially SMEs, to determine the extent of interest in participation in the showcase European S&T programs (RACE, ESPRIT). Potential industry financial commitments should be determined.

3. As part of this examination phase, preparations should be made for selected industry and DOC representatives to attend the next round of European S&T reviews or general assemblies, e.g., the next ESPRIT annual conference. If Canadian industry is to be geared up to participate in the next phase of RACE or ESPRIT projects, a minimum of 18 to 24 months time is required. The next round for RACE projects is 1991; there are annual reviews for ESPRIT.

4. The possibility of a more formal S&T arrangement with the Commission in the telecommunications and computer sectors, including an analysis of interests in specific subsectors, as well as the cost-benefits of each modality, should be explored in detail. The Technical Cooperation subgroup of the Interdepartmental Working Committee on Telecommunications and Informatics has begun a preliminary analysis; this review should be pursued.

Brussels, 14 April 1989

COMMUNIQUE

European Commission - Canada Consultations on Telecommunications and Information Technology

Brussels, 13-14 April 1989

European Commission - Canada Consultations on Telecommunications and Information Technology took place in Brussels on 13 and 14 April 1989.

The Canadian Delegation was led by Mr Richard Stursberg, Assistant Deputy Minister of the Department of Communications. Mr Roberto Gualtieri, Assistant Deputy Minister of the Department of Industry Sciences and Technology also participated in the Consultations. The Commission side was led by Mr Michael Hardy, Director of General Affairs in the Directorate General for Telecommunications, Information Technology and Innovation.

The meeting took note of the current state of implementation of the Green Paper on Telecommunications in the Community in the framework of the Community's Policy objectives in this area for 1992. The Canadian Delegation illustrated the Canadian experience with respect to the liberalisation of the telecommunications market in the context of the Canada - US Free Trade Agreement.

The delegations exchanged views on the activities of the Community and Canada in the field of industrial research and development. The EC Delegation illustrated the experience of the Community in the ESPRIT and RACE programmes.

The EC-side explained the European proposal regarding the production standard for High Definition Television (1250 lines/50 Hz/1:1/progressive scan), and asked the Canadian side to take account of the European position with a view to the forthcoming May meetings of experts in the International Radio Consultative Committee and the North American situation. The Canadian side reaffirmed their interest in a single world production standard and referred to the importance of the market for co-productions in light of recent Community initiatives in the broadcasting area.
Both sides agreed to explore ways of possible cooperation in this important area of high technology and to continue the exchange of information.

The meeting discussed telecommunications standardisation in Canada and Europe. The EC-Delegation drew attention to the recently established European Telecommunications Standardisation Institute (ETSI) and its role in formulating European standards. Both sides agreed to continue collaboration in the important area of standards, including OSI and conformance testing. Expert meetings would be organised where appropriate.

Finally, both delegations exchanged views on the international aspects of telecommunications, notably the activities within the International Telecommunications Union, the activities in GATT and OECD, as well as the present situation in the trade relationship between the European Community and Canada in the area of telecommunications. They agreed that they should discuss trade in value added services in the future.

The Canadian Delegation and the EC-Delegation underlined the importance of continuing consultations and cooperation in the area of telecommunications and information technology and agreed that they should meet for further exchanges of views.

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Canadian Delegation

Canada/EC: Telecommunications Consultations

April 13-14, 1989, Brussels

Head of Delegation: Mr. Richard Stursberg

Assistant Deputy Minister, Technology and Telecommunications of the Department of Communications (DOC)

Mr. Roberto Gualtieri:

Assistant Deputy Minister, Science Sector of the new Department of Industry Sciences and Technology (ISTC)

Mr. Syd Gershberg:

Assistant Secretary, Program Branch, Treasury Board

Mr. David Mulcaster:

Director General, Industry and Economic Development

Dr. Robert Breithaupt:

Director General, Communications and Technologies Research

Mr. Michael Tiger:

International Relations Branch, Policy Advisor

Mission of Canada to the EC - Brussels

Mr. Tom MacDonald:

Minister-Counsellor

Mr. Peter Campbell:

Industrial Relations Counsellor

Mrs. Brigitte Léger:

Sciences and Technology Counsellor

TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY

EC-CANADA HIGH LEVEL CONSULTATIONS
13-14 APRIL 1989

LIST OF EC PARTICIPANTS

Mr. Hardy, Director, General Affairs, DG XIII

Mr. Wilkinson, Head of Division, International and Economic Affairs, DG XIII

Mr. Lalor, Head of Division, Telecommunications Directorate, DG XIII

Mr. Libertalis, International Affairs Division, DG XIII

Mr. Cawley, Telecommunications Directorate, DG XIII

Mr. Berben, Telecommunications Directorate, DG XIII

Miss Birkett, International Affairs Division, DG XIII

Mr. Burmanjer, International Affairs Division, DG XIII

Mr. Gourvès, RACE Directorate, DG XIII

Mr. Konidaris, RACE Directorate, DG XIII

Mr. Tsalas, ESPRIT Directorate, DG XIII

Mr. König, Telecommunications Directorate, DG XIII

Mr. Valentin, Telecommunications Directorate, DG XIII

Mr. Richter, Telecommunications Directorate, DG XIII

Mr. Tirr, DG I

Mrs. Doran, DG I

PART I - BACKGROUND

This section outlines the background to, and purposes of, the mission, the structure of the meetings, the detailed agendas and the names of persons met.

EUROPE 1992

REPORT ON A MISSION TO THE EUROPEAN COMMISSION, BY THE DEPARTMENT OF COMMUNICATIONS

BRUSSELS, APRIL 11-14, 1989

Background

The preparations in Europe for Europe 1992 and the single market include numerous adjustments to commercial and trade policies at the national and European Community (E.C.) levels. The anticipated expansion in international trade will lead to increased competitiveness and technological interdependence, especially in the advanced technology sectors. The European Commission's efforts represent a far-reaching and an historic initiative which will increasingly affect Canada and Canadian industry. This mission was intended to assist the Department of Communications in its on-going assessments of changes in the Community in the telecommunications and information sectors.

The expansion of the European Community to twelve Member States has been accomplished through a series of major political and economic initiatives. Chief among the recent political initiatives was the passage of the Single European Act on July 1, 1987 which set, as its commercial goal, an open internal European market for goods and services by 1992. With passage of the Act, the Commmission's numerous initiatives in the telecommunications and computer sectors have gathered increased momentum and authority. Moreover, under the new Act the Commission acquired new authorities, including responsibilities for R&D and environmental issues, among others. This mission devoted considerable time to the Commission's S&T programs in addition to a general policy review of European telecommunication and information sector policies.

In the early 1980's, the telecommunications and information sectors were targetted by the Commission and its Member States as an area vital to the restructuring of their national markets into a single European market and to the re-establishment of Europe's competitive economic advantage in selected industrial sectors. This strategic view on the need to restructure European industry produced two complementary long-term approaches. These were: a) Community-wide initiatives of a regulatory and competition policy nature to dismantle national protectionist policies or encourage Member

State governments to do so; and b) long term science and technology (S&T) programs, in addition to industrial support programs, which funnel research and development (R&D) resources into key industrial sectors, especially telecommunications and information technologies.

The DOC mission to Brussels followed two visits to Ottawa by delegations from the European Commission (E.C.), the last of which was on December 6, 1988. At that time, an invitation was extended to R. Stursberg, ADMTT (now ADMTR) to meet in Brussels to continue the discussions.

Purposes of DOC Mission

1. To develop a better understanding of the strategic objectives of the Commission in creating Europe 1992 and the single market concept.

2. To identify priorities within the Commission's different programs and policies in the telecommunications and information technology sectors and to subsequently identify trade opportunities or trade barriers.

3. To elaborate upon the initial reports of the Interdepartmental Working Group on Telecommunications and Informatics on Europe 1992.

4. To determine, at a later date, whether or not Canada should seek new forms or levels of association with the European Community in these two sectors. These could include policy consultations, research or industrial cooperation.

5. Finally, to examine the lessons to be learned from the Commission in the development and management of major S&T and R&D programs in these two sectors given DOC's recent Search Conference and consultations with the private sector.

Structure of Meetings, Atmosphere and Overview

Three separate series of meetings (see Programs and Agenda section) with the Commission were arranged by the Canadian Mission to the EC. For the first two days, i.e., April 11 and 12, an "advance team" consisting of R.W. Breithaupt, DGRC, D. Mulcaster, DGIE, M. Tiger, DGIR, and B. Léger (or alternate) from the Canadian Mission to the E.C. met with middle level managers of specific telecommunications and information technology programs. At these meetings, we reviewed program

management processes and obtained detailed information on many of their component parts. The second part of the mission, i.e., April 13 and 14, consisted of more formal discussions and presentations between the EC delegation and the Canadian delegation, headed by Richard Stursberg, ADMTR. The Canadian delegation for these meetings included Roberto Gaultieri, ADM, Science, ISTC and Syd Gershberg, Assistant Secretary, Program Branch, Treasury Board. The EC delegation, which consisted essentially of DG-XIII officials (the Telecommunications Directorate), was led by Michael Hardy, Director, General Affairs (Directorate E) and the Commission classified the discussions as "High-level Consultations" for purposes of public and Member State notification. Minutes of the meeting are, therefore, available to its Member States. Moreover, a formal European Commission-Canada Communiqué was drafted at the end of the meetings (see Part I).

A third series of meetings with EC officials was organized on Friday, April 14 to review the Commission's overall S&T framework program. These meetings, attended by R. Gaultieri, S. Gerschberg and R. Breithaupt (DOC), are not summarized in this report although elements are captured in the "Relative Priorities" R&D memo.

The informal nature of the discussions led to a frank and open exchange of views on telecommunications policies and S&T programs in Canada and in Europe. The warm and friendly atmosphere which was generated at the meetings was particularly noticeable at the final luncheon hosted by the Canadian Ambassador, Mr. Molgat, at his residence for senior Commission officials and members of the Canadian delegation.

The European Commission's informational interests were narrower than DOC's, given their two earlier visits to Canada. Commission officials sought further elaboration on Canada's regulatory approach, especially in areas where they have encountered problems, such as the mutual recognition of type approvals between countries and the standards setting process. The one "political" item, repeated at most meetings, was the Commission's desire for Canadian support for the proposed European standard for High Definition Television (HDTV). This standards issue is linked to the Community's long-term commercial strategy, i.e. a single European market, and the need to provide the European electronics industry, especially their emerging semi-conductor and microchip manufacturers, with maximum industrial policy support to complement the extensive R&D expenditures. This particular standards issue has become

highly symbolic for the Europeans. If the Community succeeds, it will re-establish European industry as an "equal" to U.S. and Japanese manufacturers in an industry projected to grow rapidly in the 1990's. This would have important political, economic and military implications.

DOC's interests were much broader than these expressed by the Commission. The delegation sought information on the Commission's general policies and programs as a first step in assessing the implications of European initiatives upon current and future federal activities in these sectors. The meetings with the Commission's highlighted the fact that the scale and scope of the Commission's S&T programs reach far beyond existing Canadian government initiatives. On the policy side, although the Commission has taken a leadership role in forging a unified or pan-European telecommunications sector, the reality is that the Commission can only proceed through a laborious consensus-making process with its twelve differing Member States. While it appears that great "policy-making" strides have been made, there has been some slippage in the Commission's plans this year.

Three separate memos, each of which provide a different perspective on the mission, have been prepared in addition to this report. These memos, included in Part II, are:

1. "Debriefing on DOC-EC Meetings of April 11-12, 1989" prepared in Brussels on April 12 immediately after the series of intensive meetings with program managers by the "advance team".

2. April 21, 1989 Memo to R. Stursberg, ADMTR, from Breithaupt (DGRC) and Mulcaster (DGIE) on "Federal R&D Expenditures - Relative Priorities and Lessons Learned from the EC". It provides a preliminary evaluation of the Commission's overall direction in the context of DOC's plans for this sector.

3. A May 1989 memo by R. Stursberg on "Europe" following his visits to Germany, Brussels, and London; this memo provides an initial assessment of the European Community's programs and policies.

M. Tiger/DGIR

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Canada/EC Telecommunications and Information Technologies

Programme for Messrs. Mulcaster, Breithaupt and Tiger

Tuesday April 11

09:00 HRS — Meeting at Canadian Mission, 2 Avenue de Tervuren, 1040 Brussels, 5th floor, with Brigitte LEGER, Sciences and Technology Counsellor.

Briefings on:
1) Canada/EC relationships. General context in which CDA/EC Telecommunications consultations will take place.
2) R&D Programmes of EC ESPRIT and RACE: access to third country.
3) Data base ECHO: search for projects.

11:00 HRS — Meeting with Anne STAINES, DG-XIII (Telecommunications, Information Industries and Innovation)
Directorate E-3, Legal Advisor
Tel: 236.13.61
Fax: 236.23.90
Topic: Intellectual Property
Rue Joseph II, 70 (0/10), Room 7-C
1040 Brussels

12:00 HRS — Meeting with Tim HOWELL, DG-XIII
Rue Joseph II, 37
Tel: 235.03.94
Topic: Satellite Communications

14:00 HRS — Meeting with Jonathan SCHEELE, DG-I (External Relations)
Tel: 235.99.35
Immeuble Berlaymont (3/67)
Rue de la Loi, 200
1040 Brussels
Topic: Trade-in Services

16:00 HRS — Meetings with Peter CAMPBELL (Industrial Counsellor) on market access and trade issue.

.../2

17:00 HRS Meeting with John TSALAS, DG-XIII, Directorate A-3
Rue Archimède, 25 (04/15)
1040 Brussels
Tel: 235.50.24
Fax: 235.65.02
Topics: ESPRIT projects, microelectronics - technical discussion

Wednesday April 12

09:30 HRS Meeting with Dick NAEZER, DG-XIII, Directorate D-5
Rue De Luxembourg, 46 (3/21)
Tel: 235.84.36
Fax: 235.02.99
Topics: Tedis Caddia

11:00 HRS Meeting with Horst FORSTER, DG-XIII, Directorate A-1
Rue Archimède, 25 (8/9)
Tel: 235.20.38
Topic: ESPRIT, strategy, planification, evaluation

14:30 HRS Meeting with Horst HUENKE (or one of his advisor), DG-XIII
Rue Archimède, 25 (9/13)
Tel: 235.76.66
Topic: EC programme operations and infrastructure

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AGENDA

High Level Consultations: 13-14 April 1989

Meetings with the Commission will take place at 70, rue Joseph II, Brussels

April 13:

10:00 HRS — 1. Introduction (Hardy)

2. Telecommunications: Regulatory Aspects

- Implementation of the Green Paper on Telecommunications: Policy Objectives for 1992 (Wilkinson/Cowley)
- Canadian experience in Telecommunications Deregulation (Stursberg)

13:00 HRS — Luncheon offered by EC, 120 rue de la Loi

15:00 HRS — 3. Telecommunications: Technological Aspects

- RACE (Konidaris)
- High Definition Television (technology and standards) (Wilkinson/Lalor)
- R&D initiatives in Canada

April 14:

10:00 HRS — 4. Telecommunications: International Aspects

- Standards and Conformance Testing (ETSI) (Audoux)
- International Telecommunications Union: the outcome of WATTC (Hardy/Birkett)
- GATT/OECD (Libertalis)
- Exchange of views on trends in telecommunications trade between the EC and Canada (DG-I)

13:00 HRS — Luncheon offered by Ambassador Molgat at his residence, 145 Avenue des Dames Blanches, Brussels

15:00 HRS — Wrap-up session. Follow-up for Canadian delegation at Ambassador's residence

16:00 HRS — End of meetings

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AGENDA

Programme for Mr. Gualtieri and Mr. Gershberg - 14 April 1989

Meetings with the Commission/DG-XII (Science, Research and Development) will take place at 8 Square de Meeûs, Brussels, 1st floor, Room 135.

09:00 HRS	Meeting with Mr. Luigi MASSIMO, Director, Directorate H, Evaluation of Community programmes Topic: Programme Evaluation Tel: 235.66.49
10:00 HRS	Meeting with Mr. Manfredo MACIOTI, Chief Advisor to the Deputy Director General (Mr. Tent) Topic: Framework Programme concept and implementation Tel: 235.98.88
10:30 HRS	Meeting with Mr. Jean GABOLDE, Director, Directorate A, Scientific and technological policy Topic: Detailed presentation of EC Framework Programme of R&D conception and implementation Tel: 235.67.12
11:30 HRS	Meeting with Mr. Giuseppe VALENTINI (DG-XII) and Mr. Giorgio BOGGIO (DG-XII) respectively Director and Head of section responsible for International Cooperation. Mr. Boggio is responsible for cooperation with industrialized countries including EC/Canada Science and Technology cooperation Topic: Canada/EC Science and Technology cooperation Tel: 235.56.35
13:00 HRS	Luncheon offered by Ambassador Molgat at his residence, 145 Avenue des Dames Blanches, Brussels (List of guests attached)
15:00 HRS	Wrap-up session between Canadians.

Telecommunications Consultations

EC delegation:

1. Michael Hardy

   Director, Directorate E, General Affairs
   DG-XIII Telecommunications, Information, Industries and Innovation
   70 rue Joseph II

2. Christopher Wilkinson

   Head of Section, Directorate E
   Economic and International aspects

3. Michel Audoux

   Head of Section, Directorate E
   Standards and type-approval in the field of electronics, information technology and telecommunications

4. Spyros Konidaris

   Head of Division, Directorate F
   RACE Programme: Reference model

5. Hörst Hünke

   Head of Division A, Directorate Coordination of Programme Operations and Infrastructure

6. Eamonn Lalor

   Head of Section, Directorate F
   RACE Programme Integration of IBC Systems and standardization aspects specific to these systems

7. Bernard Libertalis

   Deputy Head of Division
   International aspects

8. Rick Cowley

   Directorate D, Telecommunications

9. John Tsafas

   Directorate A, Microelectronics/JESSI

10. Miss Birkett

    ITU/Directorate E

11. Robert Burmanjer

    Directorate E, International aspects

DG-I: External Relations

Maeve Doran

Daird Tirr

PART II - MEMOS, SUMMARY RECORDS AND SUMMARY NOTES

This section contains two detailed Summary Records of the formal High Level Consultations and the individual meetings with Commission officials. The two Summary Records are organized in a chronological sequence. In addition, it contains three memos, prepared during and after the Mission, which offer differing perspectives on the visit and the Reporting Telex.

CONTENTS OF PART II

Government of Canada
Department of Communications

Gouvernement du Canada
Ministère des Communications

MEMORANDUM **NOTE DE SERVICE**

TO / A: Distribution

FROM / DE: Richard Stursberg
ADMTR

SECURITY – CLASSIFICATION – DE SÉCURITÉ:

OUR FILE / NOTRE RÉFÉRENCE:

YOUR FILE / VOTRE RÉFÉRENCE:

DATE: MAY / MAI 18 1989

SUBJECT / OBJET: **EUROPE**

All over Europe these days people talk of nothing but 1992. Businessmen, journalists and government officials are obsessed with the topic, practically to the exclusion of all else. There is a sense of Europe being re-invented, of a period of political creativity unmatched since the original creation of the EEC thirty years ago.

A few weeks ago, I had a chance to see in some detail how well the Europeans are doing in the areas of telecommunications and information technology. I spent three days with DIST's high level mission to Germany examining science policy; two days in Brussels holding detailed talks with the senior Commission officials in DG XIII; two days in Amsterdam attending and speaking at a conference on European Telecommunications Policy; and a day in London, discussing developments with the U.K. government which is far and away the most aggressive in its approach to market liberalization.

Throughout the trip one impression came through overwhelmingly: the Europeans believe that advanced communications are the key to their future competitiveness. They believe that if their industries are to challenge the Japanese and Americans in the future, they must have access to the most sophisticated networks in the world. This requires a significant liberalization of their traditional monopoly-based PTT regimes and a major commitment to ensuring the competitiveness of their equipment manufacturers and service providers. If successful they expect the telecommunications sector to rise from 3% of European GDP in 1987 to close to 7% by 1999.

The level of resources being thrown at these issues - both financially and in terms of political will - are very large. This is true not only at the level of Europe as a whole, but even more substantially by individual countries and administrators. Indeed what one is beginning to see is a double drive both to open the European market as a whole, and within that context to forge national strategies that allow specific countries to gain the maximum benefit from the pan-European initiatives.

For a Canadian observer, the sheer scale and complexity of what is being attempted is staggering. While it's too early to say how much will succeed - and it's clear that a lot of the effort is devoted to catch up - it's not too early to think hard about what lessons we can learn from the European effort and what it implies for our future efforts in this area.

The Economic Issue

Underpinning much of what is being done are two fundamental facts about the new telecommunications technologies.

1. Development costs are accelerating rapidly. For major products - like central office switches - 3-4% of the global market was enough in the early 1980's, to cover the underlying R&D; by the mid 1990's, Philips believes that manufacturers will have to take 15-18% of the world market to cover their development costs. The big joint ventures we have seen recently are being put in place to deal with this requirement (i.e. Alcatel's purchase of ITT; the AT&T arrangement with Atactel; and the current struggle by Seimans and GEC to take over Plessey). This is worrying for those companies that are without partners and currently below the 15% minimum market target, most notably Northern and Ericsson (each with slightly less than 10% of the world market).

   Precisely because of these requirements, the fundamental impulse behind current efforts in the EEC is to ensure the integration of the European market for equipment and new services (VAN's). Without a unified European market, suppliers will not be able to take sufficient share to be able to offset the rising product development costs. The Europeans have

committed themselves to common standards and full competition in terminals (CPE), network equipment and value added services by 1992. I'll return to how well they are doing in these areas later.

2. Aggravating the problem of rising development costs is the fact that product life cycles are shrinking dramatically. Whereas telecommunications products in the 1960's and 70's were expected to have useful life - spans of 20 to 30 years, they are now down to 5-8 years. Quite apart from the changes this implies for corporate decision making, it means that speed of market entry, as well as market size, is a critical variable for economic success. This requires that rules for market entry must be clear, simple and common across the market in its entirety. The Europeans are struggling mightily to ensure common - and in most cases uniform - rules are put in place across the whole of the EEC. Again, I will return to these efforts later.

With these changes underway, individual countries and companies are pursuing strategies to ensure they can take maximum advantage of the changing European market. Broadly speaking, these strategies involve using their existing PTT's (in many cases privatized and in all cases stripped of their regulatory responsibilities) with their enormous financial bases to diversify into VAN's, shore up their manufacturing activities and establish joint ventures in other markets.

The Emerging European Market

Broadly speaking the Europeans are pursuing two basic but clearly interrelated strategies to reshape their telecommunications industries.

1. A massive effort to unify the European market coupled with a significant liberalization of competition. This is the regulatory initiative laid out in last year's Green Paper.

2. The development of very large scale pre-competitive consortia to increase the overall R&D effort and teach companies how to work together. The most famous of these - RACE (Research on Advanced Communications for

Europe) - involves the expenditure of approximately 2.5 B dollars Canadian over 5 years. This is, of course, only a fraction of the amounts being spent by individual governments (eg. Germany which finances the lion's share of RACE spends less then 10% of its total governmental R&D budget on trans-European efforts, the rest going to German based R&D Consortia).

By way of a global appreciation of these strategies, my sense is that we are still ahead of the Europeans technologically and substantially ahead in regulatory terms (in federal territory). But these advantages will not last. If current trends continue, we will be passed in the next 2-3 years.

The EEC's Regulatory Agenda

The Europeans are committed to the following by 1992:

- full terminal competition based on common standards and mutual certification of each others testing facilities;
- full network equipment competition based on agreed procurement rules for the PTT's;
- full competition in Value Added Networks based on an agreed set of Open Network Principles (ONP); and
- rate rebalancing.

In 1992, the Europeans will begin a review of long distance voice competition and network competition. Between now and then, they will put out a mini-green paper on satellites and initiate a second competitive digital cellular network.

As far as regulatory arrangements are concerned, they have:

- established an independent standards institute (ETSI: the European Telecommunications Standards Institute);
- agreed to establish separate national regulators and independent of the PTT's; and
- created a trans-European regulator in the European Commission (the powers of this latter are, however, the subject of court challenge before the European Court of Justice).

These arrangements are very new and the Europeans are still struggling with many of the issues we have understood for a long time (eg. cost allocation procedures, separation rules, etc.) The learning processes associated with the relatives novelty of

these arrangements - in conjunction with the still very powerful political lobbies of the pro-monopoly enthusiasts at the PTT's - are likely to slow the evolution of the market and the development of new services somewhat. But the direction of change is clear: there is no doubt that over the next few years, the European will radically liberalize their telecommunications markets.

The EEC's Research Effort

Complementing and reinforcing the EEC's regulatory agenda, the community has established a number of very large scale pre-competitive research consortia to strengthen their domestic telecommunications companies.

The most important of these is RACE (Research for Advanced Communications in Europe). It is now in its second phase and is financed at approximately $550 M (Can) per year. The program is focussed on the development of integrated broadband communications.

Quite apart from the technological advantages that may result from these programs. The programs are teaching European firms how to work and share risks together. This will inevitably lead to competitive advantage, since the European firms will be able to establish a larger technological base for the development of future product.

In thinking about these programs, it is also useful to compare their overall allocation of resources to the current distributions in Canada. In European Community, communications and Information Technology (C&IT) gets $3.2B(Can) out of a total of $7.6B(Can) for R&D. These numbers are sobering for three reasons:

- C&IT is 42% of the total EEC R&D expenditures (compared with less then 5% of total Canadian government expenditures);
- the programs are cost-shared, so that $3.2B means about $6.4B in total expenditures over 5 years; and
- for many member states, this is only a small part of their national R&D expenditures in the C&IT area (eg. for W.Germany, EEC contributions are less than 10% of their total R&D budget).

These expenditures have been growing over the last five years; and given the fiscal position of most European countries, they are likely to continue to grow.

A Note on the U.K.

Although Europe as a whole is moving ahead, the pace of change varies. Germany and France are moving more slowly to liberalize, while Holland and the U.K. are moving much more quickly. Indeed in the case of the U.K. they are moving very fast indeed.

The basic strategy in the U.K. is to create two complete full service competitors: British Telecom (BT) and Mercury. They would like them to compete against each other in all aspects of telecommunications including local telephone service. As they see it, the business and the public should ultimately have a choice between at least two full service infrastructure based carriers competing in all aspects of the market.

To this end, they have agreed to:

- rebalance rates, thereby eliminating any social constraints on competition (a lot easier for them than us);
- encourage inter-working arrangements between Mercury and the cable companies to provide local loops (although Mercury must own the switch); and
- provide Mercury with a monopoly to compete against BT until 1992, when the arrangements will be reviewed to see if other entrants should be allowed in.

This approach is - in many respects - more radical than the US or Japan, since it envisages complete competition at all levels (not just interexchange).

Beyond this the British are pushing forward competition in:

- satellite business services. (5 new entrants have been licensed to provide point to multipoint, but not two-way services); and
- personal commmunications:
  - 4 zone phone (or 2nd generation portable) operators have been licensed; and
  - they are considering 2-way portable phones (non-mobile) in the 1.8 to 2.2 GHz range.

Indeed personal communications have become a major priority for them, in which they are trying to use spectrum policy pro-actively to develop British industry and accelerate the number of options available to users.

Finally, they are reviewing their cable policies. They have effectively abandoned their drive to have Britain fully cabled. Instead they have decided to let market forces determine the extent of cabling. To this end, they are going to undertake a review in 1990 to see whether BT & Mercury should be allowed into broadcasting. It's also interesting to note that they are effectively junking their ownership rules for cable (apparently Nynex and Telesis are buying British cable franchises; presumably to improve their position for a push in their home markets in the U.S.).

Conclusion

While Europe may have seemed a little sleepy five years ago, it's moving very quickly on all fronts to ensure its competitiveness in the telecommunications area. If we don't start to accord our efforts the same priority (particularly for R&D spending) we will be overtaken by them and fall behind. This would be tragic, since this is our only high technology industry that is internationally competitive.

More specifically, we have to take some concrete steps:

- see whether we should establish a permanent observer at ETSI;
- ensure access by our Value Added Network operators to the European market (they are prepared to negotiate bilaterally to guarantee this);
- follow-up with Canadian industry to see whether and how they can participate in RACE, ESPRIT, etc.; and
- keep pace with the U.K. on radio-based technologies (which are one of our great national strengths).

More generally, I think we should consider formalizing some form of joint Canada-EEC talks, the same way we do now with the Japanese.

Government of Canada / Gouvernement du Canada

MEMORANDUM **NOTE DE SERVICE**

TO ADMTT
À

c.c. Sector DGs, DGSP
Directors in DGRC, DGIE,
DGIR, DTP, DMG
M. Tiger, B. Léger
chron, file

FROM DGRC
DE DGIE

21 April 1989

Richard—

SUBJET **Federal R&D Expenditures**
OBJET **Relative Priorities and Lessons Learned from the EC**

Perhaps the most critical task relating to strategic R&D policy in DOC, in our view, is obtaining sufficient priority and funding for federal C&IT initiatives. Since, with few exceptions in the federal context, we are dealing with an essentially fixed overall S&T budget, this means that DOC must ensure that the relative position for C&IT is improved relative to other S&T areas of federal expenditure. This may be the only profitable avenue to pursue, given the fiscal environment. This note is intended to show how the EC deals effectively with the question of relative priority among different fields of technology within a fixed S&T framework, through a number of processes which appear very relevant to our own needs in Canada.

When we look outside Canada, a shocking contrast exists in the relative priority of C&IT in Canada vis a vis other countries. An easy comparison is with the European community where in the 1987-91 fiscal framework C&IT gets $3.18B (Can.) out of a total of $7.55B for R&D expenditures. These numbers are sobering for three reasons: first that C&IT is 42 % of the total ECC R&D expenditure; second the magnitude - $3.18B in 50% shared programs means about $Can. $6.4B expenditure over 5 years; and third that for many member states (eg. W. Germany) this is only a small part of their full national R&D expenditure in the C&IT area.

Why are we so far behind, in Canada? We offer the following:

1. We in DOC and industry at large have failed to capture the attention and imagination of Ministers over the past decade, to sell the vital importance of C&IT.

2. No process exists to establish a proper relative priority among R&D expenditures in different areas of S&T. There is no national consensus building process, which involves all sector players in the country, to support ministerial decision making.

3. We are the victims of an incremental approach internalized within government which merely perpetuates historical allocations rather than establishing new priorities in a balanced manner.

4. No effective means have been found in Canada to achieve industry collaboration in R&D on a large scale.

5. No effective overall evaluation process exists, with effective feedback into the allocation process at a high enough level (eg. NABST or P&P).

Some things are happening in Canada. NABST and Lortie are struggling with the questions of allocation and evaluation. We are trying to prepare white papers relating to C&IT and R&D visions and strategies. Some large scale collaborative projects have been undertaken (eg. PRECARN). DIST and NSERC are also struggling with Centres of Excellence and Strategic Alliances programs. DOC on a very modest scale has been developing research partnerships and applications consortia.

We think we have much to learn from the EC, particularly in respect to processes. In particular in relation to

a) the establishment of an S&T framework by iterative national consensus building

b) how to galvanize private sector R&D collaboration on a large scale (eg. processes perfected through the Esprit and Race programs), and

c) evaluation processes which feed back to program adjustment and overall priority setting on an almost continuous basis.

S&T Framework for the EC

The EC General Framework approach was described by Mr. Macioti. The program choice initially was historical (coal research began in 1955, agriculture 1958), with research being addressed seriously when UK joined in 1973. In 1976 a framework program was created, and has now culminated in a systematic approach over the past decade which can address relative priorities and the specificity of Europe. Environment is a new rising priority. Following a current evaluation, new (revised) Framework document will be ready for July 1989, which will be provided to EC ministers in September for a decision by December 1989. The new Framework will probably reflect

- precompetitive S&T alliances have been good and will continue. Programs are oversubscribed
- introduce pre industry and pre regulation emphasis to go beyond the prototype, to demonstration, and diffusion
- new priority for the environment
- an increase of up to 70 percent is expected in overall S&T expenditures by the EC

EC funding support was suggested in the following proportions:

basic research	100%
precompetitive partnerships	50%
preindustry (prototypes and trials)	maybe 20 - 30%

There are three stages to the Framework process in the EC; namely establishment of priorities and fiscal framework, proposals/program decisions; implementation. The establishment of relative priorities takes place through a continuing consultative process managed by CREST (Committee for Research Science and Technology) composed of Ministers and Science Advisors which meets every 6 months and advises both the European Council of Ministers, and the

Commission. CREST itself is supported by extensive planning, assessment and consensus management machinery within the Commission. CREST develops common positions through an informal but well structured and managed process to reach consensus. Each S&T area has a consultative committee which exchanges information; and sectoral committees are created to pursue specific objectives. CREST considers the numbers (costs) for each S&T area last, after relative priorities have been argued. Basically, this process reaches compromise positions which best reflect both the needs and the interests of member states.

Precompetitive Research Through Alliances

The EC has successfully developed a process for industry - government - university collaboration on large pre-competitive R&D projects. In the process of doing this, the industry culture across Europe has changed dramatically so that large companies in competition with each other, (eg. Seimens, Phillips, etc.) now see considerable advantage in precompetitive R&D collaboration now coming to fruition in joint commercial efforts. This kind of collaboration is clearly evident in the very large RACE and ESPRIT showcase programs. The processes developed by the EC are clearly relevant to the new DIST program for strategic alliances and to the development of a DOC - sponsored national R&D project ("Communications 2000") in the C&IT area for Canada.

Key to the European Commission process is the role of EC staff in the Commission, which is one of coordinator, facilitator and agent in terms of development of program strategies, concepts and proposals, as well as being program manager and provider of 50% funding. University/industry play a lead role in building consensus on <u>what</u> should be done, and <u>how</u>. This perceived lead role is critical to the strategy; and goes far beyond anything we do in terms of industrial strategy and involvement.

Typically a new program (eg. ESPRIT) will go through the following steps, which may be repeated for subsequent project phases, and which take about 18 months:

- Advisory Board (industry) outlines priorities
- series of workshops with wide participation
- development of workplan
- Advisory Board constrains scope and fiscal framework
- Commission staff update program framework as required
- proposal to Council of Ministers
- Council approval of funds
- RFP (call for proposals) to private sector
- proposals received in required format
- independent review by outside panel of experts
- negotiation of contracts and start of work

The program employs an ongoing annual evaluation (by outside experts) and a 30 month evaluation. They are typically 50% cost shared, and up to 5 years duration for a major program phase. We have a contract pro forma, and information on how IP is treated. Most projects within the program involve a consortium of 5 participants (avg.) including at least 1 university and 1 small company.

Evaluation

This is an important activity applied to all EC S&T programs. It is based on a well documented methodology, beginning with objectives which must be evaluable. Evaluation occurs at several levels, including review of priorities (the Framework) and of programs. It is carried out both internally and externally (independent), at both intermediate and past facto stages. Both vertical and horizontal evaluations are carried out. The S&T Framework is now under evaluation, with a revised version to Ministers in May. Some parameters of the EC evaluation process are indicated below:

scope:	-	scientific/technical achievement, quality and relevance, efficiency/management, contribution to policies, benefits at EC level
resulting actions:	-	continue/alter, delete, tech. transfer
indicators:	-	world context, science output, industry application, patents, cooperation, movement of people, socio-economic input
experienced gained	-	must set variable objectives
	-	need detailed documentation, methodology
	-	do not focus on pure science, need multidisciplinary teams
	-	do not do bad science in the "right" place.

We are planning a presentation on key findings of our recent visit to Brussels in the near future, and the above can be elaborated further at that time. A considerable volume of documentation can be circulated to those interested. All of the lessons learned have a vital impact on our planning of followup to the Search 20 Conference and a national collaborative R&D project.

David Mulcaster

D. Mulcaster

R.W. Breithaupt

DEBRIEFING ON THE DOC-EC MEETINGS OF APRIL 11-12, 1989

A. BACKGROUND

The beginnings of the EC programs in telecommunications and information technologies (IT) date back to the mid to late 1970s and the recognition that the Community lacked a modern integrated system of communications. The current programs represent a number of different approaches to the challenges faced by a Community of 12 Member States speaking 9 different languages that is seeking to regain its competitive advantages across a wide number of sectors, such as transportation or energy. Telecommunications was identified as one of the weaker structural elements. As a consequence, the Community has created the influential DG-XIII which combines major policy functions to restructure the fragmented European telecommunications system with far-reaching R&D programs (ESPRIT and RACE).

B. VISION

- the vision of the EC is stated within the Green Paper (building a European industry, establishing a pan-Europe network etc.)

- although the major programs (RACE, ESPRIT, etc.) appear in their overall public presentation as somewhat divorced from the essential policy positions of the Green Paper they are in fact much guided by it

- the Green Paper addresses in many respects problems which are uniquely European e.g. continental standards, interoperability, compatible regulatory regimes - problems which Canada either does not face or which it has on a much different scale

C. STRATEGY

- RACE aims to establish an integrated broadband network sometime past the 1992 date and its technological objectives reinforce the policy objectives of the Green Paper - this represents a personal vision which was the creation of a single person; Carpentier

- ESPRIT, in comparison, finds its roots in an extensive history of planning and technology assessment consultations with industry, and was initially technology driven across

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a broad front

- the consultations with industry were intense and were carried out in a manner which, for political reasons, leaves a public perception that it is industry itself which controls the strategy - this is not the case

- since both ESPRIT and RACE are linked to the Green Paper intellectually and to the European context practically they should not be viewed necessarily as models which can be replicated in Canada (ignoring funding)

- none of the discussions with EC officials detracted from our own views as to the emerging vision we have for a flag ship program in Canada

- nonetheless, the way they are planned, managed and periodically evaluated do provide valuable lessons for us from a process point of view

- substantively, based on our interviews and review of written materials, we are not presently in a position to advise you where the programs are funding catchup versus pioneer development. We suspect there is a measure of each in the programs

- it is important to know that both RACE and ESPRIT are entering new phases - ESPRIT was, for the first 5 years technology driven, is now increasingly needs and market driven. RACE was a mixture of both at its inception but the next phase will likely see more orientation towards application

- in short, the programs and strategy evolve as they themselves modify the institutional environment with European industry (more transnational collaboration, new critical areas, etc.)

- in addition to RACE and ESPRIT a plethora of specialized application programs are being put in place which complement technological developments - AIM (Advanced Information for Medicine), TEDIS (EDI applied to customs agriculture and statistics), INSIS (Inter-institutional Information System) - many of these programs provide useful models for our own activities but which we need to examine more closely

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D. MANAGEMENT PROCESSES (R&D PROGRAMS)

- ECC staff play a role of coordinator, facilitator, and agent in terms of development of program strategies and proposals, as well as being the program manager
- industry/university play a lead role in building a consensus as to what should be done, and how it should be done. This perceived lead role is critical to the strategy
- typically a new program will go through the following steps, which may be repeated later, and take about 18 months :
- Advisory Board outlines priorities
- series of workshops with wide participation
- development of workplan
- Advisory Board constrains scope, fiscal framework
- Commission staff update framework as required
- proposal to Council
- Council approval of funds
- RFP to private sector
- submission of proposals in required format
- independent review by a panel of experts
- negotiation of contracts
- start of contracts
- on going annual evaluation (independent experts)
- 30 month evaluation
- programs are typically 50% cost shared, up to 5 years duration
- new programs conceived, consistent with overall strategy, Green Paper

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- we have copies of contract requirements, and IP provisions

- most projects within a program involve a consortium of up to 5 participants, including a university and small company

E. OPPORTUNITIES FOR CANADA AND RECOMMENDATIONS

- Canada's primary objective relates to meeting Canadian and North American needs first, and penetrating European market second

- various elements of the ECC R&D programs are of interest to Canada, but we do not share the same "vision" or identical problems

- 1976 Canada-ECC Framework Agreement for commercial and economic cooperation does not cover S&T in the area of C/IT (by interpretation), and a separate S&T Agreement should be supported (such an agreement is being proposed by EA on which Brigitte Léger can brief you)

- pursue the cooperative conformance testing agreement in the area of OSI (under RACE) as proposed by DOC last October

- Canadian companies can participate in ECC R&D programs by
  - having a European subsidiary

  - sub-contracting to European consortium member if no ECC source exists (100% funded)

  -we should explore how best to facilitate this by active follow-up with the Canadian Mission

- Canadian government could probably participate with associate status in ETSI (European Telecommunications Standards Institute). A senior level visit to ETSI during the ITU Plenipot in October 1989 is suggested (ETSI is just outside Nice)

- we could make good use of the ECC's experience in establishing a "process" for a national project, including consensus building, treatment of IP, etc.

- ECC staff are probably very open to informal discussions in areas of common interest since they have seen us more than once - we received at least one such invitation

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- ADMTT sector should take a more active role on the officials' sub-committee (G&P) formed under the 1976 Agreement particularly in preparation for its 27-28 April meeting

IMPRESSIONS ARISING FROM APRIL 11-12 DISCUSSIONS

Initially, we encountered reluctance on the part of some officials to speak frankly and openly on certain matters of substance such as intellectual property or their overall strategic plans. There was much more openness as the visits went on, although it was our perception that Commission officials were not prepared to go beyond official positions or postures in the expression of personal views.

We were, however, provided with extensive documentation on various programs and, most importantly, explanations on their management oversight and involvement in programs in the sectors of interest to us.

There was obvious sensitivity to any questions on the participation of Canadian-based companies in their programs, as these were designed to support or reinforce European-based entities.

In due course, the exchanges became much fuller and more fruitful to the Canadian delegation. The issue of HDTV (and standards) was raised by Commission officials on a number of occasions, especially on day 1. As HDTV relates to their overall designs for European standards, it is politically sensitive for the Commission.

The exchange on the GATT-MTN round and trade-in-services was extremely open and will require further elaboration. Overall, the information gained was useful and will serve as a basis for a review of DOC plans and future programs.

REPORTING TELEX

FM BREEC YCST2986 12MAY89

TO EXTOTT RED

INFO BRU ROME PARIS PCECD LDN BONN GVGAT TBOTT/GERSHBERG

ISTCOTT/GUALTIERI/BLACKBURN/INT

BH DOCOTT/STURSBERG/DGIR DE OTT

DISTR RGB REP REM RWT JLE TFB TTD TTS EPT OMTN EPI RWI RWR

---CDA/EC TELECOMS CONSULTS:VISIT OF STURSBERG AND GUALTIERI

WE HAVE FAXED SEPARATELY(NOTAL)DOCUMENTS RELATED TO FIRST

CDA/EC TELECOMS HIGH LEVEL CONSULTS WHICH TOOK PLACE ON 13-14APR

BETWEEN CDN DEL LED BY CDM DOC/STURSBERG AND INCLUDING ADM

ISTC/GUALTIERI AND TBS/GERSHBERG,AND EC DEL LED BY HARDY(DIRECTOR,

GENERAL AFFAIRS,DG-XIII).WE REGRET DELAY IN REPORTING ON THIS BUT

HAVE BEEN RATHER SWAMPED BY INCOMING MISSIONS DURING INTERVENING

PERIOD.FAXED DOCUMENTS INCLUDE AGENDA FOR 13-14APR TELECOMS

CONSULTS,SCHEDULE OF PREPARATORY MEETINGS OF 11-12APR,TEXT OF

AGREED MINUTES OF TELECOMS CONSULTS AND NAMES,TITLES OF

EC PARTICIPANTS.SEPARATE TEL FOLLOWS PROVIDING COMMENTS ON MORE

GENERAL DISCUSSION OF EC SANDT PRIORITIES AND POLICIES

WHICH EMERGED BOTH FROM TELECOMS CONSULTS AND IN SEPARATE

MEETINGS 14APR WHICH GUALTIERI HELD WITH DG-XII.YOU WILL HAVE

ALREADY SEEN SEPARATE TEL(BREEC YCGR1243 OF 20APR89)ON QUESTION

OF S AND T AGREEMENT.UPDATE TELEX ALSO FOLLOWS BASED ON FURTHER

DISCUSSION OF THIS SUBJECT AT REVIEW MEETING OF G AND P

CO-CHAIRMEN HELD IN BRU 27APR.

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2.MAIN IMPRESSION FROM VISITS OF TWO SENIOR ADMS WAS ONE OF HIGH LEVEL OF EC INTEREST IN EXCHANGING VIEWS WITH CDA ON BROAD RANGE OF TOPICS IN TELECOM/I.T.SECTOR AND IN SANDT IN GENERAL.EC INTERLOCUTORS IN BOTH FORMAL CONSULTS AND INFORMAL SIDE MEETINGS WERE WITHOUT EXCEPTION VERY FRANK AND HONEST ABOUT SUCCESSES AND WEAKNESSES OF EC POLICIES AND PROGRAMS.THEY WERE ALSO CLEARLY EAGER TO COMPARE NOTES WITH CDN COUNTERPARTS. BOTH SIDES AGREED ON USEFULNESS OF SUCH EXCHANGES AND ON DESIRABILITY OF CONTINUING AND EXPANDING THEM IN FUTURE.CDN DEL SUCCEEDED IN MEETING BASIC OBJECTIVES WHICH IT HAD SET FOR THESE CONSULTS,INCLUDING OPENING A WINDOW ON EC TELECOMS STANDARDIZATION EXERCISE WITHIN ETSI,REGISTERING INTEREST RE MUTUAL RECOGNITION OF CERTIFICATION,AND PURSUING QUESTION OF POSSIBLE CDN PROJECT PARTICIPATION WITHIN EC R AND D FRAMEWORK PROGRAM.ALTHOUGH NOT/NOT ON AGENDA(AND NOT/NOT SPECIFICALLY A DG-XII OR DG-XIII FILE),STURSBERG ALSO TOOK OPPORTUNITY DURING DISCUSSION ON HDTV TO RAISE CDN CONCERNS ABOUT EC TELEVISION SANS FRONTIERES POLICY AND POSSIBLE NEGATIVE IMPACT ON CDN COPRODUCTION AGREEMENTS WITH EC M/S.

3.FOLLOWING HIGHLIGHTS SELECTED AGENDA ITEMS FROM TELECOM CONSULTS.WE UNDERSTAND THAT MORE DETAILED REPORT WILL BE PREPARED AND CIRCULATED BY DOC.

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4.REGULATORY ASPECTS:EC SIDE PROVIDED COMPREHENSIVE OVERVIEW OF PROGRESS AND PLANS RE LIBERALIZATION OF TELECOMS SECTOR IN CONTEXT OF IMPLEMENTATION OF GREEN PAPER AND 1992 EXERCISE.THREE PRIORITIES ARE OPENING MARKETS,INTERCONNECTING NETWORKS AND ACHIEVING STANDARDIZATION.POLICY WILL REQUIRE DISMANTLING OF STATE MONOPOLIES EXCEPT FOR BASIC SERVICES AND NEED FOR COMMON DEFINITION OF VALUE ADDED SERVICES.EC WAS ALSO EXTREMELY INTERESTED IN STURSBERG PRESENTATION ON CDN SUCCESSES AND CHALLENGES RE OPENING UP TELECOMS MARKET AND IN DETAILS OF APPROACH WHICH HAD BEEN FOLLOWED IN FTA.THEY NOTED THAT THIS WAS FIRST TIME THAT THEY HAD REALLY BEEN EXPOSED TO INTRICACIES OF CDN TELECOMS MARKET STRUCTURE(PARTICULARLY ISSUE OF FRAGMENTATION ALONG PROVINCIAL LINES).THEY WERE STRUCK BY COMPARISONS WITH PROBLEMS WHICH THEY FACE IN STRUCTURING ECS OWN INTERNAL MARKET,ALTHOUGH NOTING ALSO SUBSTANTIAL DIFFERENCES BETWEEN EC AND CDN SITUATIONS.EC SIDE EXPLAINED THAT DIRECTIVE ON LIBERALIZATION OF TERMINALS SECTOR HAS ALREADY GONE THROUGH BUT THAT MORE DIFFICULT AREAS OF VALUE-ADDED SERVICES AND BASIC DATA COMMUNICATION WERE YET TO COME.MAJOR LEGAL ISSUES ARE INVOLVED,IN PARTICULAR WHETHER LEGAL JUSTIFICATION SHOULD BE ARTICLE 90 OF TREATY OF ROME(WHICH GIVES EURCOM COMPETENCE ON BASIS OF REGULATION OF COMPETITION INVOLVING MONOPOLIES)OR ARTICLE 100A OF SINGLE ACT(WHICH IS BASED ON INTERNAL MARKET HARMONIZATION RATHER THAN COMPETITION CONSIDERATIONS AND WHICH REQUIRES

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APPROVAL OF MEMBER-STATES BY QUALIFIED MAJORITY VOTING).ARTICLE 90 APPROACH WAS USED IN CASE OF TERMINALS SECTOR AND COURT CHALLENGE TO THIS HAS BEEN LAUNCHED BY FRANCE/FRG/BELGIUM/ITALY NOT/NOT BECAUSE OF CONCERN OVER POLICY DIRECTION BUT RATHER IN REACTION TO PERCEIVED EXPANSION OF COMMISSION JURISDICTION). WE WOULD NOTE THAT FINANCIAL TIMES ARTICLE OF 05MAY PROVIDES INTERESTING ANALYSIS OF LEGAL DILEMMA FACING COMMISSION ON THIS ISSUE(ONE OF OPTIONS BEING TO PROCEED WITH ARTICLE 90 DIRECTIVE LIMITED TO VALUE ADDED NETWORKS AND TO HOLD BACK ON LIBERALIZATION IN MORE SENSITIVE AREA OF BASIC DATA COMMUNICATIONS).UK AND FRG WOULD NOT/NOT FAVOUR THIS APPROACH,HOWEVER,IN LIGHT OF THEIR STRONG INTEREST IN LIBERALIZING DATA COMMUNICATIONS.LARGEST EC BUSINESS SECTOR ORG(UNICE)HAS ALSO COME OUT THIS WEEK WITH PUBLIC STATEMENT URGING EC TO STAY THE COURSE ON DATA COMMUNICATIONS LIBERALIZATION IN ORDER THAT EC INDUSTRY CAN DERIVE BENEFITS AS PRINCIPAL CONSUMER OF THESE SERVICES.QUESTION OF LIBERALIZATION WAS ALSO LARGELY DISCUSSED AT AMSTERDAM CONFERENCE ON TELECOM REGULATIONS AND POLICIES ATTENDED BY STURSBERG/LEGER-REPORT TO FOLLOW.

5.MUTUAL RECOGNITION OF CERTIFICATION:CDN SIDE REGISTERED IMPORTANCE OF THIS ISSUE AND INTEREST AT APPROPRIATE STAGE IN NEGOTIATING BILATERAL ARRANGEMENTS TO ENSURE MUTUAL ACCESS. EC TOOK NOTE OF THIS BUT POINTED OUT THAT MUTUAL RECOGNITION (ALTHOUGH INCLUDED IN DIRECTIVE)IS STILL NON-OPERATIONAL EVEN AMONG EC M/S SINCE STANDARDS HAVE NOT/NOT YET BEEN DEVELOPED.

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THERE WAS FIRST A NEED TO GET THE INTERNAL EC SYSTEM UP AND RUNNING IN TERMS OF STANDARDS,CERTIFIED LABS,AND BUILDING UP TRUST IN MUTUAL CERTIFICATION WITHIN EUROPE.ONCE THIS WAS ACHIEVED,HOWEVER,EC WOULD CERTAINLY BE OPEN TO RECIPROCAL BILATERAL AGREEMENTS.

6.EC STANDARDS SETTING/ETSI:EC PROVIDED DETAILED BRIEFING ON STANDARDS ISSUE RELATED TO TELECOMS AND ON OPERATION AND STRUCTURE OF EUROPEAN TELECOMS STANDARDIZATION INSTITUTE(ETSI). IN RESPONSE TO CDN REQUEST FOR PARTICIPATION AT LEAST AS OBSERVER IN ETSI,EC SIDE NOTED THAT OBSERVER STATUS IS LIMITED TO EC/EFTA.HOWEVER,THEY INDICATED THAT FAVOURABLE CONSIDERATION WOULD BE GIVEN IF CDA WERE TO REQUEST(IN WRITING)STATUS OF QUOTE SPECIAL GUEST UNQUOTE OF ETSI.THIS WOULD ALLOW PARTICIPATION IN GENERAL ASSEMBLY SESSIONS(ALTHOUGH NOT/NOT IN OTHERS)AND ACCESS TO ALL ETSI DOCS.EC NOTED THAT JAPAN(AND WE UNDERSTAND USA) PARTICIPATE IN ETSI ON THIS BASIS.CDN SIDE INDICATED INTENTION TO PURSUE THIS APPROACH AND BOTH SIDES AGREED ON IMPORTANCE OF CONTINUED CLOSE DIALOGUE BETWEEN STANDARDS EXPERTS.

7.EC TELECOMS R AND D PROGRAMS:EC SIDE PROVIDED EXTENSIVE DETAIL ON OPERATION OF RACE PROGRAM WHICH IS PART OF IMPLEMENTATION OF GREEN PAPER,INCLUDING IN RESPECT OF IP ASPECTS AND QUESTION OF PARTICIPATION BY NON EC/EFTA PARTNERS.ON LATTER POINT,EC REITERATED POSITION AS DISCUSSED AT OPERLE/NARJES MEETING IN 1988.

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DIRECT PARTICIPATION ON THESE PARTICULAR PROGRAMS IS CURRENTLY LIMITED TO EC/EFTA COUNTRIES WHETHER OR NOT/NOT THIRD COUNTRY HAS AN SANDT AGREEMENT.PARTICIPATION BY CDN ENTITIES(IE UNIVERSITIES,FIRMS,GOVT LABS)IS POSSIBLE HOWEVER ON SUB-CONTRACT BASIS WORKING WITH EUROPEAN CONTRACTOR.WHEN QUESTIONED ON WHETHER SUBCONTRACT POSSIBILITY WAS STILL OPEN WHERE EC FIRM COULD DO THE JOB,EC SIDE INDICATED THAT THIS WAS NOT/NOT IMPEDIMENT FROM COMMISSION POINT OF VIEW PROVIDED THAT MEMBERS OF EUROPEAN CONSORTIUM INVOLVED IN PROJECT ARE IN AGREEMENT ON WHO SHOULD BE SUBCONTRACTOR.EC RECOGNIZED PROBLEM OF MAKING INITIAL LINKAGES BETWEEN EC AND CDN PLAYERS IN ORDER TO ACCESS SUBCONTRACT POSSIBILITIES.EC SIDE NOTED THAT THEY WERE NOT/NOT IN A POSITION TO PLAY MATCHMAKERS AS IT SHOULD COME FROM THE PRIVATE SECTOR,AT THEIR REQUEST.THEY SUGGESTED THAT FTA MAY BE ONE CARD CDN ENTERPRISES WOULD BE ABLE TO PLAY IN ATTRACTING GREATER INTEREST ON PART OF EUROPEAN CONSORTIA TO CONSIDER MERITS OF CDN SUBCONTRACT INVOLVEMENT.

8.HIGH DEFINITION TV:THIS WAS PERHAPS MOST CONTROVERSIAL ITEM IN AGENDA AND ONLY ONE WHERE EC WAS DEMANDEUR.EC SIDE WAS CLEARLY EAGER TO HAVE CDN SUPPORT FOR EUROPEAN PRODUCTION STANDARD PROPOSAL.CDN SIDE REAFFIRMED ITS INTEREST IN A SINGLE WORLD PRODUCTION STANDARD AND AGREED TO EXPLORE WAYS OF POSSIBLE COOPERATION IN THIS AREA AND TO CONTINUE EXCHANGE OF INFO.AS NOTED ABOVE,OPPORTUNITY WAS ALSO TAKEN TO RAISE ISSUE OF TELEVISION SANS FRONTIERES AND POTENTIAL IMPACT ON CDN CO-PRODUCTION AGMTS.

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9.MTN NEGS/RECIPROCITY:EC SIDE NOTED ITS INTENTION TO BE A VERY ACTIVE PLAYER IN TERMS OF TELECOMS ASPECTS OF GATT NEGS ON SERVICES.THINKING WAS NOT/NOT VERY FAR ADVANCED,HOWEVER,AND SOME DIFFICULT ISSUES NEEDED TO BE CONSIDERED,EG APPROACH TO VALUE-ADDED NETWORKS;INTEGRAL RELATIONSHIP TO PROCUREMENT AND STANDARDS ELEMENTS.CDA/USA EXPERIENCE UNDER FTA WAS OF CONSIDERABLE INTEREST NOT/NOT ONLY IN TERMS OF POSSIBLE APPROACHES TO MTN BUT ALSO FROM POINT OF VIEW OF WHAT USA MAY BE PRESSING FOR FROM EC(IN LIGHT OF THEIR IDENTIFICATION AS PRIORITY TARGET FOR TELECOMS NEGS UNDER USA TRADE ACT).RE MTN PROSPECTS ON TELECOMS,HARDY INDICATED IN PERSONAL COMMENT AT LUNCHEON DISCUSSION THAT DG-XIII WAS NOT/NOT ENTIRELY SURE THAT MTN WAS BEST PLACE TO DEAL WITH THIS SECTOR.THIS CLEARLY DOES NOT/NOT REPRESENT FORMAL EC POSITION AND MAY BE PART OF DG-XIII/ DG-I TURF BATTLE.HIS POINT,HOWEVER,WAS THAT LIBERALIZATION OF TELECONS IS ESSENTIALLY AN ISSUE AMONG OECD COUNTRIES AND THAT HANDLING IT IN BROADER MIN SERVICES NEGS MAY RESULT IN AGREEMENT BEING WATERED DOWN FROM WHAT COULD BE ACHIEVED IN MORE SELECT AND SPECIALIZED FORUM.ON QUESTION OF RECIPROCITY,HARDY NOTED THAT,ALTHOUGH CONCEPT IS INCLUDED BY EC AS APPLICABLE TO TELECOMS, NO/NO THOUGHT HAS BEEN GIVEN TO HOW IT MIGHT BE APPLIED OR INDEED HOW IT COULD BE MEASURED IN LIGHT OF SUBSTANTIALLY DIFFERENT SYSTEMS WHICH EXIST IN VARIOUS COUNTRIES.HE SAW THIS AS VERY MUCH

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A RESIDUAL POWER AND DID NOT/NOT EXPECT THAT IT WOULD BE GIVEN MUCH PRECISION UNTIL AFTER OUTCOME OF GATT NEGS ON SERVICES HAD BECOME CLEAR.

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SUMMARY RECORD OF THE HIGH LEVEL CONSULTATIONS BETWEEN THE CANADIAN AND THE EUROPEAN COMMISSION DELEGATIONS BRUSSELS, APRIL 13-14, 1989

Thursday, April 13, 1989

Telecommunications Regulatory Aspects

a) Introduction

This second in the series of three meetings of the Canadian and European delegations consisted of an exchange of views and information on current EC and Canadian policies and practices. By way of introduction, the head of the EC delegation, Mr. Hardy, referred to the pivotal policy role played by the Commission's 1987 Telecommunications Green Paper and noted that the Council of Ministers had blessed the notions within the Green Paper in a June 1988 Resolution. During this session, R. Stursberg (ADMTR), head of the Canadian delegation, reviewed the Canadian policy environment, the federal/provincial jurisdictional issues and the continuing movement towards a more liberalized and competitive telecommunications industry structure.

b) Standards, Type Approvals, Mutual Recognition

Commission officials noted that the backbone of the Commission's work in the telecoms sector was in the area of standards; they viewed the establishment of pan-European standards and a harmonized European regulatory approach as the paramount task of the Commission. The creation of ETSI (European Telecommunications Standards Institute) by the 26-member Association of European PTTs known as CEPT (Conférence Européenne des Postes et Télécommunications) on 7 September 1987 was the outcome of a number of forces. Among these forces was the strong sentiment within the European Community on the need for ETSI which was noted within the EC's Green Paper.

ETSI's objective is to develop European standards in the telecommunication sector and to play a growing role in standards development in: a) the information technology sector (in cooperation with CEN/CENELEC); and b) in the broadcasting sector (in cooperation with the European Broadcasting Union). It is anticipated that ETSI will make the European standards-setting process more transparent and more accessible to others; observer status for non-members will be possible within some of its fora.

With respect to the liberalization process for terminal equipment Mr. Hardy stated that a new Directive would be issued shortly. In a related area, the Commission's October 1988 Directive on network equipment had been forwarded to the Council of Ministers for consideration. The legislative process that would follow for a Directive of this nature was: a) first reading in the European Parliament; b) second reading by the Council of Ministers; and c) second and final reading in the European Parliament.

With respect to type approval for terminal equipment, Mr. Hardy noted that the Commission was rewriting its existing Directive. He foresaw the next stage of development as the full mutual recognition of type approvals among the Member States. A list of authorized testing centres in each Member State was being prepared. The essential technical requirements would be: a) no harm to the network; and b) safety. Moreover, the Commission will require that Member States publicize their attachment requirements and deposit a copy with the Commission. He noted that while the Commission's mutual recognition directive was in force de jure, it was not in force in practice. It was anticipated that ETSI would take on responsibility for European type approvals and the mutual recognition process. With regard to equipment testing laboratories, it was expected that these would be separate from the planned European type approval body. This would allow companies to test equipment in their own labs and receive type approval thereafter.

Mr. Hardy expressed interest in the mutual recognition procedures between Canada and the U.S. and Canada-Japan. Mr. Stursberg reviewed the bilateral arrangements which had established the procedures, i.e., an exchange of letters between Government Departments or agencies followed by the accreditation of specified labs in each country. Mr. Hardy noted that some EC Member States have a mutual recognition procedure in place with non-European countries, e.g., Germany-U.S., and that the EC had tabled a Community-wide proposal for mutual recognition procedures with the Office of the U.S. Trade Representative (USTR).

c) Telecommunications Procurement

Mr. Hardy stated that procurement was a "difficult area" for the Commission. Four core economic sectors were excluded from the Commission's general procurement policies, including water, transportation, and telecommunications. In this latter area, there was a need for some Commission oversight over the national PTTs to ensure a "degree of fairness" in PTT purchases. While there had been progress in the telecoms procurement area

(e.g., Commission directives and proposals), the Commission was clearly encountering some political opposition at the national level.

d) Open Network Provision (ONP)

The Commission reviewed the recent ONP Directive for telecommunication services, proposed originally in the Green Paper. The Directive circumscribes the limits that will be placed on the telecommunication monopolies and, in combination with the Commission's competition policies, should lead to a further liberalization of telecommunication services. Under ONP, the Commission will attempt to define and harmonize policies or regulations that focus on access to telecommunication networks. They will not pursue the FCC's approach of progressively "unbundling" the network components and introducing competition at different levels of an increasingly fragmented system with a reduced core infrastructure. The Commission's emphasis on the structural integration of networks goes in the opposite direction of the U.S. drive for unbundling the network structure. We were advised that under ONP, the Commission's harmonization policies will start with the exclusive or reserved telecommunication services (i.e., basic voice) and may go beyond the basic or exclusive network services to, for example, specialized international user groups (banks, airlines, etc.). It was subsequently mentioned that the first priority area for ONP will be leased lines and that the Commission will encourage similar terms and conditions for the provision of leased lines among the Member States.

The Commission has sent a draft Framework Directive on ONP to the Council for comment/approval. It has two basic features. 1) It calls for the harmonized provision of network services on the basis of clear principles. Thus, the offering of exclusive network services would be based on objective criteria. The example given was tariffs which would, in future, be based on costs. While the EC does not intend to harmonize tariffs in its Member States, it will propose a tariff review in 1992 where Member States will be asked to give evidence that they have moved, or are moving, towards cost-based pricing. This last point generated some discussion on the need to balance the sometimes opposing objectives of universality of service and rate rebalancing. 2) The ONP Directive also calls for the provision of basic services on a non-discriminatory basis. This obligation would also apply to the pricing of enhanced services by Telecommunication Administrations (TAs). The Commission does not plan to impose U.S.-style "lines of business restrictions" on the TAs. Furthermore, the Commission has no plans to regulate enhanced services and parties other than TAs will be allowed to

offer new ISDN services. Competition, with harmonized rules among the Member States, will be encouraged. It was also noted that where, value-added services must be licensed today in some Member States, this requirement will remain. However, the proposed ONP Directive will list the essential requirements for licensing, e.g. the security of the network, its integrity and the inter-operability of services (which, it was noted, was a "delicate issue" for the Commission). The requirement for transparency of regulatory practices is an important departure from tradition for some Member-States.

Other points mentioned in the ONP discussion were: a) the Commission does not want standards to be used to limit entry; and b) the protection of the privacy of network users (data security, etc.) will require elaboration, as noted formally by the European Parliament. In the absence of EC rules on privacy, national legislation will prevail.

There was some discussion of the Commission's recent use of Article 90 of the Rome Treaty to issue a Directive in the telecommunications equipment sector. This article, generally reserved for matters of competition policy, provides the Commission with "unrestricted" authority over Member States. The alternative, Article 100 (a), requires a more elaborate consultative process, i.e., approval by the Council of Ministers, the European Parliament, etc., which generally leads to some "loss of blood" as Member States defend their narrower national interests. (Note: Following the mission, the Commission's use of its powers to issue a Directive to enforce competition under Article 90 (in the ECU 9.5 billion telecommunications equipment market) was overturned by the European Court pursuant to an appeal by a number of Member States, including West Germany, Italy and France. The Directive must now be resubmitted under Article 100 or another authority, be revised or be eliminated).

In a discussion on the public appeal process against Commission Directives or decisions, three possible channels were outlined. First, an appeal could be initiated at the national level where it would be heard by the national courts. Second, an appeal could be filed with the European Court of Justice. Third, a complainant could direct the appeal to the Commission where it would be handled internally. This could be in the form of a letter by the Commission or, after consideration, the Commission could refer the matter to the SOG-T (Senior Officials Group for Telecommunications) for consideration or review.

During the ensuing discussion, it was noted that the progressive implementation of the Commission's policies will require that tariffs follow cost trends and that rate rebalancing was underway in some Member States. Moreover, DG-IV (Competition Policy) will soon publish guidelines on the application of the Commission's competition policies to the telecommunications sector; this should spur the movement towards cost-based pricing.

Finally, there was mention of a Memorandum of Understanding (MOU) on a pan-European ISDN policy that had been signed a few days earlier wherein the emphasis was on a step-by-step ISDN process. During the summation of the session, it was re-emphasized that the Commission will limit its ONP regulatory efforts to harmonizing access to the Member State networks.

Thursday, April 13, 1989

Telecommunications Technological Aspects

a) Introduction

This session consisted of presentations on the Commission's technology support programs, such as ESPRIT and RACE. It was followed by general discussions on High Definition Television (HDTV) and R&D initiatives in Canada.

b) RACE: Research and Development in Advanced Communications Technologies.

The RACE program (presented in greater detail in the S&T section of this report) is focussed specifically on R&D support for the telecommunications sector and forms an integral part of the Commission's goal to promote an advanced European telecommunications infrastructure. RACE provides the impetus for a pan-European, pre-competitive R&D effort directed at the development of an Integrated Broadband Communication system. Such a system would differ from the existing mix of narrowband (e.g. voice) and broadband (e.g. video) systems in use in most countries. The Commission has allocated ECU 550 million, i.e. $770 million (Cdn), to this program for 1987-1991. RACE represents the next generation of telecommunication core network infrastructure, but the European approach may not be the model which Canada will pursue in its fullest expression.

During the discussion on the general conditions for the Commission's technology programmes, it was noted that non-European countries could not participate in the RACE programme.

Any revision to this policy would require the support of the RACE Management Committee which is composed of representatives of the 12 Member States. RACE project participants must be European-based, with European incorporation, and with research facilities in Europe. EFTA countries have negotiated a special arrangement with the Community and can participate on a project-by-project basis. A recent request by Australia to participate had been rejected. Mr. Hardy noted that a European participant in a RACE project could engage an Australian (or Canadian) firm as a sub-contractor, subject to the agreement of the other project participants and the Commission. The important issue of intellectual property rights - which cannot be assigned to a sub-contractor - and the RACE program is addressed in greater detail elsewhere in this report (see S&T section and reports on ESPRIT).

In addition to RACE, the Commission has initiated a "regional development" program, called STAR, to improve access to advanced telecommunications services for less-favoured regions of the Community - i.e., the peripheral regions in Greece, Italy, Spain, Portugal, Ireland, UK (Northern Ireland), and France. Other elements in the Commission's overall telecommunications plan include a harmonized regulatory environment (Green Paper), common standards, and the mutual recognition of equipment type approvals. On another front, and with respect to technology issues that require international resolution, the Community has agreed to put forward common positions within many of the multilateral fora, such as the ITU. Taken together, and over time, these varied measures and programs should provide the Commission and its Member States with some control over external forces that affect its telecommunications sector.

c) ESPRIT: European Strategic Programme for Research and Development in Information Technologies

The objectives of ESPRIT, which is the Commission's showcase program, are: a) to keep the European information technologies industry competitive in the 1990s; b) to promote European industrial cooperation in information technologies; and c) to contribute to the development of internationally accepted standards. The current budget for Phase II, adopted in 1988, amounts to 1.6 billion ECU (approx $2.2 billion) over 5 years and there are over 420 organizations participating in over 200 projects. This represents a doubling of the funding from Phase I which had a budget of 1.5 billion ECU, with only 50% or 750 million ECU ($1.1 billion) borne by the Commission. In addition, ESPRIT II has shifted from a technology-driven or basic research program in Phase I to a more market-driven or needs-driven program in Phase II.

It was noted that Phase II has focused on larger projects, such as TIPS (Technology Integration Projects). Given the pre-competitive nature of many of the projects in this phase, intellectual property rights (IP) have become increasingly important. In some projects, with minority participants, modifications to the standard IP contract were necessary. It was also noted that in cases of technology transfers or joint ventures which flow from the program, participants must respect the Commission's contractual terms for intellectual property.

NOTE: The program management and evaluation process for ESPRIT are described in the "Detailed Summary Notes on Individual Meetings" section of this report (see Part II, Meeting with Mr. Forsters, Mr. Huenke) and in the memos prepared by Breithaupt and Mulcaster. Additional general information is found in Part III, Science and Technology.

d) JESSI

There was some discussion on JESSI - the Joint European Submicron Silicon Initiative. The definition phase of this extensive program was completed in 1988; project proposals will be accepted between 1989 to 1994 and the program dates are 1989 to 1996. JESSI consists of four sub-programs that will require 21,400 PYs over eight years, i.e., some 3,000 PYs per annum. The industrial orientation of this program and its linkage to HDTV (see below) and general European competitiveness in the microelectronics sector are self-evident.

e) HDTV

The Commission's interest in Canada's support for a European HDTV standard had been raised at earlier meetings with the "advance team" and by the Commission's Ambassador in Ottawa prior to our departure. In Brussels, the Commission noted that it would welcome re-opening discussions with Canada on this subject either before or during the upcoming ITU-CCIR meetings.

Mr. Stursberg outlined the Canadian view on the importance of a compromise solution and sought the Commission's views on the merits of alternative approaches. The Commission spokesman noted that this would simply "delay the hard decision".

There was some discussion on the fluctuating U.S. position on HDTV and the seemingly constant changes in U.S. centres of influence on HDTV. The Commission felt that they could not identify who was in charge of U.S. decision-making on HDTV; the Canadian side noted that there was no single control point.

The delegations exchanged views on the possible creation of a U.S. HDTV consortium, the funding it would require ($50 million or $200 million, especially if Defence contracts were included), the adjustment to U.S. competition laws which would be needed, and the U.S. Dept. of Defence order for 2,000 Sony HDTV sets for defence simulation exercises. Participation of foreign firms in the proposed U.S. HDTV consortium was not foreseen. It was felt that HDTV would cost any new manufacturing entrant some $200-$300 million (U.S.) to develop first generation equipment.

The Canadian delegation noted that HDTV is linked with program content issues and expressed concern that the recent European Commission Directive on audio-visual programming could seriously jeopardize Canada's co-production agreements with some of the Community's Member States. The Commission delegation was not familiar with the details of the audio-visual Directive and indicated that they would discuss the matter with their colleagues.

Friday, April 19, 1989:

International Telecommunications Issues

a) ETSI: European Telecommunications Standards Institute

Following a detailed presentation on the new Institute, an invitation was extended to the Department of Communications to send a representative as a Special Guest to ETSI's General Assembly in Sophia-Antipolis (Nice) on October 5, 6, 1989. The Commission suggested that a letter be sent from DOC requesting "special guest" status, rather than observer status (usually reserved for non-profit organizations), to ETSI's Chairman (Lundberg) with a copy to its Director, Prof. D. Gagliardi. Mention was made of another (routine) Assembly of ETSI Members on July 3 & 4, 1989.

ETSI's membership includes national administrations, public network operators (e.g. BT, Mercury), manufacturers, users and private service providers, and research bodies. It is an autonomous body, founded in 1988 by the European Telecommunication Administrations (TAs), that will focus on the development of European standards. The previous standards, known as NETs (normes européennes de télécommunications) will become ETS (European Telecommunications Standard) or I-ETS (interim ETS). The Commission noted that proposals have been made to have

ETS as mandatory standards for Member States, but some will remain voluntary. Mention was made of an earlier visit to ETSI by a DOC representative interested in the Conformance Testing Project.

ETSI, which will have 50 staff members, will become increasingly involved in the European standard-setting exercise through numerous non-permanent technical committees and project teams drawn from the TAs (or PTTs). Surprisingly, its working language is English only. Note. A copy of the slide presentation on ETSI is available from DGIR/DPT (M. Tiger) and from DGIE (D. Mulcaster). See List of Documents.

b) Other International Issues

i) ITU

The delegations exchanged views on the ITU and third world relationships, particularly development issues. The third world proposal for a tax on telephone services which would be assigned to infrastructure development in the third world was discussed as was the locus for such initiatives, i.e., the ITU, the UN, or some other body. It was noted that this issue could arise at the next Intelsat Assembly this June, but that the political dimensions of this issue had not yet been unsprung.

During the discussion, it was mentioned that the Commission had been granted observer status for the first time at the last ITU-WATTC conference. In contrast, at the GATT-MTN negotiations, the Member States speak with one voice (and one position) through the Commission which represents the Member States on all telecommunications issues.

ii) GATT

As noted above, the Commission has an active involvement in the GATT-MTN negotiations. The delegations exchanged views on the upcoming GNS (Group Negotiating Services) round where a framework of trade principles would be tested against the telecommunications sector. It was felt that an MFN clause (most-favoured nation) would be difficult to negotiate in the services sector given that the determination of the country of origin of a service could be problematic. It was the general view that the procurement of services, which is currently not covered under the GATT Agreement on Government Procurement, might be extended to telecommunications on a minimal basis under the

GATT roof. In general, it was felt that the GATT-GNS would not advance to any significant degree given the strong opposition and disinterest of developing countries to an agreement in the services sectors.

The delegations discussed the Canada-U.S. Free Trade Agreement, its application to the telecommunications sector, and the lessons learned from that exercise. This was followed by a discussion on international value-added telecommunication services (VANS). It was noted that the Commission has full responsibility for negotiations on international VANS (I-Vans) in the GATT forum. However, for bilateral negotiations, the responsibility is less precise, as many of the Member States undertake their own I-VAN negotiations.

The discussions then continued on general OECD matters which were linked, in general terms, with the GATT-MTN round.

M. Tiger/DGIR

DETAILED SUMMARY NOTES ON INDIVIDUAL MEETINGS WITH

EUROPEAN COMMISSION OFFICIALS

Messrs. Breithaupt, Mulcaster and Tiger

Brussels, April 11-12, 1989

MEETINGS WITH:

1. Anne Staines, DG-XIII, Legal Advisor
2. Tim Howell, DG-XIII, Satellite Communications
3. Jonathan Scheele, DG-I, Trade/GATT-MTN
4. John Tsalas, DG-XIII, ESPRIT, Microelectronics
5. Dick Naezer, DG-XIII, TEDIS, CADDIA
6. Horst Forster, DG-XIII, ESPRIT Strategy, Planning and Evaluation
7. Horst Huenke, DG-XIII, EC Program Operations and Infrastructure

SUMMARY NOTES ON INDIVIDUAL MEETINGS WITH EUROPEAN COMMISSION OFFICIALS

MESSRS. BREITHAUPT, MULCASTER AND TIGER
Brussels, April 11-12, 1989

1. Meeting with Anne Staines, DG-XIII, Directorate E-3, Legal Advisor. No substantive items to note.

2. Meeting with Tim Howell, DG-XIII, Satellite Communications.

Mr. Howell, who had previously worked at the European Space Agency (ESA) and was familiar with DOC's participation in that program, drew a distinction between ESA's role and the Commission's satellite activities. He noted that ESA's role was primarily to perform basic R&D, and not engage in product commercialisation. The Commission's satellite program was of recent vintage and was focussed on the planning of pan-European satellite services. There was some discussion on the EC's imposition of European compatibility for HDTV trials and production equipment standards on Member States. He noted Canadian participation in European satellite projects, e.g., the earth observation projects and the use of ESR-1 data for fisheries.

Mr. Howell stated that the EC's emphasis in the telecommunications sector for a more competitive approach included a more liberal terminal equipment policy which applied to small, receive-only satellite terminals and not up-link or transmission terminals. A green paper on satellite communications is in the planning stages.

He commented on 5 satellite areas.

1) Fixed services - one issue is whether Eutelsat should "go commercial" and then compete with Intelsat.

2) Mobile communications - the EC objective is to encourage a pan-European system and European companies.

3) Aeronautical. Reference was made to a study to support air traffic control and a British Airways experiment.

4) Land Mobile. The differences between the multilateral INMARSAT system and national systems (Canada, US, USSR) was noted. Intelsat could provide a European land mobile system. Thus, an ESA mobile package could theoretically replace two TV transponders on a planned mid-1992 satellite launch.

5) Broadcast Services. There was mention of the considerable squabbles related to broadcasting content and cultural issues, eg. transborder advertising. Note was made of the "appalling" costs of the first generation DBS television transponders - $25 million (US) per channel per year. Astro was the first low power, private satellite (30 Watts/beam; 50 cm dishes). Costs would decrease for the second generation, pan-European DBS systems. This next generation of satellite technology might require a renegotiation of the ITU DBS spectrum arrangements (WATTC-77).

3. Meeting with Jonathan Scheele, DG-I, External Relations, Trade and GATT-MTN.

This discussion was characterized by an openness vis-à-vis the EC's thinking on the GATT trade-in-services negotiations. To satisfy the differing sectoral interests of its many member states, the E.C. was proposing that the framework agreement of principles apply to all services sectors; these would have to be examined over the next six months. There was no appreciation by Mr. Scheele of the scale of this task; the testing of all service sector statutes, regulations and practices in each country against a selected number of trade principles is a mammoth undertaking and our experience in the FTA was noted.

Mr. Scheele considered the Commission's use of "reciprocity" in each sector as a tool or lever for the Community to extract a balanced trade agreement from its major trading partners. The introduction of this new "bilateral" sectoral approach and the heavy handed nature of this "tool" was not seen by Mr. Scheele as a serious impediment to the multilateral negotiations. (Note: The Commission has apparently backed away from the use of the term "reciprocity" in recent weeks).

4. Meeting with John Tsalas, DG-XIII, Directorate A-3, Esprit Microelectronics Program.

Mr. Tsalas reviewed the evolution of ESPRIT, including the 1982 VLSI microelectronics project, the approval of the pilot phase in 1983, and the growth of the microelectronics program

which now has four different project categories. He also outlined the Commission's review and evaluation process for the previous year's 30 projects in this program.

ESPRIT would be reviewed shortly within the overall evaluation of the EC's Framework Programme for S&T. The mid-point review of ESPRIT Phase II was underway and would be completed by mid-summer. Once completed, he expected a further increase in funding for the microelectronics sector.

Mr. Tsalas, who holds dual Canadian and Greek citizenship, noted that the program, which is industry-driven, is open only to European-based entities. He pointed out that the Commission had gone through a major learning cycle with industry in developing the present assortment of "pre-competitive" projects. At this stage, intellectual property (IP) had become a sensitive issue - "it all boils down to I.P.". The Commission is just starting to monitor IP arrangements among participants - e.g., it can be licensed or sold to a sub-licensee but not with exclusive rights. He also noted that project evaluations always examine the commercial exploitation of project results.

5. Meeting with Dick Naezer, DG-XIII, Directorate D-5, TEDIS, CADDIA.

The meetings on TEDIS (Trade Electronic Data Interchange Systems) and CADDIA (Coopération dans l'automatisation des données exportations/importations et agriculture) provided detailed background information on these two specific software applications projects.

TEDIS, which was established in 1985, is intended to assist the electronic transactions capabilities of small and medium enterprises (SMEs). With its small budget of 6.5 M ECU (approx. $9 M Cdn) and 41 PYs, it operates through committees in selected economic sectors, e.g., automobile, transportation, customs. Each sector addresses eight issues, e.g., the legal implications of electronic records, security and confidentiality, standards, telecommunications, software, trials, and promotions.

CADDIA, which started in 1982, was recently extended for five years to 1992. There are 25 projects in this program, many of which focus on the trader/user interface.

Note. Documentation on TEDIS or CADDIA are available from David Mulcaster, DGIE or, secondarily, Michael Tiger, DGIR. For further references, see List of Documents in the Annex.

6. Meeting with Horst Forster, DG-XIII, Directorate A-1, ESPRIT Strategy, Planning and Evaluation.

a) ESPRIT Overview: Program Planning and Management

ESPRIT is the Commission's showcase program for promoting new pan-European industrial alliances through an extensive and innovative R&D program. For strategic advice, and to help build a broad political and industrial consensus, the Commission had formed an ESPRIT Advisory Board (EAB) consisting of senior industry representatives (at the Board of Directors level), academics and users. In the current ESPRIT II phase, the EAB had identified seven R&D or "pre-competitive" subject areas and then formed working groups to set priorities within each subject area for 1990-1994. The working groups, which consisted of 15-25 people in each case, had met five to seven times in their preparations of a detailed R&D Work Plan which included person-year estimates. The EAB was later called upon to set the final priorities within the overall ESPRIT program, once the program budget had been approved by the Community (i.e., Council of Ministers). Thus, following budget approval by the Commission, the EAB would review the working groups draft Work Plan and then generally reduce the number of proposed projects to stay within the budgetary constraint.

In the final approval stage, the Commission submits the EAB's composite ESPRIT proposal to the Council of Ministers (which had earlier approved the much larger S&T Framework Program). The Council of Ministers now sets the five-year budget envelopes for its major programs, e.g., ESPRIT, JESSIE. Following Council approval, the Commission tables its RFPs for each program.

The two-step planning and approval process outlined above, i.e., the ESPRIT Advisory Board and the political oversight, generally means a one-and-a-half to two years gestation period for programs. It was mentioned that the establishment of the overall budgets and priorities and any subsequent budgetary revisions require the consensus (i.e., unanimity) of the Member States. There had been an attempt to secure the Qualified Majority (voting) Instrument (QMI), used for regulatory matters, for ESPRIT II and RACE, but this attempt had failed. Mr. Forster also mentioned that the Single European Act (1987), which granted new R&D authorities to the Commission, had not speeded up the approval process.

In the case of individual or minor program changes, the Commission has a Work Programs Instrument which entails far less effort and time. Programs are assessed yearly and the Commission, in association with the EAB, can re-evaluate and reset program priorities. The approval of revisions at this level requires only two to three months' time. Mr. Forster noted that there is, in addition, an ongoing project review mechanism which operates on either a six-month or an annual basis.

To date, 150 ESPRIT projects have completed their "half-life". Some 70 to 80 have produced results, i.e., they have led to commercial applications. As each project must, at minimum, have two industrial participants who share project costs, commercial applications are a likely outcome. But as many of the earlier projects were of a basic research nature, commercial results were not anticipated.

In ESPRIT Phase II, the projects are larger than in Phase I. In addition, they are more focused on specific areas with, for example, an increased number in the areas of microelectronics, CAD and industrial automation. Expenditures for the more "exotic areas" have remained constant, which was also the case for some general information technology areas, such as office document architecture and standards.

b) ESPRIT Evaluation.

To undertake the extensive evaluation task of the $2.2 billion (Cdn) ESPRIT program, the Commission has established an independent seven-person ESPRIT Review Board (ERB) which has a six person secretariat and engages outside consultants for specific project evaluations. The Members of the ERB are highly qualified individuals, e.g., a Vice-Chairman Philips, or Professor Umberto Colombo. The ERB's role is to evaluate the extent to which ESPRIT programs and projects have attained the three major program objectives, i.e., an improved European technology base associated with commercialisation, pan-European cooperation, and common European standards that pave the way to 1992. The most important criterion for project evaluation is whether the project has produced commercially beneficial results or led to commercial activities.

We discussed the possibility of a Canada-EC S&T arrangement. Mr. Forster noted the European focus for the existing program and stated that Canadian participation would dilute the program objectives.

Further details on the management of the program are provided in the Mulcaster/Breithaupt, 21 April 1989 Memo on Federal R&D Expenditures/Relative Priorities and Lessons Learned from the EC (see Part II).

7. Meeting with Horst HUENKE, DG-XIII, EC Program Operations and Infrastructure.

Mr. Huenke provided an historical perspective on the development of the Commission's R&D programs and provided data on current operations. ESPRIT was a prototype program in the high technology sector intended to reduce the duplication of R&D efforts the Member States and to change the self-perceptions of industry and their assessment of international commercial opportunities.

The joint industry/Commission planning exercise in 1982-83 proved that the Commission could manage an R&D process. The 1983 pilot phase, with a budget of only 11.5 M ECU, received 200 project proposals. The first phase, or ESPRIT I, was launched in 1985 and focussed on five areas: 1) advanced microelectronics; 2) software technology; 3) advanced information processing; 4) office systems; and 5) computer integrated manufacturing (CAD, CAM, etc.) Mr. Huenke noted that the software development proposals received at that time approximated 20% of the ESPRIT program and were of a relatively "poor" quality.

There has been a natural and desired outgrowth to ESPRIT I in the form of post-project activities among consortia members. These are funded by ESPRIT participants themselves and participation is by invitation only.

ESPRIT I was vastly oversubscribed. Only twenty per cent of all project proposals were accepted; these accounted for 110% of the approved budget. Two of the common characteristics of successful projects noted were: a) the strong financial and moral commitment by industry participants, and b) the integration of academics within the project. The first global program evaluation occurred in 1985-86 (see ESPRIT Review Board, above). In addition, Mr. Huenke referred to the annual ESPRIT conference (with 2,000 participants) which reviews and updates the program. The conference proceedings are published by North Holland.

General Observations

	SME	Universities
ESPRIT I	60%	70% (1 academic or more)
ESPRIT II	80%	90%

In ESPRIT II, approximately 25% of the project work (by revenue) is performed by SMEs. It was noted that SMEs require a fast track process; they cannot wait a year for project approval. Also, he observed that the number of SMEs in France and the U.K. is high; in Germany it is low.

Other Programs

Reference was made to the commonalities in the RACE/AIM/DELTA/DRIVE programs. TIPS (Technology Integration Projects) began in 1984/85. Last year there were over 30 projects in the area of standards and 75 other projects, some of which had been transferred to other programs.

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PART III - SCIENCE AND TECHNOLOGY (S&T)

Given the special focus on S&T during the mission, this summary section has been added to the trip report.

This stand-alone section provides the reader with an overview of the S&T situation vis-à-vis the European Commission and with background information on ESPRIT and RACE. It includes two tables. The first lists the Commission's overall S&T budget. The second table lists possible options for an S&T agreement with the Commission.

This section brings together much of the information contained in the Summary Record of the High Level Consultations and the Summary Notes on meetings with individual Commission officials, although the Summary Records contain more detailed information. Readers interested in ESPRIT program management are referred to the Summary Notes on the meeting with Mr. Horst Forster.

NEX I

COMMISSION OF THE EUROPEAN COMMUNITY

FRAMEWORK PROGRAMME OF COMMUNITY ACTIVITIES IN THE FIELD OF RESEARCH AND TECHNOLOGICAL DEVELOPMENT (1987-91)

Breakdown of the amount deemed necessary between the various activities envisaged

	million ECU	
1. **Quality of life**		375
1.1. Health	80	
1.2. Radiation protection	34	
1.3. Environment	261	
2. **Towards a large market and an information and communications society**		2 275
2.1. Information technologies	1 600	
2.2. Telecommunications	550	
2.3. New services of common interest (including transport)	125	
3. **Modernization of industrial sectors**		845
3.1. Science and technology for manufacturing industry	400	
3.2. Science and technology of advanced materials	220	
3.3. Raw materials and recycling	45	
3.4. Technical standards, measurement methods and reference materials	180	
4. **Exploitation and optimum use of biological resources**		280
4.1. Biotechnology	120	
4.2. Agro-industrial technologies	105	
4.3. Competitiveness of agriculture and management of agricultural resources	55	
5. **Energy**		1 173
5.1. Fission: nuclear safety	440	
5.2. Controlled thermonuclear fusion	611	
5.3. Non-nuclear energies and rational use of energy	122	
6. **Science and technology for development**	80	80
7. **Exploitation of the sea bed and use of marine resources**		80
7.1. Marine science and technology	50	
7.2. Fisheries	30	
8. **Improvement of European S/T cooperation**		288
8.1. Stimulation, enhancement and use of human resources	180	
8.2. Use of major installations	30	
8.3. Forecasting and assessment and other back-up measures (including statistics)	23	
8.4. Dissemination and utilization of S/T research results	55	
Total		5 396

THE EUROPEAN COMMISSION'S S&T FRAMEWORK PROGRAM

Overview

The most salient features of the Commission's program are the strategic considerations and, in relative Canadian terms, its massive scale. In contrast with Canada, the Community has established a general S&T framework to support research in specific industrial sectors for strategic political and economic purposes. There is, therefore, the semblance of an industrial policy that is linked to the Community's overall political perspective. As far back as 1976, the EC had established an S&T framework which set relative program priorities. However, the framework and the priorities were flexible, and the Commission created an elaborate mechanism - the ESPRIT Advisory Board - to periodically review and evaluate its overall strategy. This mechanism included an on-going evaluation of individual programs. Program funding stability, which is vital to industry, was assured by a five-year planning cycle for major programs with possibility for program extension. Some programs have entered a second phase and have acquired a 10 year life span.

In the telecommunications and information technology sectors, the initial S&T programs were driven by basic research objectives. Over time, the programs and the strategies have evolved and, given their scale, they have modified the European industrial environment. In the present five year cycle, the programs are increasingly market or needs-driven. Many are generally considered as "pre-competitive" research and there was some discussion of the possibility that they will lead to funding for prototype development. Commission officials noted that the programs were consistent with the overall strategy of a single market, as expressed in the Green Paper on telecommunications. The programs typically provide 50% of proposed project costs to an accepted consortium or mix of European-based companies, institutes or universities, but the percentage can vary.

As the programs have become market-driven, the ownership or acquisition of intellectual property (IP) rights created in a specific project or in an entire sectoral program have become a major issue. In general terms, the Commission's contractual terms have reserved IP rights for consortia participants only who, in turn, must be resident in Member States. While there are some exceptions to this rule in the overall S&T framework, the programs managed by DG-XIII, the Telecommunications Directorate, preclude participation or access to intellectual property rights by non-European companies. A sample or pro forma EC contract which details the IP conditions is available from DGIE or DGRC. From the above, it is evident that

intellectual property rights will be central to any formal Canadian association with the Commission in the information technology sectors, be it a modification to the existing 1976 Canada-EC Framework Agreement for Commercial and Economic Cooperation or a new S&T agreement. Interestingly, while multinational companies, such as IBM Europe participate in some of the Commission's telecommunications/computer programs, to date no Japanese firm benefits from an R&D grant.

The approved S&T resources for the Commission's current Framework Programme for the 1987-1991 fiscal framework are 5.396 billion ECU, i.e., $7.55 billion (Cdn/1 ECU=$1.4). Although significant, this figure represents only 2.5% of the Commission's budget; 60% is allocated to its massive agricultural subsidy and support programs. A listing of the 8 sectors in the Framework Programme and their five year allocations is included in the table at the front of this section.

The telecommunications and information technologies represent by far the largest S&T expenditures. They amount to 2.275 billion ECU or $3.18 billion (Cdn) which constitutes 42% of the total European Community S&T budget. As this represents 50% of project costs, overall expenditures for these projects will be $6.4 B (Cdn) over the next five years. In addition, there are the R&D budgets of the individual Member States which can be substantial (eg., Germany); in some cases, these have been estimated to be 8 to 9 times greater than the country's contribution to the Commission's R&D budget. Finally, there are the considerable R&D expenditures by the private sector.

In Canada, the annual funding in the telecommunications and information sector is less than 5% of total Canadian government R&D expenditures. Most R&D funding is by the private sector, primarily by Bell-Northern which spends $ 700 million annually. Public expenditures amount to $45 M annually by DOC, $30-40 M by NRC in related areas, with another $ 115 contributed by a mix of other government departments, agencies and small to medium size enterprises. These comparative figures indicate that Canada's R&D policies for this sector require serious re-evaluation, particularly if Europe begins to succeed in its market-building exercise.

Possible Canada-European Community General S&T Agreement

The possibility of a bilateral S&T agreement with the Commission has been advanced by External Affairs on numerous occasions and quite forcefully by the Canadian Mission to the Community in Brussels. The subject was also raised during this

mission by the Canadian delegation with representatives of the EC Telecommunications Directorate, DG-XIII. There were clear sensitivities on this point. Most interlocutors noted that an agreement in the "sensitive" telecommunications sector would represent a departure from their established policy and that a special decision of the Commission and the Council of Ministers would be needed to permit companies or organizations outside of the Community to participate in its telecommunications R&D programs. Subsidiaries of Canadian companies based in the E.C., such as Northern Telecom could, however, participate fully.

The issue of Canadian participation in the Commission's S&T programs has been discussed on occasion at the Ministerial level. At the June 6, 1988 meeting in Brussels between Canada's Minister of Science and Technology, Frank Oberle, and the Commission's former Vice President, Mr. Narjes, Minister Oberle noted Canada's interest in acquiring a privileged status such as that recently acquired by EFTA in a number of sectors. Areas identified were energy, environmental technologies, agriculture and biotechnology, and advanced and raw materials. Vice President Narjes noted that Canada was not located in Europe and that there would be concern about the precedent if privileged access was given to a non-European country. (For further reference, see Canada/EC Science and Technology; DEA Minutes of Ministers Oberle/Narjes Meeting; June 6, 1988).

The issue of a generalized S&T agreement with the E.C. is on the agenda of the Canada-E.C. Joint Consultative Committee (JCC) scheduled for June 1989. At a preparatory meeting between DEA and the EC scheduled for the week of April 23-28 in Brussels, it was decided to obtain a legal opinion from the Commission's Counsel as to whether or not the 1976 Canada-EC Framework Agreement on Commonwealth and Economic Cooperation could provide the basis for Canadian participation in the Commission's S&T programs.

A preliminary outline of possible modalities for EC-Canada S&T Cooperation has been prepared by the Canadian Mission in Brussels. In one scenario, where the cost of full Canadian participation in a program would be related to Canada's GNP, the governement's cost would amount to 11% of the total E.C. program costs. Thus, for a program such as ESPRIT with a budget of 1.5 B ECUs, the government's cost would exceed $200 million (Cdn) over 5 years or $40 M per annum. It should be noted that, under this program, there is no guaranteed industrial return, as projects are theoretically selected on their scientific merits and not on the basis of national contributions. While Canadian companies established in Europe

with R&D facilities may participate in existing EC programs, the Commission's unwritten or informal selection process is not known. The case of Japanese companies, which apparently receive no EC funding, should be examined; Northern Telecom does not, to our knowledge, participate at this time but companies such as IBM-France and AT&T are members of some consortia.

There are numerous forms of scientific and technical arrangements that could be negotiated, such as: a) bilateral agreements with specific Member States in targetted sectors; b) a formal, general or sectoral S&T agreement with the European Community (as proposed by External) or, c) decreased or no government involvement. A table which lists "Possible Modalities for EC-Canada Cooperation" follows.

M. Tiger/DGIR
May 23, 1989

SCIENCE AND TECHNOLOGY ARRANGEMENTS

POSSIBLE MODALITIES FOR EC-CANADA COOPERATION

Sectors of interest for Canada / Legal Basis required	Exchange of non-confidential information	Cooperative arrangements directly concluded between EC research contractors and Canadian enterprises	Joint projects for EC partners, financed by art. 7309 of the Budget of the commission of the EC	Project by project participation in the EC programmes	"Full participant" in the EC programmes
	None	None	1976 EC/Canada framework agreement for cooperation	Specific agreements, programme by programme to be authorized by the Council	
FUSION	x	x	x	x	x
BIOTECHNOLOGY	x	x	x	x	
MATERIALS EURAM	x	x	x	x	
MANUFACTURING TECHNOLOGIES BRITE	x	x			
INFORMATION TECHNOLOGIES ESPRIT RACE (TELECOM.)	x x	x x			
ENVIRONMENT	x	x	x	x	x
ENERGY RADIATION PROTECTION HYDROGEN	x x x	x x x	x x x	x x	
MEDICAL RESEARCH	x	x	x	x	x

NB: X indicates theoretical possibility

BACKGROUND ON ESPRIT AND RACE PROGRAMS

1. ESPRIT: The European Strategic Programme for Research and Development in Information Technologies (ESPRIT) is the Commission's major showcase program formulated on a cost-shared (50-50) basis. The first phase, or ESPRIT I, conceived in 1984 and launched in 1985, was intended to: make the European Information Technology (IT) industry more competitive in the 1990's; promote European industrial cooperation in IT; and contribute to the development of internationally accepted European standards. The EC portion of the program budget for the current Phase II is 1.5 B ECU ($2.2 B Cdn) over five years (1987-1991), which is double the allocation for Phase I. By the end of 1987, over 220 projects were underway. In establishing the framework for ESPRIT projects, the Commission organizes an annual review and conference; at the last review some 2,000 participating scientists and researchers attended.

ESPRIT II, is increasingly market-driven with specific application targets rather than basic research objectives. Emphasis is being placed on strengthening European capabilities in areas such as Application Specific Integrated Circuits (ASICs), high performance parallel processing computers, and new office work stations. ESPRIT II also includes a new component, Basic Research Actions, designed to complement the Commission's main industrial programme.

For further details and references, see the Detailed Summary Notes in Part II (Meetings with Forster and Hunke) and the List of Documents (in the Annex).

2. The RACE Programme

The RACE programme is the second EC showcase program in the IT sector with a budget of 550 million ECU ($764.5 M Cdn) over five years. It is the only program focused solely on the telecommunications sector. Its aim is to develop a strategy and programs which lead to an integrated, advanced communications system in Europe. The immediate goal is an operating Integrated Broadband Communications (IBC) network in the post-1992 period which would reinforce the policy objectives of the Telecommunications Green Paper. The programme reflects the personal vision of Michel Carpentier, the Director General of DG-XIII.

Following a Council of Ministers decision in July 1985, a RACE definition phase was established. Over 400 experts from industry, universities and telecommunications administrations (TAs) were consulted. In addition, representatives of the 26

Members States of CEPT, the European Conference of Post and Telecommunications Administrations, worked on the development of IBC network specifications. A team of experts from a consortium of 30 major European companies have also contributed to the definition of the terminal equipment environment post-1992.

The RACE programme was adopted by the Council of Ministers on December 14, 1987. Projects began on a cost-shared basis (50-50) in early January 1988 with the signing of contracts for 46 projects involving over 188 European organizations and 3,500 person years of work.

The RACE program is open to EFTA countries under a special agreement whereby EFTA pays the full operating costs for its participants. It is not open to non-European third countries, such as Canada as full participants, barring a special or privileged arrangement. Canadian-based companies or institutions can participate in RACE but only as sub-contractors to a European participant. Moreover, the European participant must advise the members of the consortium and the European Commission of its intention to engage a non-European company. As sub-contractors, Canadian entities would not have access to the intellectual property rights emanating from the project or the RACE program as a whole; such rights can be acquired only by European-based participants. However, a Canadian company with research facilities in Europe can participate in RACE, e.g., Northern Telecom. At present (April 1989), a test case is under negotiation with the Commission in the IT-medical sectors. It involves the Ecole polytechnique at the Université de Montréal and the Institut de cardiologie. Participation in the project will be negotiated on an ad hoc basis, which was the preferred approach of the DG-XIII officials.

If successful, the RACE programme will provide a modern, integrated and standardized pan-European broadband network with capacity for voice, data and image transmission. In so doing, it will respond to, and leapfrog over, a set of uniquely European problems, i.e., differing national standards, incompatible regulatory policies, non-interoperability, etc. In general, Canada does not face these problems, given the integration of the Canadian and U.S. networks, or if they do exist, they are on a much smaller scale.

By mid-1990, RACE plans to complete the IBC system architecture proposals. These will be tested and validated in all Community countries. Agreement on the IBC system architecture is expected to follow by the end of 1991. During that year, a third general call for project proposals will be

published. It should be noted that RACE will also promote a common basis for the development of European standards and that this point was important to Commission officials.

For further reference, see The RACE PROGRAMME, Executive Summary, published by General Directorate XIII-F, 16 pp. This summary lists projects (as of 1988) and participants by country. In the UK, STC is a participant in 8 projects; Northern Telecom has a 27.5 percent share in STC and consequently has a minority shareholder's access to RACE. IBM Europe and AT&T are also listed as program participants.

M. Tiger/DGIR

ANNEXES

M. Tiger/DGIR
May 9, 1989

LIST OF DOCUMENTS ON EUROPE 1992
GATHERED BY DOC MISSION TO
THE COMMISSION OF THE EUROPEAN COMMUNITIES

BRUSSELS, APRIL 11-14, 1989

NOTE: DGIR maintains a separate listing and copies of some European Commission Directives, Resolutions, Recommendations and Proposals in the telecommunications sector, particularly policy announcements.

A. PUBLICATIONS ON TELECOMMUNICATIONS AND INFORMATION TECHNOLOGIES

1. Telecommunications: the new highways for the single European Market. European File Brochure, Oct. 1988, 11 pp.

2. The RACE Programme: R&D in Advanced Communications Technologies in Europe. Executive Summary (1988, CEC, DG XIII-F, 16 pp.

3. Establishing Advanced Communications in Europe. IBC Strategic Audit 1988, Chateau St. Anne, CEC publication, Brussels, Reprinted March 1989, 28 pp.

This brochure contains an Executive Summary and recommendations from the first annual Strategic Audit by seven independent advisors of the RACE Programme (R&D in Advanced Communications Technologies in Europe).

4. The ESPRIT Programme. Project Synopses; ESPRIT Projects Index and Associated Sub-programme Overviews. CEC, Directorate General XIII, Telecommunications, Information Industries and Innovation, June 1987, 47 pp.

5. TEDIS: Trade Electronic Data Interchange Systems, CEC, DG XIII, Brochure, 11 pp.

6. PROPOSAL FOR A COUNCIL REGULATION introducing the preparatory phase of a Community programme on trade electronic data interchange systems (TEDIS), COM (86) 662 final, 2 December 1986, 30 pp.

7. INSIS: The Inter-Institutional Services Information System. CEC, DG XIII, Brochure, 4 pp.

8. Introduction to UN/EDIFACT. UN/EDIFACT Rapporteurs' Teams, October 1988, 33 pp. A general outline of UN plans to develop a standardized system for commercial and administrative electronic exchanges. UN/EDIFACT is the acronym for UN Electronic Data Interchange for Administration, Commerce and Transport.

9. The European Community and Space: A Coherent Approach. CEC publication, July 1988, 33 pp.

B. COPIES OF EUROPEAN COMMISSION VU-GRAPH PRESENTATIONS

1. Overview of ESPRIT (European Strategic Programme for Research and Development in Information Technologies), DG XIII, 4 pp.

2. Presentation on the European standards process and on the structure and operation of ETSI (European Telecommunications Standards Institute) by Mr. Jurgen, 19 pp.

C. OTHER DOCUMENTS AVAILABLE IN DGIR OR ELSEWHERE

1. Discussion Paper on Canada-European Community. Science and Technology Cooperation: The Need for an Agreement. Prepared by B. Léger, Canadian Mission, Brussels, Feb. 1, 1989. Note: The Interdepartmental Committee on International Science and Technology Relations is chaired by Mr. J. Gibson, Department of External Affairs.

2. Business International Consultant's Report on Europe 1992. Implications of a Unified European Market, Part 1, Effects on Europe. Draft, Feb. 1989, approx. 300 pp. Copies are available from Department of External Affairs, European Community Division.

3. Deloitte, Haskins & Sells; (Consultants Reports). An on-going series of issue or sectoral reports on European Community initiatives and programmes prepared by the Brussels offices of D.H.S. for Department of External Affairs, European Community Division.

4. Peter J. Booth, Wescom Communications Research International Inc., Potential for International Cooperation in Information Technology R&D in Western Europe. A Report to the DEA, DOC and Participating Companies (DSS contract # 36100-6-4258/01 GT), April 1, 1988, 159 pp plus appendices.

   There is a separate Executive Summary which summarizes this report and other Wescom R&D reports on Canada and Japan. (10-15 pp.). Copies are available from DGIE (D. Mulcaster).

5. Herbert Ungere, N. Costello. Telecommunications in Europe, Free choice for the user in Europe's 1992 market, CEC publication, the European Perspective Series (Brussels, 1988), 258 pp. Available at Renouf Publishing Co. Ltd, 61 Sparks St., Ottawa, Tel. (613) 238-8985. One copy available in DGIR.

6. PRINTOUT FROM ON-LINE EUROPEAN COMMUNITY DATA BASE. EC 1992 - Telecommunications Projects and Policies. Excerpts from Directives, Proposals, Summaries of R&D Programmes, (RACE, STAR, DRIVE, MOBILE, ETC.)
   N.B. The Canadian Mission to the EC in Brussels has on-line access to the EC database. In Ottawa, DIST planned a trial connection with the European database. DOC should examine the possibility of obtaining similar on-line access to current EC information.

EC DIRECTIVES, RESOLUTIONS, RECOMMENDATIONS AND OTHER PROPOSALS IN THE TELECOMMUNICATIONS SECTOR

A. EC Decisions that focus on Standards

1. COUNCIL DIRECTIVE OF 28 MARCH 1983 effective 1 January 1985 on the provision of information on standards and technical regulations (83/189/EEC).

2. COUNCIL RESOLUTION OF 7 MAY 1985 on a new approach to technical harmonization and standards.

3. COUNCIL DIRECTIVE OF 24 JULY 1986 on the initial phase of mutual recognition of type approval for telecommunications terminal equipment (86/361/EEC).

4. COUNCIL DIRECTIVE OF 3 NOVEMBER 1986 on the adoption of common technical specifications of the MAC/packet family of standards for direct satellite television broadcasting (86/529/EEC).

5. COUNCIL RECOMMENDATION OF 22 DECEMBER 1986 on the coordinated introduction of the Integrated Services Digital Network (ISDN) in Europe (86/659/EEC).

6. COUNCIL DECISION OF 22 DECEMBER 1986 on standardization in information technology and telecommunications (87/95/EEC).

7. COUNCIL RECOMMENDATION OF 25 JUNE 1987 on the coordinated introduction of public cellular digital land-based mobile communications into the community (87/371/EEC).

8. CREATION OF the European Telecommunications Standards Institute (ETSI) on March 29, 1988.

B. Other EC Decisions and Proposals since 1984

1. COUNCIL RECOMMENDATION OF 12 NOVEMBER 1984 concerning the implementation of a common approach in the field of telecommunications (84/549/EEC).

2. COUNCIL RECOMMENDATION OF 12 NOVEMBER 1984 concerning the first phase of opening up access to public telecommunications contracts (84/550/EEC).

3. COUNCIL DECISION OF 25 JULY 1985 on a definition phase for an R&D programme in advanced communications technologies for Europe (RACE) (85/372/EEC).

4. COUNCIL RESOLUTION OF 9 JUNE 1986 on the use of videoconference and videophone techniques for intergovernmental applications (86/C/160/01).

5. COUNCIL REGULATION OF 27 OCTOBER 1986 instituting a Community programme for the development of certain less-favoured regions of the Community by improving access to advanced telecommunications services (STAR programme) (86/3300/EEC).

6. COUNCIL PROPOSAL OF 30 JUNE 1987: "Towards a Dynamic Economy - Green Paper on the Development of the Common Market for Telecommunications Services and Equipment" (COM) (87/290/EEC).

7. COUNCIL DECISION OF 5 OCTOBER 1987 introducing a network programme on trade electronic data interchange systems (TEDIS) (87/499/EEC).

8. COUNCIL PROPOSAL OF 9 FEBRUARY 1988 on "Implementing the Green Paper on the Development of the Common Market for Telecommunications Services and Equipment" (COM) (88/48).

9. COUNCIL DECISION OF 18 NOVEMBER 1988 on "High Definition Television (HDTV)" (88/659/EEC).

10. COMMISSION DIRECTIVE OF 16 MAY 1988 on "Competition in the Markets in Telecommunications Terminal Equipment" (88/301/EEC).

11. DRAFT COMMISSION DIRECTIVE OF 7 DECEMBER 1988 on "Competition in the Markets for Telecommunications Services".

12. PROPOSAL FOR A COUNCIL DIRECTIVE OF 9 JANUARY 1989 on the establishment of the internal market for telecommunications services through the implementation of Open Network Provision (ONP) (88/825/EEC).

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