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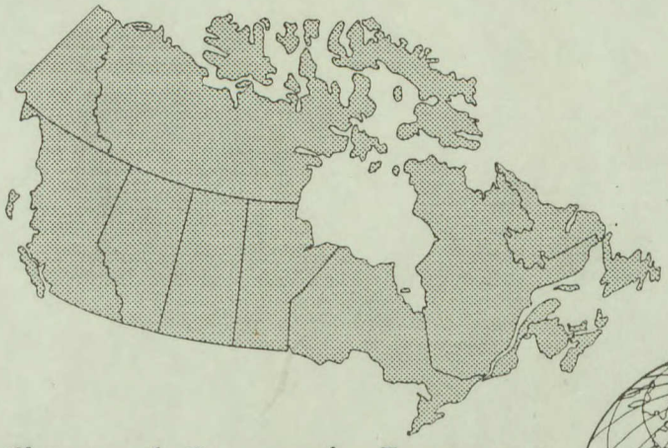
Multimedia: An Awakening Giant



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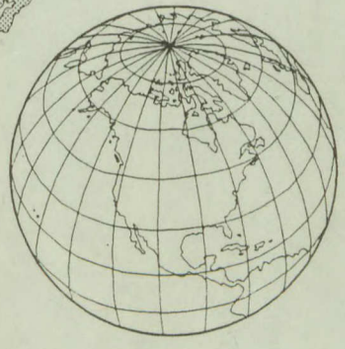

Its Benefits and Strategic Impact on Canada's Cultural Industries, Trade and Exports

by Burke Campbell

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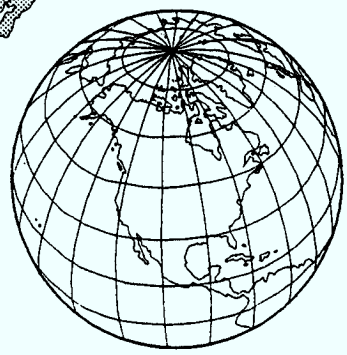

Its Benefits and Strategic Impact on Canada's Cultural Industries, Trade and Exports

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1.0 Preface

In recent months, the phenomenon called "multimedia" has become more of a popular movement than a single technological development. News of multimedia products, services, and technological tools are everywhere — in financial publications, technical and mainstream magazines, and on television talk shows. Daily, major corporations rush to form trend-setting alliances to capitalize on the mushrooming multimedia/home entertainment industry. In April 1993, a major multimedia conference was sponsored by the **International Council for Computer Communications** (ICCC) in Banff, Alberta, and hosted by **Communications Canada, Hewlett-Packard (Canada) Ltd., ED TEL,** and **Unitel Communications Incorporated.** In Toronto, where many Canadian multimedia developers are located, there has been a continuous series of conferences, demonstrations, and seminars on multimedia. *Multimedia '93*, a large tradeshow held in downtown Toronto, attracted approximately 14,600 visitors.

As the number of such events increase, this burgeoning industry will require constant research, monitoring, and appraisal. Importantly, Canada's cultural industries, which have grown from obscurity into a multi-billion dollar business, will play an *integral role* in the creation and spread of multimedia development. Ultimately, the Canadian arts will spearhead this country's ambitions in terms of trade and exports.

For our purposes, this non-technical report on multimedia examines a few "freeze frames" in the animation sequence of the awakening giant that is this industry, speculating on its influence and benefits. Intended for those interested in Canada's cultural industries and in how they are being affected, and will be affected, by this new technology, *this study notes how and why the multimedia industry depends so heavily on the cultural industries*, and how the arts will act as an *engine* to promote other Canadian industries in the global marketplace.

The recommendations of this report, commissioned by the Department of Communications, are based on the author's experience in the Canadian arts

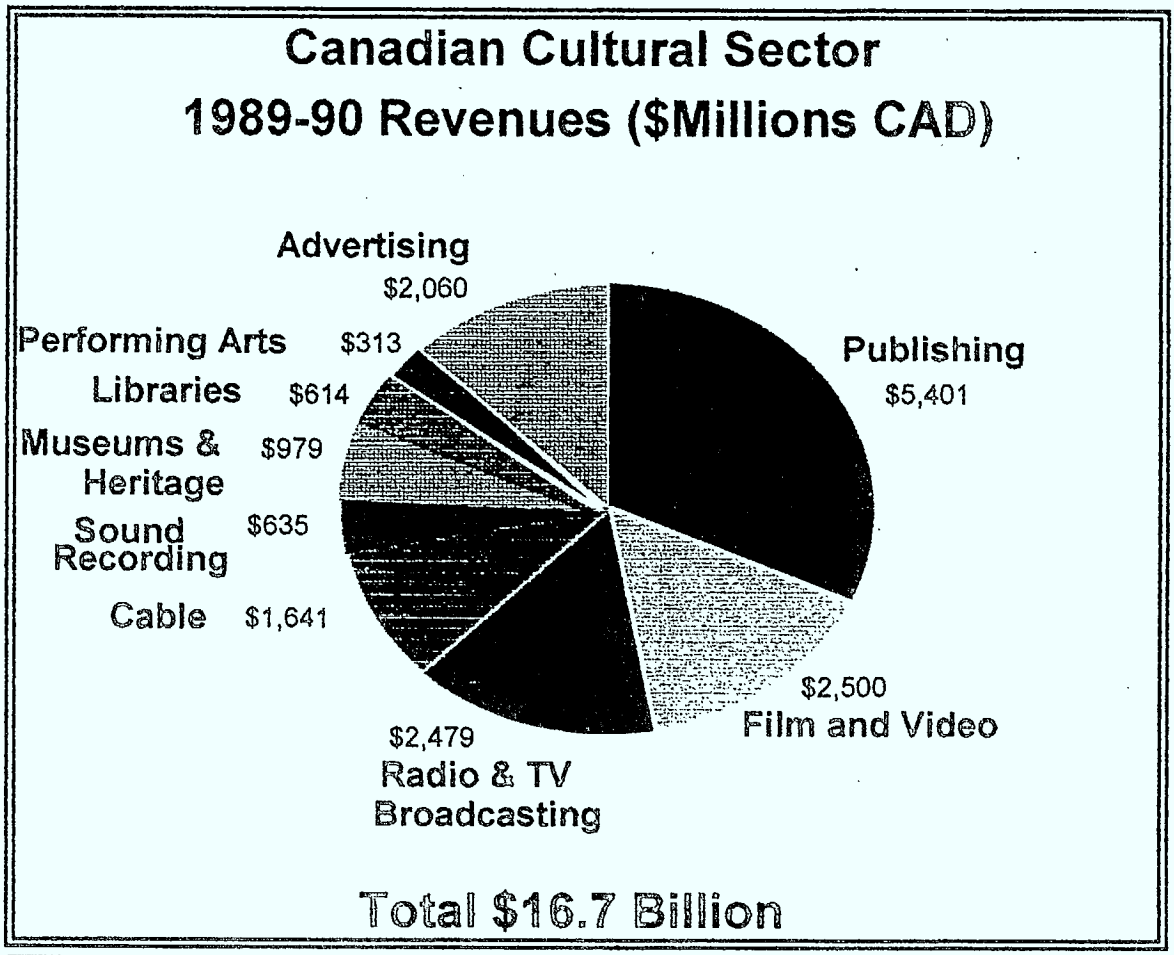
for the past two decades, and his long-time interest in and practice of technological innovation. These recommendations highlight important issues regarding multimedia technology and suggest that these issues be fully examined by appropriate government, corporate, and cultural branches, agencies, or institutions.

The Canadian multimedia industry is rapidly emerging. Many applications of this technology will appear in the months and years ahead. At present, it is impossible to fully anticipate the impact of this technology. Therefore, this report dwells primarily on its benefits, while listing general areas of concern. A more complete analysis of this dynamic situation must rest with future reports. Under present constraints, this document offers only a glimpse of an industry and technology that will have important influence on our economic development and our society as a whole.

2.0 Executive Summary

• Purpose of This Report

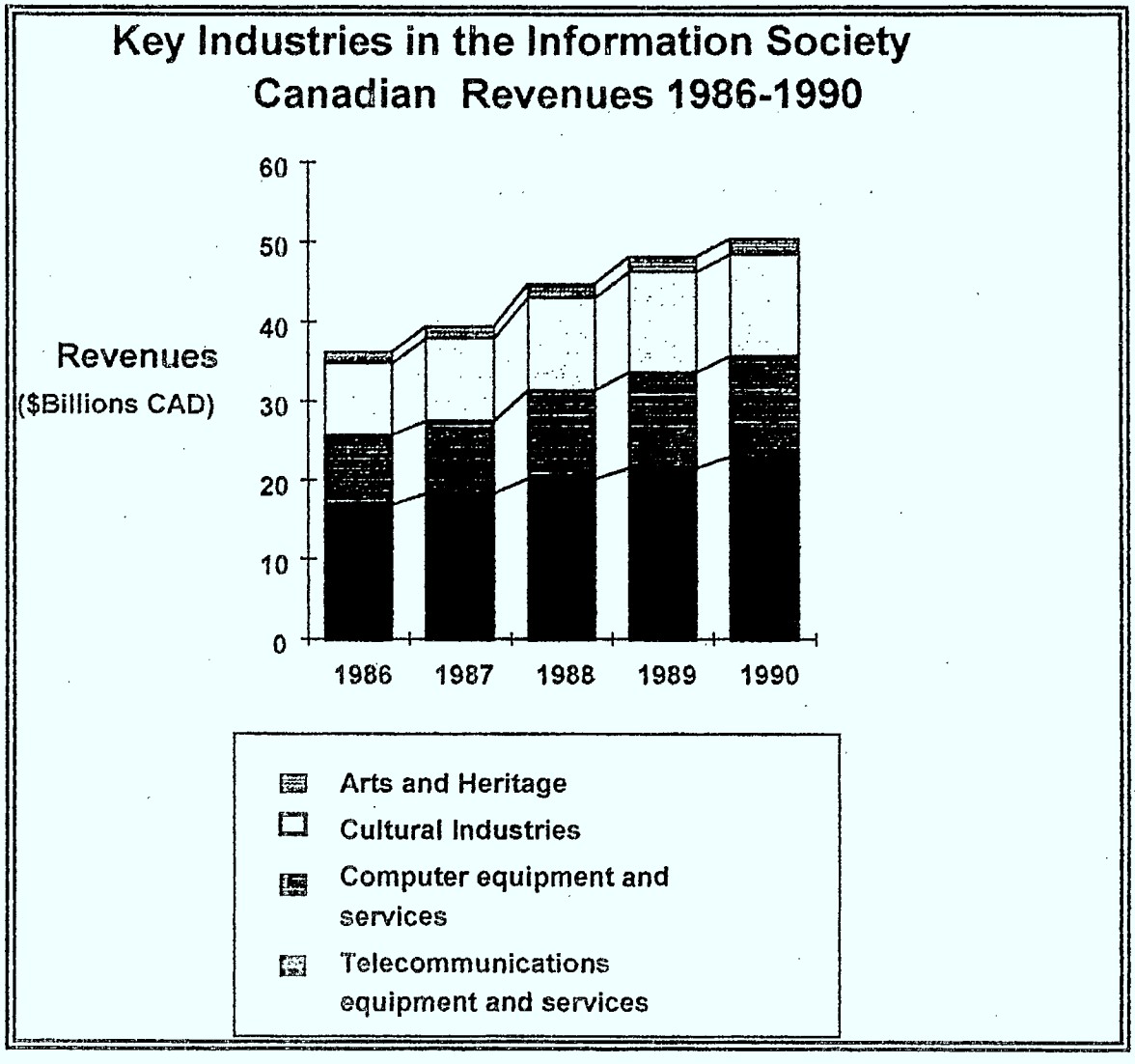
This report investigates the phenomenon of multimedia technology and the emerging multi-billion dollar global market. It explores the impact of multimedia technology on the Canada's cultural industries, and how they will benefit from it. More and more, business corporations realize that they must recruit artists to assist in the design and creation of multimedia products and services. This report reveals how the cultural industries will provide content for multimedia presentations in the vast home entertainment/educational markets. Further, it notes how the Canadian arts will act as an *engine* to promote Canada's major industries all over the world.



Data Source: "*Knowing our Clients: A Profile of Arts and Culture in Canada*" DOC Report, September, 1992

The cultural industries include:

- film and video
- book and magazine publishing
- radio and television broadcasting and cable
- sound recording



Data Sources: "*Knowing our Clients: A Profile of Arts and Culture in Canada*"
DOC Report, September, 1992
Statistics Canada Catalogs: 87-202,87-204, 87-207,87-209;56-204,56-205

We investigate the developing *interdependence* of the arts and business, as it relates to Canada's image in foreign markets, our world trade, and exports. This report focuses on emerging cultural products and services and how they

will match up with consumer buying trends. Further, we discuss how artists who presently work in the cultural areas such as film, music, and publishing, will become key allies of corporations, government, and educational institutions in other projects, industries, and enterprises.

Multimedia is a type of presentation that involves the directed control of several forms of communications, such as text display, graphics, still imagery, animation, sound, and music. A multimedia presentation is a composite of many audio-visual sources and allows the discriminating viewer to proceed at a desired pace and with some level of interaction. The user controls the order and speed of the presentation. With some systems, the user or viewer can import information from various sources, merging them into a new assembly or package, thus creating a new presentation, product or service. Multimedia can be sold as products or services, and is also used to produce these products and services.

- **The Various Cultural Industries Are Unified.**

Since many multimedia presentations combine most or all of the various art forms, this report regards the cultural industries as a collective entity. This unity of the various arts has a profound effect not only on the arts themselves, but also on all cultural organizations and their infrastructures. New technologies such as multimedia have dramatically changed the type of skills artists and cultural administrators need. New skills will have to be developed if Canada is to compete culturally in the global marketplace.

- **User Driven Market Creates Demand for the Arts.**

In a user-driven market, major corporations have realized the necessity of producing multimedia products and services for the lucrative home entertainment market. The rapid spread of technologies such as CD-ROM players has created rising demands for CD-ROM titles, including electronic books, movies, and other entertainments. This need in the marketplace has mobilized corporations, government, cultural agencies, organizations, and institutions to manufacture these products. In many cases, new multimedia

presentations can repackage and revitalize older films and records — everything from the cultural treasures of museums, to the vast collections of videos and films of the National Film Board and the Canadian Broadcasting Corporation, or productions of classical drama at the Stratford Festival.

- **Multimedia Home Entertainment Will Evolve into Business and Educational Markets.**

Multimedia products and services geared to the home entertainment market will ultimately influence the corporate and educational fields, as was the case with video in the past. As technology integrates the computer and television, telecommunications, consumer electronics, publishing and information services into a single interactive information industry, Canadian participation and success in multimedia will lead to successes in other sectors.

- **Canadian Artists Become Factors of Production in Industry.**

Canadians have invested in our cultural industries and this investment has paid off in the fostering of internationally recognized artists and celebrated works. This investment has *also* created an industrial resource, a talent bank of creative individuals who will play a *central role* in the creation and design of multimedia products and services. Artistic ideas and design will become an indispensable component of *major Canadian industries.* Artistic concepts and renderings distinguish our products from others in an information-glutted marketplace, giving them *a competitive edge.*

- **Toronto Emerges As a Capital of Multimedia Development.**

The creation of a viable and expanding multimedia industry depends on the availability of a variety of creative skills. As a hub of the arts, media, computer training, business, education, and law, Toronto is fast becoming one of the leading centres of multimedia development in North America. The **International Multimedia Development Association (IMDA)** was formed

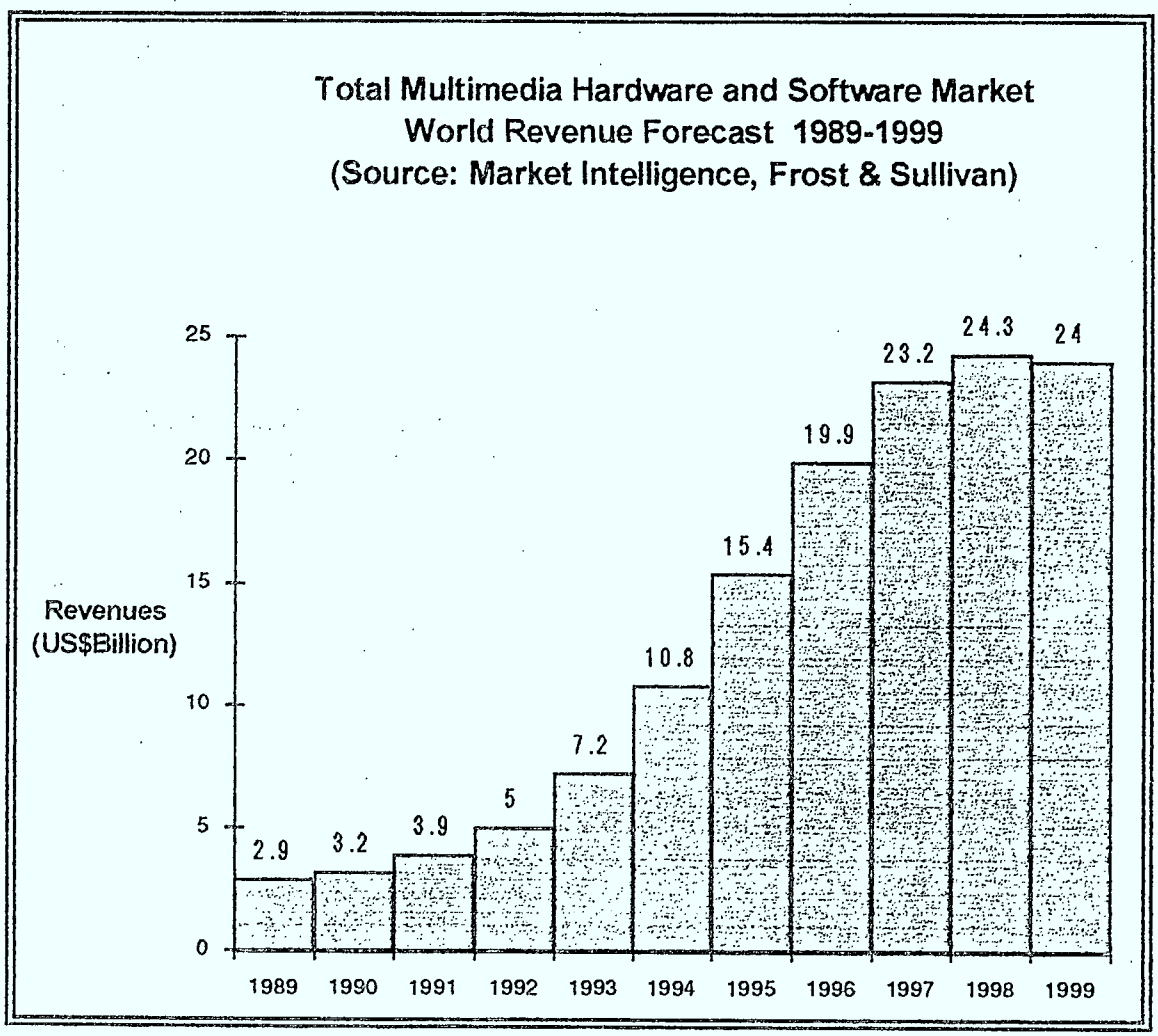
in Toronto as an organization of multimedia artists and producers, rofile and promote the multimedia industry. It has *quadrupled* members in the past six months alone.

- **Technology Gives Canada Global Influence.**

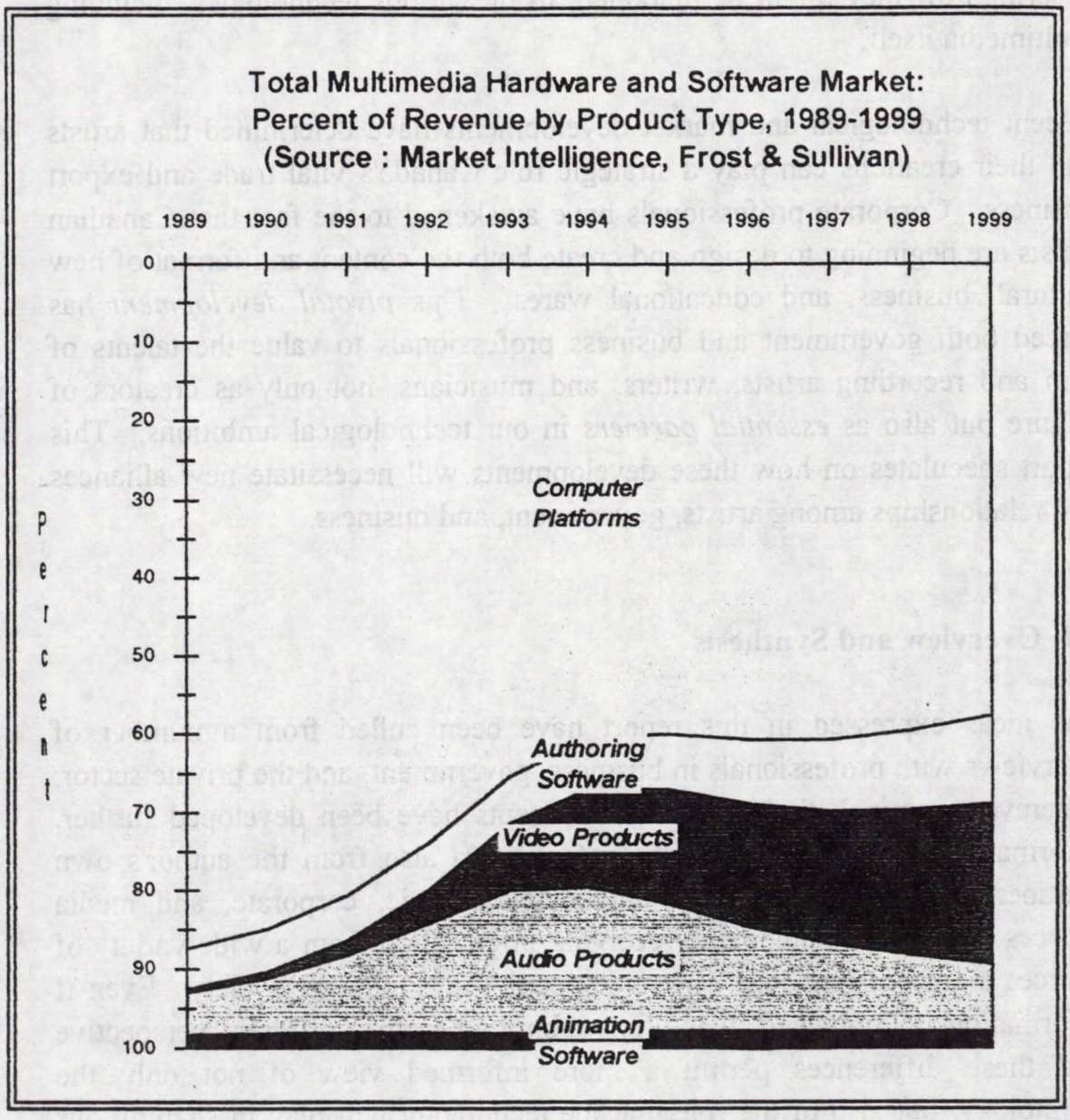
Canada is now a technological state. Technological networks have aced us in the middle of a vast "electronic ocean" which allows us to ship o r goods and services around the globe, day or night. Freed from our geographical boundaries by our *technological reach*, Canada is now able to compete in the international marketplace, when and where it wishes, regardless of time and distance. In terms of our trade, Canadians must learn to exploit this new map of the world, developing existing markets and creating new ones. Canada's cultural products and services, once consumed largely by a home audience, are now an integral component of our trade and exports. **The cultural industries, now clearly associated with technology and trade, must develop global marketing strategies which actively promote the Canadian arts to a world audience.**

3.0 Introduction

Market analysts predict the realization of a major growth industry. **Frost and Sullivan/Market Intelligence**, an information company specializing in high-technology market research, estimate that the total worldwide multimedia hardware and software market will jump from ***7.2 billion dollars in 1993*** to ***15.4 billion in 1995*** to ***24.3 billion dollars by 1998*** [1]. More conservative estimates still suggest astonishing growth. Major investments by corporations such as **Microsoft**, **IBM**, **Apple Computers**, and others indicate a profound belief in the future of this market.



[1] *World Multimedia Hardware and Software Markets*, October 1992, Frost and Sullivan/Market Intelligence



3.1 Purpose and Objectives of Report

This report investigates multimedia technology and how it impacts Canadian cultural industries such as film, book and magazine publishing, radio and television, and sound recording. We examine current multimedia applications for the cultural industries in Canada and globally, and speculate on further applications. We also review current products and services in Canada, and

describe how they might be marketed, using various technologies, including multimedia itself.

Recent technological and market developments have determined that artists and their creations can play a strategic role Canada's vital trade and export business. Corporate professionals have awakened to the fact that Canadian artists are beginning to design and create both the content and format of new cultural, business, and educational wares. This *pivotal development* has forced both government and business professionals to value the talents of film and recording artists, writers, and musicians, not only as creators of culture but also as *essential partners* in our technological ambitions. This report speculates on how these developments will necessitate new alliances and relationships among artists, government, and business.

3.2 Overview and Synthesis

The ideas expressed in this report have been culled from a number of interviews with professionals in business, government, and the private sector. Wherever germinal, their ideas and concepts have been developed further. Information has been gathered by referral and also from the author's own continent-wide network, which includes academic, corporate, and media sources. This methodology of receiving information from a wide variety of sources allows insight into what is happening in the larger society. Even if information is duplicated, it is often submitted from a different perspective and these differences permit a more informed view of not only the technology, but also of the role that the technology will play in shaping our culture. For the most part, technical terminology has been rendered in simple, accessible language.

Canadians have been imaginative and productive in their creation of multimedia applications, giving rise to an energetic and expanding industry. Up to this point, however, there has been no critical perspective of the multimedia industry to provide management for its growth, and to observe its growing relationship with other industries, such as the cultural industries. This study explores the important technological accomplishments and market

forces that have enabled multimedia to transform the marketplace, the arts, business and government.

In general, available and upcoming technology will answer our societal needs. Therefore, our task is to understand what our needs *are* so that we will know *what* demands to make on our technology. For this reason, this report concentrates on the importance of consumer trends and societal directions, and on their impact on the cultural industries.

Canada is one of the most technologically advanced countries. Canadian technology has made us a player in the global marketplace — one where our ideas, perspective, and cultural expressions fan out across the world. Books, magazines, movies, television and radio programs are now manufactured using computers, software, and other technology. These creations are then distributed over telecommunications networks. More and more, culture and technology are integrated. For all intents and purposes, they must be discussed together, and in this report, they are regarded as one.

In the past, the relationship between culture and technology was seen by many as a vague, largely esoteric subject with no direct bearing on commerce, trade and export. Now, it has become clear that culture and technology are *inextricably linked.* In the case of multimedia, the *interdependence* of art and business lies at the core of a multi-billion dollar industry, and the understanding of this relationship is vital to our national interest.

4. The Canadian Cultural Industries: Old Problems, New Solutions

4.1 Old Problems: Lack of Funding and Foreign Competition

The Department of Communications report, *Vital Links*, clearly states the obstacles to Canadian producers, along with the problems of financing our cultural enterprises. The high cost of production of Canadian cultural products and services, combined with a home market flooded with less expensive foreign imports, makes for a difficult situation at the best of times.

The report goes on to say:

> **"The structural and financing obstacles ... are mutually reinforcing and result in a third order of difficulty: Canadian firms have inadequate budgets to promote their products."**

This unequivocal conclusion is drawn:

> **"This is a major problem in an era when marketing is central to commercial success. Multi-national film, recording and publishing companies often spend at least as much of their budgets on marketing as on production. But effective marketing requires adequate financing. Without such financing, Canadian companies have difficulty in competing for the attention of their national audience."** [2]

4.2 New Solutions

4.2.1 Technology For the Cultural Industries Becomes More Accessible.

Traditionally, Canadian arts have been plagued by a shortage of funding for production and marketing. Advances in technologies since the writing of *Vital Links* in 1987, and the emergence of innovative methods, have reduced

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[2] *Vital Links*, p. 23 (1987).

production costs of many cultural products and services. These developments make productions more affordable, placing vanced technological tools in the hands of many.

Computers that cost $4,000 to $5,000 less than five years ago now sell for $1,000 to $2,000, and quality printers have fallen below $500. Such technology allows writers to create professional manuscripts that, before now, only a publisher could produce. New technologies like CD-ROM players have also dropped in price, causing owners to demand more and more titles — everything from interactive books and games to multimedia presentations of film, live news footage and docudramas.

4.2.2 New Resources From Old

As the technology has become more sophisticated and more widely available, it has turned fixed assets into liquid ones. The contents of film and book libraries, galleries, archives, museums, and historic sites can now be transformed into multimedia presentations which can be sold in world markets. Everything from stage plays to movies to landmarks such as the great restored fortress of Louisburg can be marketed to a global audience.

4.2.3 Emergence of Global Markets.

Computer technology itself has created a global marketplace, and electronic networks now criss-cross the world. At the same time, trade barriers have fallen. Markets which were beyond our reach have opened. In such a climate, our culture is a welcome commodity. Our films, books, and music are finding new markets on every continent.

4.2.4 Consumer Driven Market Forces New Alliances in Business.

Major corporations such as **Apple Computers** and **IBM** have realized that in order to sell their hardware technology, they must also create or foster the development of a wide variety of compatible software applications. For the most part, artists are required for this task, especially in the design of home entertainment. This need for *entertainment specialists* will encourage new

partnerships with business and the arts, creating formal and informal networks which will work to promote our cultural industries. This need by corporations to recruit artists for product development will move artists from their position as a "marginal" class into full partnership with business. Such a development will empower artists and make them more self-reliant.

Canadian companies having a successful background in corporate communications understand the value of artists in the emerging marketplace. President Mathew Diamond of **Digital Presentations**, expresses the view of many:

> **"Our focus as a company is now on creativity and recruiting artists who are acquainted with the new technology and possess the skills to use it."**

Multiple Images Inc., a company with a strong history of corporate communications and designing striking multimedia presentations for major business clients realizes that artists are now an industrial resource. Comments Michael Keefe, Director of Multimedia:

> **"As cultural — and other — multimedia products and services become more and more refined, artistic skill and imagination provide what is often a subtle but critical improvement in the presentation. This improvement becomes the competitive edge in the information-glutted marketplace."**

Reflecting on the history of multimedia, Mr. Keefe further observes:

> **"Early multimedia design was created by technically-oriented developers and, to a large extent, this limited its appeal. Also, early multimedia design was driven by what was feasible technically on the authoring system or on the platform of delivery. Today, the design reflects what consumers want and the focus is on delivering a product to match their needs."**

In fact, *artists have become necessary factors of productio* the manufacture of products and services that consumers will want to and use.

Canadians have had the foresight to invest in our cultural industri This investment has paid off in the fostering of internationally recogniz artists and celebrated works. Canada now has a priceless talent bank of eative individuals who are beginning to play a central role in the develo ent of major industries upon which this country's economy depends.

In a user-driven market, multimedia has further facilitated tech logical integration, hastening "the merger of television, telecommun cations, computers, consumer electronics, publishing and information into a single interactive information industry. **Apple Computer** chairman John Sculley estimates that the revenues generated by this mega-industry could reach **$3.5 trillion** worldwide by the year 2001. (The entire U.S. gross national product today is about **$5.9 trillion**.)" [3]

4.2.5 A Growing Multimedia Association in Canada

Developers of multimedia applications have been working in Canad for well over a decade. Until recently, they worked separately, often unawa e of the projects of others. Within the past several months, the Toronto chap er of the **International Multimedia Development Association (IMDA)** h s sought to profile and publicize this industry, as well as bring together dev opers to exchange ideas and address various needs. Major corporations lik **Kodak** and **Microsoft** have hosted the associations' monthly meetings and over the past six months alone, its membership has quadrupled, rising fr m 45 to 180, approximately 40% of which are corporate.

Because Toronto is a major centre of the arts, it is emerging as a capital of multimedia development. **Mr. Ben Mair**, President of the **International Multimedia Development Association** comments:

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[3] *The Info Highway*, Time Magazine, April 12, 1993

> **"With art, music, and moviemaking coming to the computer screen, the creative artist or author becomes the content-provider — shifting focus from technicians (systems analysts, programmers, language developers) — and placing the emphasis on *those who create art.* Toronto is a centre for professionals in a number of essential areas: film, music, video, publishing, graphic arts, and animation. There is also a wealth of specialists in media, advertising, education, software development, computer training, and law. Toronto has a large talent pool of these skills and it is likely that this city will become one of the leading centres of multimedia production on the continent."**

This visible gathering of multimedia specialists has happened quite suddenly. As a result, many analysts in government and business concerned with industry and job growth have not fully seen or acted upon the rapid emergence of this new industry. To date, there appears to be little market research about the number or type of jobs it is creating in Canada. However, with encouragement and management, multimedia specialists could become a *major resource.* Their applications, universally sold, could provide this country with extraordinary influence and wealth. *This critical development will depend heavily on the arts, and in particular on the cultural industries.* Mr. Mair comments further on the essential role of creative talents:

> **"Creative imagination is the key component in the construction of successful multimedia products and services."**

In conclusion, all these developments — the declining production costs, the emerging markets, the technology which creates new resources from old ones, the new alliances, and the fact that Canada's artistic talent is now an industrial resource — will help Canadians excel with their culture.

5. Multimedia Technology: Impact and Influence on the Marketplace.

5.1 Multimedia: Definition and Application.

Multimedia is a type of presentation that involves the directed control of several forms of communication, such as text display, graphics, still imagery, animation, sound, and music. A multimedia presentation is a composite of many audio-visual sources that allows the discriminating viewer to proceed at a desired pace and with some level of interaction. With older technologies, like television, the viewer is passive and cannot control the media events or pace within a given program. Now, with multimedia, the viewer can control the order and speed of the presentation. In certain cases, the user or viewer can import information from various sources and merge them into a new assembly or package, thus creating a new presentation, product or service.

Multimedia is also an essential tool in the creation of cultural products and services. This new "tool" can be used to create and promote artistic enterprise. Importantly, multimedia is a vital component of design, presentation, and communication—an instrument which is an essential in the marketing and sale of all Canadian goods and services.

5.2 Emergence of Multimedia

Multimedia is not new. It has been around for at least five years, and companies such as **Commodore**, with its **Amiga** computer, have excelled at various applications. However, new technology and additional factors have coalesced, suddenly making multimedia an important and strategic force in the world marketplace.

Dramatic advances in the capabilities of desktop computers have made multimedia production and presentation more accessible to a wider audience. Factors that have contributed to the emergence of the personal computer as an important platform for multimedia presentations are:

1. increased disk storage capacity
2. increased size of available memory
3. increased variety of peripheral storage and recording devices
4. increased speed and performance of the hardware and software
5. steadily declining costs for the hardware and software
6. emerging standards in data format and compression.

Large volumes of data can be stored on the CD-ROM medium, which can hold over 500 times the amount of data that can be stored on a single floppy diskette. These data can include text, sound, graphics, and video. Disparate types of information, once separately stored, can now be summoned by a single port to a single viewing screen. For example, to examine the paintings of Michaelangelo in the Sistine Chapel through multimedia, it would now be possible to view before and after still photographic reproductions of the restored ceiling, as well as a full moving video of each panel, during a narration about the artist, accompanied by a selection of music from the Renaissance period. The viewer would be free to select any part of the presentation and zoom in for closer scrutiny, freezing the video at selected frames, and replaying portions of the audio or video.

To many, multimedia is another tool to view and enhance products and services. But in the global marketplace, multimedia acts as a magnet to pull together diverse technologies, triggering new and startling applications, that are, as a bonus, "fun and easy to use". As these applications become widely available, their implementation spawns again other inventions and extended applications.

For example, entertainers use music videos to illustrate their songs. In the early 1980s, the first videos proved so popular that special television channels such as MTV in the United States and **MuchMusic** in Canada were created for their exclusive broadcast. Originally thought to be a fad, music videos went on to create international stars such as Madonna, and promoted Canadian artists such as k.d. lang, Blue Rodeo, and Alannah Miles to a massive audience. Business professionals have realized the potential of the video format and have used it to market their products and services.

Schools also use video as an educational tool, in every imaginable object. Once music and movie videos had captured large sections of the home entertainment market, video presentation gained acceptance in business and education.

Multimedia appears to be following the same course. It has already entered the *home entertainment* market, and within a few years will transform the *business environment* as well as the field of *education*.

5.3 Impact of Multimedia on Video Production and Services

New software allows an individual artist to construct a professional video presentation on computer. Software such as *Premiere* by **Adobe**[4] and *VideoFusion* by **VideoFusion Limited Partnership**[5] permit the user to join, edit, and manipulate various video clips into a continuous whole — as well as add a synchronized sound track, alter lighting, and create special effects. Such software is available for under $800 and eliminates many difficult and tedious chores of traditional video and film editing.

The video maker can now take raw footage with a handheld video camera (or camcorder), transfer this information into the computer, and then edit and enhance it into a high-quality commercial product, like a visual magazine, news program, or feature length video. This type of software will soon completely transform the way in which videos and films are manufactured. In fact, it will transform the film industry in a similar way that desktop publishing affected traditional publishing houses.

In the past, a writer created a manuscript. It was then up to the publisher to manufacture and distribute the book. Now, using simple computer technology, a writer can edit and design the manuscript, and have it ready for printing. Such technology takes power away from the publisher and gives it to the writer. In video and film, new technology will take power from the

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4 **Adobe Systems Incorporated,** Mountain View, CA

5 **VideoFusion Limited Partnership,** Maumee, Ohio

studio or film corporation and give it to the filmmaker. Filmmaking is labour intensive, requires expensive equipment, specialized skills, and meticulous organization, so production costs are typically high. Video and film production costs will drop as more of the production tasks are performed by computer.

Canadian firms have already played an important part in major Hollywood productions. Software by **Alias**[6] was used in major Hollywood films such as *Terminator 2* and in *The Abyss*, to create the convincing "water beings" who took on human form. **Industrial Light and Magic**[7] utilized software by **SoftImage**[8] to create the special effects in the film *Death Becomes Her* with Meryl Streep and Goldie Hawn. Software by **Alias** and **SoftImage** was used to create the effects in **Steven Spielberg**'s blockbuster film *Jurassic Park.* The tools supplied by these two Canadian software developers have made a significant impact on visual arts and the popular imagination. These companies make Canada a strategic player in the world entertainment industry.

5.4 Convenience of Working Multimedia Technology

Once the various components of audio and visual programming are stored on computer, the software offers powerful new ways to play or manipulate the sequences, and to proceed with editing, re-ordering, and re-mixing. For example, with traditional radio production, technicians listened to various passages of music or drama recorded on tape. Using a razor blade, they cut and spliced these into one long recording. Such an editing process was tedious and time-consuming. Sound effects had to be created, or a sound specialist would have to search the record library in hopes of finding just the right "barking", "thud", or "crash". Now, using multimedia and the computer, a technician simply scans a "sound effects" file directory and electronically inserts the "fall down the staircase" where it is required. If the person falling down the staircase sounds too "slim", the technician can

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[6] **Alias Research Inc,** Toronto, Ontario
[7] **Industrial Light and Magic,** Hollywood, CA
[8] **SoftImage,** Montreal, QC

quickly modulate the recording until it sounds like an elephant taking a tumble, or can lengthen the fall from 20 to 200 steps, if needed.

This orchestration of information benefits video and television programming. Once video is transferred into a computer, it can be repeatedly reviewed, edited and enhanced. Lighting in a given scene and even background can be altered. A soundtrack can be introduced and synchronized with action, and if the script requires a scene in which an airplane speeds off a runway, a film clip from the archives can be imported and inserted at just the right spot in the drama. In this way, multimedia greatly simplifies the production of video and film.

5.5 Changing Procedures and Infrastructure.

In the next few years the nature of radio, video, film, television, and music production will evolve, and along with it, administrative aspects associated with these industries. These changes will transform the institutions, organizations, and agencies *themselves*, which are now part of these industries.

As discussed in the previous section, multimedia technology and the computer facilitate the editing and enhancement of image and sound. For television and film, the set location can be in part, or completely, recreated through animation and special effects. Such a change in production will transform the function of a film's prop department. In the near future, the prop department will be creative artists using software packages to design, decorate, and animate. The concerns of the executive producer will be addressed by an artificial intelligence-based expert system that will show among other things, whether production is under or over budget and decide how costs might be best brought under control.

5.6 Multimedia as A Marketing Tool

Multimedia can be a powerful tool in the *marketing* and *advertising* of cultural products and services. Multimedia presentations have greater impact and we more readily retain the images, sensations, and message.

> Various studies show that people retain only **20%** of what they see and **30%** of what they hear, but **50%** of what they see **and** hear, and up to **80%** of what they **see, hear, and do simultaneously**.[9]

Multimedia is already used to promote other industries. For example, an interactive computer kiosk created for **Investment Canada**, the **Department of Communications**, **External Affairs**, **International Trade Canada** and the **Department of Industry, Science and Technology** provides foreign investors with information on leading telecommunications companies in Canada. This presentation was designed and developed by the Canadian firm of **Animatics Multimedia Corporation** in conjunction with **Design Computer Systems** with support from **Apple Canada**.

A recent issue of **Forbes Magazine**[10], contained a floppy diskette which was an interactive advertising vehicle created by **Interactive Marketing Group (IMG)**, a full-service production and consulting company. In Canada, **CB Media**, with project sponsorship by **Apple Canada**, created an interactive diskette that appeared in the March issue of **Profit Magazine**. This innovative use of interactive presentations may well become a fixture of magazines and direct mailings, allowing the user to view advertisements. The cultural industries as a whole may wish to experiment with such presentations, promoting the Canadian arts on software diskettes which are enclosed inside international publications. Such advertisements, if entertaining and engaging, become part of the user's library which can be viewed again and again.

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[9] *Multimedia Technology: Combining Sound, Text, Computing, Graphics, and Video*, a report by Computer Technology Research Corporation, Charleston, South Carolina)

[10] *Forbes Magazine*, June 22, 1992

6. Developments in Multimedia and the Benefits.

6.1 Multimedia Is a Composite Form and a Production Tool.

The cultural industries as defined in the Federal Departr .t of Communications report *Vital Links* are divided into radio, film video, television, book and magazine publishing, and sound recording. H wever, multimedia often combines all these forms. For our purposes here, we will regard the cultural industries as one, referring to one facet or another, while keeping in mind that they are closely joined and related in multimedia.

Multimedia plays an important role in the *presentation and consumption* of cultural products and services. In referring to multimedia we often mean home entertainment products such as interactive CD-ROMs, or government services provided at an multimedia kiosk. However, multimedia is also an actual *production tool* in film, music, and publishing. Proficiency in this technology allows the artist far greater control over production. As well, in most instances, the use of this technology reduces production costs.

The following section explores multimedia technology in the presentation, consumption and production of the arts.

6.2 New Consumer Products Promote Retail and Consumption.

Compact disc technology for unparalleled quality in audio playback (CD-Audio) has been popular for home entertainment for several years. New extensions to this technology have emerged for the home and educational markets. CD-I[11] (for Compact Disc-Interactive) is a new recording standard that integrates CD-quality sound with photographic quality colour images, digital video, animation, text, and the facility for viewer interactivity. CD-I technology transforms the common television set into an interactive information delivery system. As with any universal standard, CD-I players

[11] The CD-I standard was developed jointly by Sony and Philips

are designed to play any CD-I disc, made by any manufacturer, as long as the CD format is incorporated. Another emerging CD-based entertainment system is **3DO**[12], acting as an interactive multi-player which is designed to integrate the functions of CD-players, game-playing computers, cable TV, video-discs, and VCRs under one set of controls.

These two systems promise to bring a phenomenal array of programming and services into the home. From the comfort of a living room sofa, viewers can select up to 500 channels, view programming, interact, and shop. In the case of at-home shopping, cultural consumption is made easy and convenient. For example, a person watching a music video on television can press a button on the remote control and instantly see the singer's words subtitled in a separate window on the screen. Pressing another button brings up a list of touring music groups. By selecting a favorite group with another button, the viewer can get information on ticket prices and available seating at the local concert for this group. After seats are selected, clicking a "purchase" button results in the transfer of funds from the viewer's bank account to the ticket agent.

The more accessible these art forms are, the more likely they will draw an audience; and the *more* seats they sell, the *less* they require subsidy. Needless to say, such television convenience shopping could apply to everything from live orchestra presentations of classical music to stage plays to dance recitals.

6.3 The Merging of the Film and Publishing Industry.

Multimedia formats are a tremendous boon to the film industry. It is possible to make CD-ROMs showing a Canadian movie such as *My American Cousin*, along with the text of the screenplay, interviews with the cast and director, and background material on the period. **TV Ontario**, which has a history of showing movies along with relevant interviews of film historians and stars, might make these broadcasts available to a world audience. Multimedia presentations such as the film buff's guide in **Microsoft**

12 3DO format was developed by 3DO, San Mateo, CA, backed by Matsushita.

Cinemania allow the user to read reviews, see clippings of the movie, and scan additional background material on films and actors.

Our culture is of interest to people all over the world, and our books and magazines — no matter what their format — should be vigorously exported. Such electronically formatted publications can be easily transmitted and copied as worldwide exports. These new formats can be sold in a variety of outlets, not just book and drugstores. For example, *From Alice to Ocean* [13], an interactive book of photographs, text, voice, etc. on CD-ROM, is an interactive travelogue of the 1700-mile journey of a young woman across the arduous Australian landscape with her dog and four pack camels. Such a "book" could be sold in any retail camping store, tourist shop, or travel agency.

One of the most important factors of multimedia is that the line between film productions and publishing becomes less distinct. An example of this is the Heritage Review Kiosk, sponsored by the **CRB Foundation**, the **Canadian Museum of Civilization**, **Canada Post Corporation** and **Digital Equipment Corporation.** The kiosk was designed and developed by **Digital Renaissance**[14] and **ExCITE**[15]. The kiosk integrates film clips, articles, and additional media information relating to *The Heritage Project.* Canadians have seen *Heritage Minutes*, high calibre one-minute dramatizations of Canadian history, showcased separately on television over a period of months. The kiosk allows a viewer to see them all, in any order. Installation is scheduled for fall 1993 in the **Museum of Civilization**, and other kiosks are planned for other museums, transportation centres, and libraries. These information systems use a variety of interactive design principles such as hypermedia, games, and quizzes. After viewing this type of presentation, it is easy to imagine the beginnings of a large historical encyclopedia.

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[13] *From Alice to Ocean* was the first illustrated book/interactive CD. It was created in part with the assistance of Kodak and Apple Computers.

[14] Digital Renaissance, Toronto, Ontario

[15] ExCITE, for the Exemplary Centre for Interactive Technologies in Education, at Simon Fraser University

In Europe, filmmaker Titus Leber[16], with funding from **IBM**, has undertaken an interactive recorded history of Europe on eight CD-ROMs. Monumental in scope, and due for completion in 1995, this work chronicles 3,000 years of history and will contain hours of video, thousands of images, maps, and pages of text. Most striking, perhaps, is that this *"Eurodisc"* lets history speak for itself. The user can hear a narration or read the writings of various historical figures who shaped a given period. Such an approach is intended to transcend strictly national points of view and give a more informed overview of events.

Again, in publishing, there is no hard line between works of knowledge and works of entertainment. In particular, encyclopedias have undergone major innovations. **McClelland and Stewart**'s *The Canadian Encyclopedia Multimedia Version* now comes in CD-ROM format and can be read on computer. This work contains hundreds of articles, maps, graphs, charts, photographs and illustrations, and audio clips of nature sounds, as well as a reader's quiz about Canada. Another multimedia encyclopedia, the *Encarta*, by **Microsoft**, contains the full text of *Funk & Wagnalls New Encyclopedia* (1992), and includes new articles written exclusively for the work. It has thousands of brilliant photographs, animations, and illustrations, music, and speech. Such works revolutionize our notions of publishing.

In many ways, multimedia has transformed and broadened the whole publishing industry. Traditionally, publishers have dealt exclusively with the printed page. Now, they must consider works which are equally or better viewed on the computer screen. At present, reading from a book and viewing from a screen are different experiences. Books offer a level of convenience and comfort over reading text from the screen, while the computer screen excels in visual manipulations and animations, also allowing for sound accompaniment. Within the next five years, screens will have higher resolution, and "reading instruments" will become more lightweight and sophisticated. **Sony**'s small, portable *Electronic Book Player* plays a CD-ROM compact disc and allows the user to read off a small screen. The *Electronic Book Player* holds up to 100,000 pages of typed text, shows

[16] *Business Week* magazine (May 24, 1993) pages 135, 138

graphics, even plays recorded sounds. With such technology not only has the nature of publishing changed, but also our options in viewing presentations beyond the traditional book format. In the future, we may use computers which appear to be books, but instead of pages, a high-resolution screen will display information received from a variety of sources.

6.4 Other Examples of Publishing Ventures.

Successful examples of technological adaptations of traditional stories include *The Tale of Peter Rabbit* by Beatrix Potter, now available through the Canadian publisher **Discis**[17] in CD-ROM interactive format. Other adaptations include *Aesop's Fables* and Edgar Allan Poe's *The Tell-Tale Heart.* Poe's chilling tale of murder includes dramatic readings, the part of speech for every word or term in the text, and an on-line commentary which poses questions to stimulate discussion.

In the CD-ROM interactive guide "*Exotic Japan: An Interactive Introduction to Japanese Culture and Language*" published by the pioneering **Voyager Company**[18], over one-hundred and fifty chapters teach basic language skills, recognition of important Kanji characters, business and social etiquette, modern Japanese culture and outlook, as well as travel tips. With this guide, you can click on selected text and hear the words clearly pronounced in Japanese. The author, Nikki Yokokura, is also president of the Canadian company, **Pixonix Inc.**[19], which focuses on educational software development and consulting. Works such as *Exotic Japan* give a clear picture of how multimedia can be a powerful teaching tool, combining text, animation, and spoken language.

Many bold experiments in multimedia use are being developed in academic settings. For example, at **Carnegie Mellon University**, the **Studio for Creative Inquiry** has used computer systems and multimedia technologies to develop interdisciplinary learning environments which store and present

[17] **Discis**, Toronto, Ontario
[18] **Voyager Company**, California
[19] **Pixonix**, Toronto, Ontario

visual, textual, and graphic material about human cultural development. The prototypical **Ancient Egypt Program** assembles an impressive array of historical information. It allows the user to see images, video, text, and recorded commentary which includes everything from Egyptian architecture to the study of hieroglyphics, religious beliefs and customs. Intended for serious educational purposes, it is also an interactive entertainment. Importantly, the Ancient Egypt Program suggests that treasure and artifacts from a single region, currently divided and stored in various museums and collections around the world, can be re-united in the computer for closer scrutiny and re-create, to some extent, their original context. Such a project also reminds us of the soft line between *educational products* and those intended for *entertainment.*

The **Records of Early English Drama (REED)** project, based at the **University of Toronto**, is currently developing a prototypical multimedia educational tool for high school and university undergraduates. The construction of this prototype draws upon collaborative research of an international team of forty scholars, and allows the user to call up diverse and compelling information about 16th and 17th century theatre. The user opens various windows which tell the history of a particular play, show drawings of period actors and costumes, views costumes and reads about their construction and fabric, reads pages of hand-written text, and even enjoys film clips of famous productions of classical drama. This educational tool, which is based on exact and detailed research, makes learning fun, deepens our appreciation of classical drama and its history, and introduces a new audience to these works. Such an entertaining multimedia product, once completed and universally marketed, would appeal to anyone with an interest in the subject. If made available on a CD-ROM, it is the type of "souvenir" the **Stratford Festival** might sell to thousands of visitors, year after year. These cultural products not only generate revenues, they also advertise our cultural institutions.

At Canada's York University, **CulTech** is a centre for developing and understanding processes and technologies relating to culture and communications in film, radio, broadcast and cabled television, theater, music, visual arts, publishing, multimedia, telephony and tele-

communications. The centre concentrates on stimulating projects likely to have contemporary societal impact, and fosters collaborations among industry, science, and the working community of creative artists.

6.5 Innovation in Music and Sound Production.

Experimentation goes on outside the university environment, often unrecognized. For example, the creations of musicians and composers influence our culture tremendously, and yet much of the inventiveness and craft of their art form comes from the street. Using interactive software from companies like **Roland Canada Music Ltd.**[20], musicians can input recorded sound into a computer, create a melody, then play along as a combo on a separate keyboard, the computer playing one part as the musician plays another, interacting as they go. More and more, the sound of musical instruments can be created on computer so that, with proper software, a single composer proficient in the technology can create the effect of a full orchestra. Needless to say, this drastically cuts the cost of producing an album, since there are no live musicians to pay. With such software, a composer who could never afford to have his or her music produced can now hear the music as originally conceived without hiring a symphony orchestra.

In fact, musicians can now write music that can be played *only* by computer. For example, it is possible to write piano music that can only be played by a pianist with fifteen fingers. In many cases, computer-generated music has become so sophisticated that the listener cannot discern the computer origins. Moreover, the music may be too complex to play by human hand.

Computers also affect performance and presentation of music. The *Glenn Gould Profile*, a prototype developed by **YYIATS Productions**[21] is an interactive multimedia presentation which allows the user to mix text, photographs, sounds, and video regarding the Canadian composer and his work. **Louise Guay**, president of YYIATS observes:

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[20] **Roland Canada Music Ltd.**, Toronto, Ont.
[21] **YYIATS Productions**, Montreal, QC

> **"The system we have developed is very much like Gould himself, who loved to mix media, and make collages of sound and text. What we are doing here is allowing the viewer to edit with video, sound, and words.... Technology becomes an instrument for creating your own image of the man. Rather than being just a passive consumer, you become an explorer."** [22]

Through such examples, we begin to glimpse how technology will change, in a fundamental way, the way we think of music, musicianship, and musical instruments — as well as the experience of listening itself.

Even learning about musical instruments has changed. A multimedia CD-ROM by **Microsoft** entitled **MS Musical Instruments** contains a comprehensive presentation of musical instruments from all over the world. The user can see detailed illustrations of each instrument, listen to examples of how they sound when played, and read descriptions of their history. Another CD-ROM, **Multimedia Beethoven: The Ninth Symphony** includes lectures by Robert Winter, a professor of music at UCLA and a leading authority on Beethoven. The user can also study the cultural, social, and political world of Beethoven's Vienna as well as listen to the composer's music. At the end of the presentation, there is an interactive quiz game on the Ninth Symphony for one to four players.

6.6 Implications and Benefits of Multimedia Technology

Canada has the resources to capture a large section of the lucrative home entertainment and educational markets. If government and business work together, Canada could reap enormous benefits from this vast and expanding market. There are many direct and indirect rewards from investing in Canada's multimedia and cultural industries. These rewards are itemized below.

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[22] *Globe & Mail*, October 20, 1990

1. Multimedia Products Promote and Enhance Exports

Canada has had a key role to play in the creation of the global marketplace, and has benefited greatly from it. Our exports of various commodities and services have sustained our economy through good and bad times. Using the talented artists who work in our cultural industries, we can create multimedia products and services which further enhance and promote our trade. These products and services bolster not only our cultural industries and trade — they also support other areas such as tourism and retail. For example, multimedia kiosks located in major foreign cities can imaginatively present information to encourage tourism. Multimedia presentations in the form of CD-ROMs can advertise everything from clothing to real estate.

2. Cultural Products Advertise and Promote Other Technologies.

Our cultural wares such as radio, film, television programs, books, sound recordings, live concerts and other entertainments are no longer subject to time and distance. Digitally stored, they can be preserved and instantly transmitted to worldwide markets. Further, works of art such as live performances can now be captured on video or film, computer edited and enhanced, and then marketed as part of our cultural programming.

Computer and telecommunications companies see their products and services directly and indirectly advertised when they promote the Canadian arts in the global marketplace. These entertainment packages, everything from multimedia exhibitions of the treasures of the Museum of Civilization to a CD-ROM catalogue of Canadian film production services, serve to sell the culture, the cultural manufacturing services, and our technology.

3. Investment: Sale of Art Promotes Sale of Technology

Since one sells the other, art and technology are *symbiotic* in the marketplace. Cultural products such as movies and books are formatted onto CD-ROMs and viewed on CD-ROM players. The success of Canadian art *sells* Canadian technological applications.

4. Multimedia Products Enjoy Long Shelf-Life

Because the technology is rapidly emerging, much of the hardware and software can be quickly outdated. However, the recorded data stored on this technology can be transferred from format to format, thus *preserving the initial investment.* Multimedia products, once recorded or transcribed in digital format, can be re-formatted again and again.

5. Artists Contribute a Valuable Perspective to Corporations.

As corporate professionals work closely with artists in the production of multimedia products, corporations will enjoy a better appreciation of their own products and resources. For example, computer corporations create applications to perform a limited number of tasks. In the past, artists have taken these existing applications and used them in ways the inventors had never foreseen. Corporate structure hinders a perspective of the corporation's own technological products. By working directly with artists, corporations will have a better understanding of their own products and services, and how they might be used in a more innovative way.

6. Cultural Industries Provide Multimedia "Talent Bank"

The cultural industries have produced internationally celebrated art and artists. These same industries provide this country with a priceless "talent bank" of writers, film and video makers, musicians, and other creative individuals. This creative talent is an essential ingredient in the development of the multimedia industry. Directly and indirectly these creative minds will determine the continued success of major Canadian industries, from telecommunications to tourism, from retail to information services.

7. Trends in the Multimedia Industry.

7.1 New Alliances and Networks

At present, large corporations are forming alliances to create networks and produce content. For example, **U S West**, the major American telephone company, has recently invested $2.5 billion in the entertainment and publishing giant **Time Warner Incorporated** to create a new network with various programming drawn from Time Warner's huge libraries. Time Warner and U S West intend to pour $5 billion into a full-service interactive system which will allow television viewers to order whatever programming they want "when they want it; shopping for virtually anything they need; checking bank balances to see if they can afford what they just bought." [23]

On the heels of the Time Warner/ U S West agreement, the Canadian liquor and beverage firm **Seagram Company Limited** purchased a 5.7 percent stake in Time Warner Inc. for US$702 million, joining "the global telecommunications and entertainment revolution. Time Warner is an aggressive company that is sacrificing much of its current profit in a bid to lead the global race for multimedia services." [24] . That sacrifice may pay off handsomely. The United States has 92 million households, most of which have telephones and television, as well as 25 million personal computers.

Power Corporation of Canada also invested close to **US$100 million** for 1% of Time Warner and announced partnership with the **Canadian Broadcasting Corporation**, in which the CBC will supply two channels of international news, arts, drama, and entertainment to **DirecTv Inc.** of Los Angeles, a unit of **GM Hughes Electronics**. This will allow the CBC to broadcast directly into millions of subscribers homes throughout North America via the American broadcast satellite, the so-called U. S. "Death Star".[25]

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[23] *Newsweek*, May 31, 1993
[24] *The Globe and Mail*, May 27, 1993
[25] *The Globe and Mail*, May 28, 1993

Such alliances are necessary, since creating a global network *and* a global content is far too expensive for any one business. At present, corporations are rapidly staking out strategic positions in the market, and this rush to form agreements and partnerships will continue for some time. But once the corporations have divided up the market, it is likely that smaller companies will supply additional content, as the market will continue to expand.

Although Canada represents a smaller market than the United States, a Federal Department of Communications report has noted that this country's population has **"a voracious appetite for communications products and services."** Further, it records :

> **"Canada leads the OECD (Organization for Economic Cooperation and Development) countries in telephone penetration ... Canada has the highest cable TV penetration rate among the world's major industrialized nations ... the penetration level for television sets in Canada is within the top five among industrialized nations ... the penetration level for videocassette recorders is higher in Canada than in any member nation in the European community."** [26]

7.2 Collaborating Resources

In a trend-setting example, the **David M. Stewart Museum**, **On/Q Corporation** and the **Canadian Heritage Information Network (CHIN)** have come together to create *Charting a New World: Maps of Discovery on Compact Disc-Interactive*[27]. Featured maps from the 15th to the 18th centuries from the David M. Stewart Museum, along with navigational instruments and prints, tell the stories of the development of cartography, adventures that advanced navigation, and historic events and personalities. Enjoyable and entertaining to view, a presentation of this beauty and quality encourages the use of multimedia in areas beyond the confines of the entertainment market. This globally distributed product also illustrates how

[26] *The Information Society/ New Media...New Choices,* page 23-24 (1992)
[27] Distributed by Philips Corporation.

Canadian cultural treasures can be created and effectively marketed around the world.

No government subsidy of any magnitude can match the value of global distribution offered by an international corporation. This on-going alliance of artists, business professionals, and academics can create networks and refine contacts in a way no subsidized program could. Such alliances foster current entrepreneurial skills and force the development of new ones.

7.3 From Home Entertainment to Business and Educational Markets.

The insightful and easy-to-read report, *Multimedia Technology* by **Computer Technology Research Corporation** [28], notes that products designed for the home audience such as videos helped to increase the number of *business* video applications, as people are more likely to use technology with which they feel comfortable.

The fun, easy-to-use quality of interactive multimedia will allow it to capture a large percentage of the home entertainment market. A child watching a program like "*Charting A New World*" hooks her parent, who just happens to own a large retail chain. The parent then sees how such a format could be used to create a sales catalogue. Thus penetration of the home market will act as a wedge, driving multimedia products and services into the vast business and educational markets.

7.4 Artists Find New Partners.

Artists, such as writers, filmmakers, and musicians, who use available technologies like multimedia, expert systems, desktop publishing, and various telecommunications networks, will become as proficient and productive as traditional publishing houses and film studios. By partnering *directly* with technological firms, these artists will establish a new framework for the

[28] Computer Technology Research Corporation, Charleston, South Carolina.

cultural industries. The emerging alliances between artists and companies in the software or telecommunications industries will place artists in a new position of power and control.

Such alliances suggest how the cultural industries will evolve, with the artist or group of artists providing content for non-traditional vendors, who will in turn assist with the manufacture and distribution of the cultural wares. Although technological corporations are typically profit-driven and may not necessarily be concerned with art, they are highly committed to distribution and marketing and have a vested interest in making sure that their products find an audience. Such corporations also have an abundance of expertise, tools and other resources which are now relevant to the manufacture of art.

The decline of the traditional cultural vendor occurs, in part, because such vendors are often ignorant of, or ill-prepared to deal with, the impact of computer technology. For example, the traditional publishing house of an author's work may not actually own the copyright. If a technological firm contacts the publisher regarding "electronic rights", the publisher may simply refer the firm to the author, side-stepping any role in the creation of electronic publishing ventures. For the most part, the traditional publisher focuses on the production and distribution of books and magazines, and has rarely understood that the nature of publishing has changed to include many different formats. **As artists realize that the marketplace has changed, they will develop relationships with technological corporations which will bypass or supersede their relationships with traditional vendors.**

7.5 The Home As A Marketplace.

In the very near future, the home will be the central outlet of the marketplace. Using your television set, you will be able to work, shop, play games, attend forums, receive an education, and conduct a variety of personal relationships.

In Toronto, **IBM and Rogers Cable TV** are engaged in a joint study of emerging high-speed networking technologies which are capable of transporting text, image, voice, and multimedia information. At present, they

have created a test-bed network to better understand the technolog tself as well as develop prototype applications and uses for the network. U g fibre optic links throughout the city, it will be possible to offer various s ices to subscribers in Toronto, perhaps including video-on-demand deli ed via television.

In California, under the auspices of the giant American telephone company **GTE**, the **Cerritos Project** provides to an entire community a variety of programs and services via home television. These services include **Center Screen**, a 24-hour-a-day, near-video-on-demand system and **Main Street**, an interactive information video service, which allows the viewer direct access to information services such as airline reservations, bill paying, children's stories and games, and municipal services.

Since the consumer is already accustomed to television as an information source, TV should prove popular as a natural outlet for multimedia services. The Canadian federal government has just undertaken an ambitious **InfoCentre Initiative** in which special interactive kiosks will provide government services directly to the public. For example, a client who is unfamiliar with government services is guided by computer through a series of questions to determine the appropriate service. Where required, the computer could give limited advice on the subject. In time, such services can be available in the home via television, allowing citizens much closer contact with government, no matter the distance. Since most government services dispense the same information repeatedly, introducing this technology is cost-effective. It also ensures that the information provided to the public is reliable and exactly conveyed.

7.6 Multimedia and Copyright Laws

A difficult problem surrounding multimedia is the question of copyright. It is essential in creating multimedia products that copyright has been secured on *all* content. However, in many instances, ownership of copyright is confused. For example, a multimedia developer might obtain the right to use film clips in one of its products. If the film is a musical in which there is a

dance number, the choreographer of the *dance sequence* might also hold copyright, as the *actual dance steps* may be considered a separate artistic creation.

In the past, contract agreements were drawn up without anticipating new technologies. At many corporations, including the Canadian Broadcasting Corporation, this has shown itself to be a serious problem, driving up the cost of producing new multimedia products. Detailed research and negotiations over copyright questions can be a serious roadblock to the manufacture and distribution of multimedia works. Such investigations require special knowledge and skill. As well, they are extremely time consuming.

Mark F. Radcliffe, a partner in the California law firm of **Ware & Freidenrich**, advises on copyright problems:

> **"The creator of a multimedia work should be aware of these issues in planning how to develop a work. In fact, authors of multimedia works should consider including an experienced attorney as part of the development team at an early stage in the planning process to ensure a full understanding of these issues. By obtaining such advice at an early stage in the development process, creators could avoid becoming committed to obtaining rights which would be too expensive or require too long [a time] to obtain."**[29]

Mr. Radcliffe points out examples of confusion that can arise in the area of copyright, especially new ones such as "electronic rights". He notes the dispute that arose between the publishing house of **Simon & Schuster** and the film maker **Quintex Entertainment, Inc.** over certain rights to *Lonesome Dove*.[30]

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29 Multimedia 2000/Market Development, Media Business Impacts and Future Trends, "*Intellectual Property and Multimedia: Legal Issues in the New Media World*" by Mark F. Radcliffe, Esq., Ware & Freidenrich, Chapter VI. p. 125, published by the National Association of Broadcasters, edited by Marcia de Sonne.

30 Multimedia 2000/Market Developments, *Media Business Impacts and Future Needs*, page 126. with reference to Kirsh, "'Lonesome Dove' and the Electronic Rights Revolution in Book Publishing," 43 Los Angeles Lawyer, April 1990, No.2, at 24.

> **"Simon & Schuster, one of the largest publishing houses in the United States, obtained the exclusive right to "publish" *Lonesome Dove* from Larry McMurtry. However, Larry McMurtry had retained the motion picture rights, educational picture and television picture rights. He licensed the motion picture rights to Quintex which produced a well-known mini-series based on the book."**

A dispute arose when the Quintex's attempt to distribute an audio cassette of the *sound track* of the mini-series. Simon & Schuster charged that this went beyond the scope of Quintex's license to "movie rights". In other words, if a literary work inspires a movie or television program, does the sound track of the movie or television program fall under the rights of the publisher or that of the movie or TV producer? These copyright issues are of great concern to the developers of multimedia, who must mix many different art forms into one package.

Modern copyright laws were created in a time before it was *easy* to manufacture or copy or reproduce formats such as books, film, and sound recording. Works of art, once translated into digital information, can be transmitted and copied instantly, all over the world. Once entered in a computer, such data can be endlessly manipulated, re-packaged, and rearranged. New copyright laws must take this fact into consideration. As the market for multimedia products grows, copyright issues will become paramount. It is not our purpose here to further explore this complex subject. Suffice it to say, artists, government, and industry must remain alert and informed.

7.7 Multimedia and Expert Systems.

As consumers are confronted with an increasing array of choices, particularly in television viewing, "intelligent systems" will be required to sort through available programs and help the viewer with selection. Having to sort through a thick programming guide to over 500 television channels could take up the better part of the evening. However, introduce into this scenario

an Artificial Intelligence-based expert system[31], such as those now commonly used in the business world. Mimicking human logic, inference and reasoning, such systems sift through vast quantities of data, make decisions, and implement strategy. Mated to an easy-to-use multimedia interface for TV, such systems could provide television viewers with instant and personalized news of current programming. Simply by punching buttons on a hand-held selector, the viewer answers a few background questions, and the expert system responds by suggesting programs sure to be of interest, based on the viewer's hobbies, interests, and predilections.

Multimedia menus will provide an easy-to-understand interface for expert systems, allowing the user access to complex systems, and providing responses in plain language or other easy-to-understand information. A Canadian company, **Digital Eclipse Inc.**[32], has created a graphical user interface (GUI) for an advanced artificial intelligence system being developed for use in Employment Centres throughout Canada. Using a touch screen, users will be able to search and retrieve information more rapidly to secure suitable employment leads.

7.8 Multimedia and Training

Interactive multimedia products excel in the area of training. Often, those who work in the arts lack fundamental business training. In the case of the multi-million dollar music industry, many of those who work in management are attached to it simply because they make or enjoy the music itself. They would benefit from developmental training in managerial, marketing and promotional skills.[33]

At present, the **Canadian Broadcasting Corporation** is developing multimedia training tools for its employees. As well, there are numerous

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[31] *Canadian Expert Systems Software: Applications in the Marketing of Canadian Cultural Industries*, December 1992, a report prepared for the Department of Communications by Burke Campbell

[32] **Digital Eclipse Inc.**, Ottawa, Ont

[33] *The Sound Recording Industry in Ontario: a plan for action*, June 1990, a report prepared for the Canadian Independent Record Production Association, page 31

self-teaching centres for staff springing up across government and business. One of these is the **Self-Study Learning Centre** which is available to the staff of Metropolitan Toronto. Using CD-ROMs and other presentations, employees can interact with various programs, learning everything from how to improve customer service to memory enhancement techniques. Such instructions are not regimented, as the user interacts directly with the program and not with a teacher.

Many of these programs include video re-enactments of various business situations and transactions, and the viewer is allowed to choose the most appropriate or useful response. Interactive multimedia education involves the viewer, and the whole experience is more memorable than reading a dry lesson.

Creating such multimedia training tools for the arts should prove a useful investment. If these are generic in nature, they can also be *exported as educational products*, which will help to justify production costs. Further, the creation of training products instructs artists in valuable technological skills which they, as workers, re-invested back into the emerging multimedia industry. Actual *manufacture* of these training and educational products also assists the developers, bolstering their output and production. These training products, designed and created by Canadian developers to educate our artists, encourages present growth for the multimedia industry *and* ensures future employment for artists proficient in the new technologies.

8. Developments in the Emerging Multimedia Industry.

8.1 Identifying Canadian Needs in a User Driven Market.

Canada is a country different from the United States. What motivates Americans does not necessarily motivate Canadians. An instructive cultural example is the Hollywood movie, *Baby Boom*, starring Diane Keaton as a fashionable single woman with a job in a New York advertising firm who inherits a baby and is forced to become a mother. As the plot develops, Ms. Keaton finds it impossible to manage a high pressure career and parenthood. Forsaking her well-paying job and flashy apartment, she retreats to the solitude of a run-down cottage in Vermont. There, she raises her child and makes apple sauce and other wholesome goodies. Almost at once, these "health foods" are discovered by an avid public. Soon, Ms. Keaton creates an empire, marketing nutritious baby foods from her little cottage. She's such a success, her old New York employer begs her to return, but she declines and marries the local vet.

In *their* stories, Americans often see the individual entrepreneur as having a special pact with heaven. In *Baby Boom*, as in American mythology, the marketplace is the real mother of the child, a mother who remains discreetly loyal and loving and nurturing even at a distance. In *Baby Boom*, the heroine rejects her corporate job, but keeps faith with the buying public. The public, in turn, keeps faith with her — ordering crates of baby food, bestowing wealth on her business ventures, and supplying her story with a happy ending. The heroine entrepreneur succeeds because she creates a product that the public wants to buy, and once they start to buy, she develops a highly effective production and distribution system. By and large, Canadians do not see the marketplace as welcoming — and even if our goods and services are in demand, we are often slow to respond.

Even now, the Canadian economy is guided by the supply of goods and services to a largely captive audience, with less focus on what consumers want. As a result, Canadian entrepreneurs struggle against both cultural and

government controls. A report by the **Ontario Ministry of Cu e and Communications**, *Telecommunications - Enabling Ontario's Futu* notes that:

> **"Historically, discussions regarding telecommunications Canada have primarily focused on the supplier side -- characteristics of the network, rate of return for supplie structure of the industry, regulatory matters, and the like.**

This same "focus on the supplier's side" is prevalent in the cultural industries, as well. The administrator of an established Canadian theatre was asked what plans had been made in case the upcoming show turned out to be a hit, and it was necessary to extend the run or transfer to a larger stage "Don't even mention it!" he exclaimed, "It's *unlucky*!" As it happened, the play got rave reviews, enjoyed packed houses for three weeks, but, for lack of contingency plans, abruptly closed, leaving the audience (literally) out in the cold.

Unfortunately, in a "user driven" marketplace, the buyer, *not* the supplier, has the real power. Canadians, in order to be competitive, must become attentive to the needs of the buyer, not the seller. Although many of our ar are not created as part of the commercial market, the artist *does seek an audience.* Whether that audience is small or large, we must have in place me hanisms that make their art available to the *widest possible audience. This* audience will decide whether or not they wish to consume our cultural wares.

Because the world market is a user driven one, Canadians must bec ne more entrepreneurial. But in doing so, we must be true to our own articular temperament and develop our own distinct style. In marketing, in any strategy, we must discover our strengths and weaknesses and devel p tactics which play to our strong points. The higher the rewards, the more likely we will quickly develop marketing skills. These rewards are nc always monetary, and they may differ from that which motivates the Ameri an — or any other — entrepreneur. This is an essential point because it is i possible to encourage skills which do not offer an adequate prize. And in his case,

[34] August, 1992

our future success depends on our making these entrepreneurial skills as natural as breathing.

8.2 The Need For New Funding Approaches in a User Driven Market

Traditionally, government has funded universities, non-profit agencies and councils to research and develop products and services. However, in many cases, such institutions — following their own internal agendas or ambitions — create products and services which have little to do with the real needs of the larger society. They are often insulated from the signals, pressures, and inspirations of the marketplace. *For government to pursue this pattern of funding exclusively will place Canada's economic development at odds with the dynamics of the user-driven market.*

In the user-driven market of today's world, commercial applications and ventures are best undertaken by those who are more sensitive and responsive to changing market tastes and trends. In the case of multimedia, whose development is dependent on the vast and volatile home entertainment market, government funding of universities and large government agencies will not engender a viable multimedia industry. To foster such an industry, it is necessary for government to *directly fund* individual entrepreneurs and small businesses, who have a stake in the marketplace and can respond *directly to customers' needs.* Pioneering individuals, not bureaucracies, have anticipated market trends as well as business and public needs. The visionary individuals that possess this *intuition* about market needs should continue to be encouraged to assure Canada's economic future.

Direct government funding of entrepreneurs can be carried out through *existing models* such as the **Cultural Industries Development Fund (CIDF)**. The Cultural Industries Development Fund, administered by the **Federal Business Development Bank (FBDB)**, is a $33 million fund financed by the **Department of Communications** over a five year period. Through the CIDF, publishers, film and video producers and distributors, sound recording companies and music publishers can apply for loans and counseling services related to development, marketing, training, expansion and equipment. After discussions with the various cultural industries, the

CIDF was envisioned to cater to the special needs of the arts. In a cross between term loan and venture capital, the CIDF provides "mezzanine financing", providing small or large loans, flexible term and interest rate, and loan payments which take into account seasonal fluctuations in the availability of cash.

In certain instances, government might *actively partner* with small businesses. By investing on an equity basis, project by project, government could ally with a commercial vendor in the development of multimedia products and services. If the product or service is successful, as a partner government is rewarded with *cost recovery* and, in some cases, *revenue generation*. By partnering with a *number* of small companies in the creation of a variety of products and services, government would facilitate a *synergistic dynamic*, creating jobs in Canada and also attracting foreign clients and investors who would be drawn to our diversity of skills and output. Such arrangements can act to improve and strengthen both the multimedia and cultural industries. Government could then *apply in-coming revenues to lowering the present deficit.*

In the area of outright grants to artists, government funds bureaucracies, *not* individuals. Although government should continue its efforts to encourage and assist individual artists, current funding mechanisms do not always serve this purpose. In general, government funds art councils, cultural agencies, and organizations. There, the funding is divided up and given to yet other groups who, in turn, give grants to individual artists. For example, the **Ontario Arts Council** funds publishers, theatres, and other artistic organizations. An artist must then approach one of these for funding. This procedure sounds simple and effective, but in practice too often becomes protracted, exhausting, and ultimately futile. Also, funds are frequently granted to a specific discipline or division of the arts, while new technologies tend to *integrate* or apply to *several* disciplines. As a result, the funds are distributed only to the familiar art forms, while new and emerging art forms are shut out or mislabeled, forcing the artist into an inappropriate competition.

While the **Canada Council** has been funding individual artists, the Council's effectiveness has been limited. At the Council, individual applications are evaluated by a jury of artists. Adjudicators who have limited knowledge of the technological tools or of their implications on the arts, must often consider pioneering work *outside* their expertise. Thus, projects that involve familiar or "tried and true" approaches are given preference over what is innovative. Moreover, benefits of the Council in recent years have been reduced by freezes in funding, as the number and amount of the grants have declined. Giving outright grants to artists is important because it allows them valuable time to experiment, and to develop technique. However, there may be more effective ways than the present systems to distribute these grants.

8.3 The Need for Artistic Content in Multimedia.

> **"Content, not technology, will determine success."**
> — Roger Fidler, Director, New Media Technology [35]

8.3.1 Artists Provide Business With Competitive Edge.

In the past, business professionals and artists felt they had little in common and did not, for all intents and purposes, enter into formal dialogue. Corporate culture was "uncool" to the artist, and the artist was too "different" to be of value to business. Artists have been a marginal class, much admired but underpaid. Now, as multimedia products are needed for the home market, major corporations realize that artists will be creating the videos, the music, the writing, and the visuals of multimedia entertainments. The artist will also design the overall presentation of the products, a presentation that will supply the *competitive edge* in the global marketplace. The emerging multimedia industry has created common ground and interest between the corporate and the entertainment industries.

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[35] Knight-Ridder Inc. newspapers (IEEE Spectrum 1993)

Major corporations now court multimedia developers to create ap lications for their hardware and software. These developers, often artists th mselves, in turn recruit other artists to assist in the creative areas of ncepts, presentations, and content. Without "content", this costly techn logy has nothing to carry or communicate, and cannot return its investment.

This is a *pivotal* development in the Canadian arts. **For the first time, artists are in a strategically advantageous position to market their art as well as create the form in which that art is presented.** In the emerging scenario, artists will be partners with business in finding ways in which technology can be used to take the arts into the home.

8.3.2 Critical Balance of Content and Carriage

By the end of the decade, Canada hopes to create a national system of information highways, or "Electronic Highway System".[36] Such a network of networks, providing seamless interconnection among the existing cable, telephone, and satellite networks is costly but this cost should never absorb the investment in "content". Without content the network is an empty highway with few products and services travelling on it. The golden rule is, *No content, no customers.*

In this matter, both business and government should work together to help create multimedia wares that will generate revenues. In many cases, it would be wise to re-invest in a growing and ever-expanding array of products intended for home and foreign markets. Again, be reminded that **what travels across these electronic networks is as important as the networks themselves.** Money must be invested in "content" as well as "carriage" and to balance the two will take genuine cooperation and enterprise from all interested parties.

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[36] Speaking Notes for the Honourable Perrin Beatty, P.C., M.P. . Minister of Communications, Canada at *Intercomm '93*

8.4 The New Cultural Resources in Canada.

In the past, Canada's resources were agricultural produce, fish, minerals, hydro electric power, and lumber. It is more difficult to understand the resources of a technological state, which is what Canada has become. Training the eyes to *see* these resources is an essential task, one on which our survival as a country will depend.

In the creation of multimedia products, our technology provides us with the ability to turn present resources into marketable cultural products and services.

8.4.1 Expanding the Marketing of Stratford Festival Productions.

Audiences travel from all over the globe to attend the **Stratford Festival** in Stratford, Ontario. Celebrated as one of the great centres for the presentation of classical drama, the Stratford Festival has presented plays for the past forty years and its work is discussed and followed by those interested in the arts. Tragically, most of those brilliant productions have been lost, except for stilted archival films, which provide only a feeble record of events.

The Festival's main focus is in the production of the play. Unfortunately, only those who can travel to Stratford can see these works. Although a few productions have been filmed for television broadcast, there is no sustained effort to produce and market the productions outside of Stratford. The Festival itself does not have the funds for such an on-going venture. Nor does it have the resources to produce a series of multimedia CD-ROMs, which might contain the Festival's accomplishments — everything from costume production and design to musical composition as well as scholarly discussions of text. As theatre production costs have risen, so has the price of admission. With the additional costs of food, travel, accommodation, and taxes, attendance numbers have eroded. During hard economics times, box office is not helped if the going price of a good *Hamlet* would bankrupt a prince! However, special funding from major corporations, *specifically targeted* for preservation and global marketing of Festival productions, would promote the Canadian arts and bring home much needed revenues. Such

revenues could be poured back into production or subsidize ticket prices, allowing those with less cash, including the young, to visit Stratford and see the plays. It would also profile Canadian actors — such as William Hutt, Martha Henry, and Brent Carver — who rank with the best in the world.

In the technological world, all the world *is* a stage and it is the right of every Canadian to expect such institutions as Stratford to promote our culture and talent on the *world stage*. Realistically, Stratford's resources are finite. However, corporations could give grants especially for development of multimedia products and for their marketing. These products might include stage productions, discussions with actors, directors, designers, scholars, lectures on the history of the Festival as well as a filmed tour of its grounds. Technological corporations might also donate the use of their expertise, everything from technical, to marketing, to financial. Such donations might not be entirely altruistic, as the sale of "home entertainment" or "educational material" promotes the sale of the technology for such companies.

In the past, government has given Stratford and other such institutions funding to defray periodic deficits. Although necessary, such funding has not encouraged these institutions to develop sustained marketing strategies which would work to prevent recurring financial difficulties. As an incentive, future government funding could be *contingent* on these institutions identifying their resources and *actively participating in international marketing efforts* to profile their work. Again, such marketing ventures recover funding costs, as well as *generate* revenues.

In recent years, Stratford has had difficulty producing lesser-known works because the Festival cannot afford the additional advertising these plays demand. Works like *The Taming of the Shrew* and *Romeo and Juliet* require no great promotion because they are widely known. Lesser-known dramas are financially risky to present because there is no guaranteed audience to see them. However, by staging predictable summer fare, the Festival runs the greater risk of undermining its ability to bring alive the *full range* of classical theatre, thus weakening its influential reputation. Stratford should not abandon productions of brilliant but rarely seen works such as Thomas Otway's *Venice Preserved* and John Webster's *The White Devil*. After all, it

was this theatrical daring, versatility, and scope that made the Festival a major theatre in the first place. This creative vision should not be lost as it is the theatre's big drawing card. It seems both wise and expedient to market Stratford's achievements to a world audience — using the profits to sustain and enhance those standards which established the Festival as a national and *international* treasure.

8.4.2 Repackaging and Marketing the CBC Archives.

Canada — its organizations, agencies, and institutions — have resources in abundance. But in many cases, management does not always see these resources. For example, the **Canadian Broadcasting Corporation** has been the primary producer and employer of Canadian artists for decades. It has created and helped create thousands of radio, television, and film projects. Its vaults contain a more comprehensive history of this country's cultural heritage in modern times than any library could. With the assistance of government and business, this great storehouse could be made into multimedia products and marketed to the world.

In Canada, the CBC is seen as a cultural backdrop, something taken for granted. But in foreign markets, the work done here enjoys a high renown. In the past there has been the occasional effort to capitalize on this reputation and market radio and television programs. But what is needed is to take old programs, re-package them into interactive multimedia, and make them available to a global home market. In the past, the pressure to force such initiatives was insufficient. Now, however, the CBC realizes it is going to have to compete with hundreds of other channels on the airwaves. As a corporation, it must now either compete successfully or perish. Until now, so much of Canada's cultural creations have been stored away, hidden from both domestic and foreign eyes. But with CD-ROMs and other technologies, buyers will be able to view Canadian programming at any hour of the day or night, in Halifax or Dallas, in Berlin or Paris.

Canadians no longer have the funds to subsidize organizations which could generate revenues by allowing their products to reach a wider audience. **A culture is protected by its dissemination, not by its isolation.**

Often, the market demands that Canadians produce "unique" products, ones which will grab a special niche of the global market and garner particular notice. In fact, so much of what makes us unique as a people is instilled in our cultural wares, which, in turn, make them unique. In other words, our art is unique and it will establish its own "niche" in the marketplace.

8.5 Canada Moves to Centre Stage: New Map of the World

Emerging communications networks which criss-cross the globe have been called the new "super highways" or "railroads" which carry our goods and services to market. However, it might be more useful to picture these networks as seamless, fluid, and expansive in nature. In a very real sense these networks form an *ocean* across which our products and services travel night or day, often to new and uncharted markets.

Hampered by harsh climate, and psychologically hindered by lack of experience as a nation, Canada seemed bound by its geography and colonial past. Now, with the advent of new technologies such as telecommunications, our vision is draw outward. All hours of the day and night, our goods and services, mainly in the form of information, are transmitted worldwide. By satisfying the needs of welcoming markets, we have emerged from our insular perspectives. Technologically, Canada is surrounded by an "electronic ocean", across which we can explore and trade, bringing both profit and liberation.

This new freedom from our geography is still to be fully understood. In this new map of the world, Canada is no longer confined or restricted by the cold or by our borders. In the emerging technological order, Canadians are free to both *chart this map* and to *draw it.* That is to say, we are free to discover existing markets as well as create and develop new ones. In our voyages across this electronic ocean, we must be good mariners, who know how to read a compass, as well as the stars. We must take risks and play our hunches — sensing subtle changes in the sky, anticipating storms — and making good time in fair weather.

For Canada, the long winter is over. Our technology has thrust us into centre stage. By design and destiny, we have transformed ourselves into a major global influence. As we move freely across the new technological landscape, we will understand how the restrictions of a harsh climate — as well as the psychological restraints of a colonial past — have begun to melt away.

To date, many of Canada's accomplishments and treasures have been either inaccessible or gone unnoticed. However, as we market our goods and services across the world, coming into contact with other cultures, we will be forced to examine our own. One of the most powerful effects of international trade is that it will force Canadians to compare their artistic and technological achievements with those of other countries. In many ways, our defensive tendency to protect our culture stems from our lack of confidence in it. *In fact, our culture is distinct, powerful, and globally influential.*

At present, as a society, we are undergoing a profound and lasting transformation. It speaks well of us as a country that we remain relatively stable and enterprising in the wake of these changes, many of which are wrenching. We have the resources to continue our success and to grow. Our cultural industries, integrated into technology and trade, are essential to this success. The reverse is true also: technology and trade are now dependent upon the arts. Either way, we are not wanting. and if we choose to see it, prosperity lies — like all the world — within our reach.

9. Recommendations

1. Government and business should assist the fledgling multimedia industry through funding and the contributions of other resources. It should encourage and support existing organizations such as the **International Multimedia Development Association (IMDA)**, which brings together multimedia specialists, and publicizes their talents. Such organizations can also act to introduce those in government, business, and the arts to each other, and to the technology.

2. The cultural industries must be more *closely associated* with trade and export. Artists will play a key role in developing the content for home entertainment and education markets, which will form an important part of available exports. As well, artists will also play a part in essential design aspects of other technologically-based products. Government should work to profile the arts and artists as important players in the areas of technology, trade, and export.

3. Government and business should work together with various cultural institutions, agencies, and arts administrators to offer assistance in the creation of new multimedia products and services, and to protect the cultural industries from exploitation in vital areas such as copyright.

4. In the new order, the *world is the marketplace* of the Canadian cultural industries. Therefore, government cultural specialists should be educated in available technologies, so that those working in arts administration can make informed decisions relating to the arts policy, promotion, and overall strategy. Technologists and other industry specialists should provide technical guidance to those in cultural industries. By following accepted guidelines and procedures, production and distribution costs can be drastically reduced.

5. Instead of cash, corporate and government grants to the arts may consist of financial, technical, distributing, and administrative

expertise. Such "resource grants" are beneficial to all parties as they educate and inform professionals in the arts, business, and government. The interaction created by "resource grants" establishes long-range networks that continue to benefit all parties in future enterprises.

6. Networks of individuals working *outside* government, corporations, and universities can provide a valuable overview of society and show how resources might be more effectively used. As technology becomes more and more widespread, the most influential technological innovations and applications are more likely to occur *outside* the vantage point of bureaucracies. Direct funding of individuals is critical since they provide government and business with a unique perspective of major developments in the marketplace.

7. Corporations now realize they need artists to create the content for their technological products. They especially need artists to design programs for the vast home entertainment market. Traditionally, there has been little dialogue between these two professional groups. In many instances, government can act as a go-between or facilitator, bringing both artists and corporations together. Government could also provide industry with a register of artists working in multimedia.

8. The cultural industries are a *multi-billion* dollar industry which must develop sophisticated marketing strategies. Now that Canada is part of the global marketplace, our cultural industries must develop and implement expansion of our foreign markets. Marketing information must be *centralized* and made *easily available* to cultural industries. Such information should be accessible to all those who work in the arts, so that individuals and groups can work to market their cultural wares. The *availability* of this information will assist in the development of markets, which will in turn, expand our exports. Government and business should work with cultural organization and agencies to encourage the export of our cultural expressions.

9. Canadians must compete culturally with other nations in the global marketplace. If Canadians do not make and market cultural products and services, *others will.* In many instances, multimedia makes it possible to re-package *existing resources* to create *new* entertainments. These new products will generate needed revenues which can be poured back into production. Government, business, cultural organizations, institutions, and artists must find new ways of sharing resources in order to produce these products.

10. Government funding of cultural institutions should be granted to those institutions that have identified their resources and have developed marketing projects for their goods and services. Special incentives and rewards should go to those institutions which excel at marketing strategies. Government should take a more active role in linking cultural institutions, agencies, and organizations with those in the private sector who have the resources to package and market cultural produce.

11. In the past, government has funded universities and other institutions and agencies to research and develop technological applications. In today's *user driven market,* universities and other institutions are not necessarily sensitive to the pressures, needs, and inspirations of the marketplace. By their nature, small businesses are much closer to the public than large institutions, and are more aware and responsive to the market's needs. Therefore, government should *directly assist and fund* small businesses. This can be done through *existing models.* For example, one effective funding mechanism right now is the Department of Communications' Cultural Industries Development Fund (CIDF), administered by the experienced Federal Business Development Bank, which assists the cultural industries with loans and services. Government should also *partner* with small businesses to create and market applications and to bolster Canada's fledgling multimedia industry. As well, the sale of these applications would *generate revenues* for government which could be used to *reduce the current deficit.* Such enterprises will help create and sustain a viable commercial industry.

10. List of Multimedia Associations, Market Researchers, and Companies

The following associations and businesses are active in the multimedia industry. This list, though not complete or exhaustive, serves as an introduction to the industry.

Association	Contact	Activity
International Multimedia Development Association P.O. Box 1139 Station "Q" Toronto, Ont M4T 2N5	Ben Mair, President Tel: 416/ 233-2227 Fax: 416/ 234-9482	Profile and publicize multimedia developers and specialists. Industry networking.

Trade Show Specialist	Contact	Activity
Multimedia Trade Shows Inc. 7 - 70 Villarboit Crescent Concord, Ontario L4K 4C7	Bruce Cole, President Tel: 416/ 660-2491 Fax: 416/ 660-2492	Staged *Multimedia '93 Exposition and Forum* in Toronto.

Publisher	Contact	Activity
The Canadian MultiMedia Corp. 17510 - 102 Avenue Edmonton, Alberta T5S 1K1	Vernon Samaroo Tel: 403/448-9181 Fax: 403/ 484-3758 Toll Free: 1-800-567-4257	Publish the Canadian Multi Media Magazine. Sponsor the *International Multimedia Exhibition and Conference* (IMEC)
Multimedia Publishing 7 - 70 Villarboit Crescent Concord, Ontario L4K 4C7	Reuben Lando, editor Tel: 416/ 660-2491 Fax: 416/ 660-2492	Publish **The International Multimedia Report**

Market Research	Contact	Activity
Computer Technology Research Corp. 6 North Atlantic Wharf Charleston, SC 29401-2150 USA	Brian Lindgren, editor Tel: 803/ 853-6460 Fax: 803/ 853-7210	Publish various reports. Example: *Multimedia Technology: Combining Sound, Text, Computing, Graphics and Video* by Bohdan O. Szuprowicz
Frost & Sullivan/Market Intelligence 2525 Charleston Road Mountain View, CA 94043	Amy Arnell, Public Relations Manager Tel: 415/ 961-9000 Fax: 415/ 961-5042	Publish various reports. Example: *World Multimedia Hardware and Software Markets Finally a Definition*
International Data Corporation (Canada) Ltd. 950 - 36 Toronto Street, Toronto, Ontario M5C 2C5	Debby Currey Tel: 416/369-0033 Fax: 416/369-0419	Publish various reports on multimedia.

Company	Contact	Activity
Alias 110 Richmond Street East, Suite 401 Toronto, Ont M5C 1P1	Andrew Wright Tel: 416/362-9181 Fax: 416/362-4696	Internationally known, has produced animation software used in the making of major Hollywood films, such as *The Abyss* and *Jurassic Park*.
Animatics 126 York Street Ottawa, Ontario K1N 5T5	Patti Church Tel: 613/235-9000 Fax: 613/233-7157	Offer multimedia consulting, hands-on training, and customer support. Produce interactive multimedia products for communication, education, and entertainment.
Apple Canada 80 Micro Court Markham, Ontario L3R 5G2	David Rosen, Multimedia Marketing Manager Tel: 416/477-5800 Fax: 416/ 513-5871	Excel in computer visuals. Offer a wide variety of hardware and software for work in multimedia for graphic designers and artists .

Company	Contact	Activity
ATI Technologies Inc. 3761 Victoria Park Avenue Scarborough, Ont M1W 3S2	Andrew Clark Tel: 416/756-0718 Fax: 416/756-0720	Manufacture wide range of graphics, multimedia and communications products. Largest market share of any graphics board manufacturer.
Commodore Business Machines Ltd. 3470 Pharmacy Avenue Agincourt, Ont M1W 3G3	Tom Shepherd, Director of Marketing Tel: 416/499-4292 Fax: 416/494-9755	Pioneered multimedia development. The Amiga computer is specially designed for film and video production.
Corel Systems Corp. 1600 Carling Avenue Ottawa, Ontario K1Z 8R7	Tel: 613/ 728-8200 Fax: 613/ 728-9790	Provide PC graphics software, optical disc products, and systems. *Corel Draw* software used throughout the desktop publishing industry.
Digital Eclipse 275 Slater Street Suite 1002 Ottawa, Ont K1P 5H9	Gene Carson, Director of Marketing, Business Development Tel: 613/594-4770 Fax: 613/238-4857	Develop multimedia applications for use in information, training, and public space kiosks.
Digital Presentations Inc. 71 Berwick Ave. Toronto, Ont M5P 1G9	Mathew Diamond Tel: 416/481-2394 Fax: 416/481-8025	Corporate communications. In 1990, received a National Research Council grant for the development of multimedia applications.
Discis Inc. 410-45 Sheppard Ave. East Toronto, Ont M2N 5W9	Sharon Zohar, Media Relations Tel: 416/250-6537	Very successful multimedia publishing of children's classics.
Electramedia 201-145 Front Street East Toronto, Ont M5A 1E3	Aurel Langlois Paul Chato Tel: 416/361-6161 Fax: 416/863-0528	Specialize in corporate communications. Wide-ranging interests and talents in multimedia design and presentation.

Company	Contact	Activity
IBM Canada Ltd. 3600 Steeles Avenue East Markham, Ont L3R 9Z7	Angela Forgione, Multimedia Marketing Representative Tel: 416/946-3791	Provide an extensive r e of multimedia products a services, as well as cu: ner support. Major player future development of multimedia.
IBM Canada Ltd. Ultimedia Developers Program 701 West Georgia Street Vancouver, BC V7Y 1G1	Joanne Galand, Creator Relations Tel: 604/664-6863	Creates multimedia sol tions according to the client's needs.
Kodak Canada Inc. 3500 Eglinton Avenue East Toronto, Ontario M6M 1V3	Ed Berry Tel: 416/766-8233 Fax: 416/ 766-5814	Provide a variety of tools for the transfer of images onto computer or TV screen for viewing and editing.
MicroPlacement Inc. 1200-1200 Bay Street Toronto, Ont M5R 2A5	Gary L. Yentin Tel: 416/960-3834 Fax: 416/960-8791	Specialize in multimedia consulting and conference management.
Microsoft Canada Inc. 320 Matheson Blvd. West Mississauga, Ontario L5R 3R1	Vic Pitchkur Tel: 416/568-0434 Fax: 416/568-1527	Provide a wide array of multimedia products which are both instructive and entertaining.
Multiple Images Inc. 201-489 Queen Street East Toronto, Ont M5A 1V1	Michael Keefe, Director of Multimedia Tel: 416/368-6728 Fax: 416/368-0253	Frovide corporate communications and design striking multimedia presentations for major business clients.
Pixel Productions 547- 67 Mowat Avenue Toronto, Ont M6K 3E3	Rachael McAfee Tel: 416/535-3058 Fax: 416/535-2794	Use emerging technologies for information packaging and presentation in applications for education, training, marketing, communications and public access.
Pixonix Inc. 3-196 Sunnyside Avenue Toronto, Ont M6R 2P6	Nikki Yokokura Tel: 416/537-1068	Specialize in educational software development and consulting.

Company	Contact	Activity
Professional Staging Techniques 6580 Kestrel Road Mississauga, Ont L5T 1Z9	David Furlotte Tel: 416/670-7540 Fax: 416/670-7549	Specialize in staging, consultation, and programming.
Roland Canada Music Ltd. 346 Watline Avenue Mississauga, Ont L4Z 1X2	Tel: 416/890-6488 Fax: 416/890-7036	Wide array of software used in the creation of music created and enhanced on computer
SoftImage Inc. Corporate Headquarters 500- 3510, Boul St-Laurent, Montreal, QC H2X 2V2	Tel: 514/ 845-1636 Fax: 514/ 845-5676	Produce software used in the creation of film and animation. Example: effects in movie *Jurassic Park.*
SoftImage (Midwest) Chatham Centre, N.W., 8th Floor, 1901 North Roselle Road Schaumburg, Illinois 60195	Phillip Moy, Regional Manager Tel: 708/490-6450 Fax: 708/ 924-8359	Software used in the creation of film and animation. Software used in the blockbuster movie, *Jurassic Park.*

11. Glossary

Artificial Intelligence (abbreviated AI):

An umbrella term which incorporates the study of ways in which computers can be made to perform cognitive tasks normally performed exclusively by human beings.

Cultural Industries:

As defined by the 1987 Department of Communictions report, Vital Links, the cultural industries are: film, book and magazine publishing, radio and television, and sound recording. This definition includes other art forms and cultural agencies.

CD-ROM (Compact Disc Read-Only Memory):

An optical form of disk storage that uses a laser rather than a magnetic head to read information from the disk. The laser scans the disc and detects the appearance of minute pits on the disk which represent the binary data.

Digital Information:

Data and the context of those data, stored in binary (numeric) code.

Expert Systems:

A computing system which mimics or simulates certain aspects of human logic, such as inference and reason. It is usually based on the experience which is gathered from a human expert or experts in a specific area or field of knowledge. (This knowledge is often in the form of guidelines we follow in our reasoning or *rules-of-thumb*).

DOC:

Abbreviation for **Federal Department of Communications**, also named **Communications Canada**.

Multimedia:

A type of presentation that involves the directed control of several forms of communication, such as text display, graphics, still imagery, animation, sound, and music. A multimedia presentation is a composite using many audio-visual sources and allows the discriminating viewer to proceed at a desired pace and with some level of interaction. With television, for instance, the viewer is passive and cannot control the media events or pace within a given program. With multimedia, the viewer can control the order and speed of the presentation. In certain cases, the user or viewer can import information from various sources and merge them into a new assembly or package, thus creating a new presentation, product or service. Multimedia is also an essential tool in the creation of cultural products and services.

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In 1992, Mr. Campbell wrote a report for the Federal Department of Communications entitled, *Canadian Expert Systems Software: Applications in the Marketing of Canadian Cultural Industries.*

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