

# **Out from the Summit**

The Summit Summary

A report on the Summit meeting held at the Banff Centre  
for the Arts  
June 26th to 29th, 1997

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## **Executive Summary**

The Summer Summit at the Summit was a meeting planned and coordinated by Sara Diamond, Executive Producer, Television and New Media at The Banff Centre for the Arts, in collaboration with Real World. The Summit was held at the Banff Centre between June 26th and 29th, 1997. Approximately 100 invited attendees, each expert in some aspect of the field, discussed the issues surrounding Interactive Multimedia.

It is possible to define an Interactive Multimedia industry in terms of the layers that exist and the specialization within these layers. It is apparent that at present there are many holes in this structure. It is also apparent that existing media industry models do not fit well for this new industry, either as a critical grammar or as production model, although some elements can be repurposed rather than requiring total reinvention. The emergence of a complete industry will be delayed whilst some of the conflicts and issues of structure are resolved.

For the industry to come into existence there is a need to move from a technology push to a requirements pull mode of operation. This will address many issues for the industry, in particular the rate of change of technology for both creation and delivery. Such a shift would be helped by the development of content-oriented R&D to supplement the delivery oriented R&D which exists so plentifully. Initiatives at regional, national and international levels are required.

The maturation of the industry will also help its funding processes, by providing risk management mechanisms and the opportunity for completion guarantees. In a mature industry process stabilization occurs which opens the way for performance improvement, reduced costs and quality enhancement. At the same time cultural maturity establishes the value of R&D, the validity of critical and feedback processes and degree to which the audience needs to exercise "suspension of belief".

The extent to which content is reusable is important for the industry. At present some players are reusing content which already exists for other media: others are creating new content and then exploiting it through other channels. This creates a confusion in the industry about revenue sustainability. The danger is that with multiple use built into the system, Interactive Multimedia may become simply a prototyping or ancillary environment.

Interaction changes the nature of the medium radically. It redefines authorship and potentially places more responsibility on the audience/user. If the audience/user is given real choice, then the potential number of outcomes is infinite. The ability to create in this environment has to place some part of the creation role on the audience/user. Many approaches try to limit the actual choice so that the exclusive role of the artist is maintained.

There are some limitations on content which derive from the origin of the technology, which was designed for other purposes. There is a need to assert the requirements for the Interactive Multimedia industry; though this will have the short-term effect of increasing

costs, it will have the long term benefit of fewer limitations on what can be created. These limitations can be associated with all of the convergences that Interactive Multimedia is subject to i.e. not only technology, but development process, market and content reuse.

Innovation in the field is occurring in the development processes employed for imagining, assembling and presenting content, in the way in which requirements are being met, in the technology deployed for creation and delivery, in the tools available, and in the recombination of creative forces e.g. technologists and artists, team driven production.

Good content is not yet well-defined because there is no established critical framework which can handle the transitory nature of interaction. This is a crucial shortcoming because it means that all progress is through the relatively expensive route of trial and error. Interaction can be sustained in a number of forms. An environment focuses most strongly on experiential interaction and learning: a game tends to be goal-oriented which appeals to a niche market but is limited in universal appeal. There are some forms of game which have more broadly based appeal. Narrative is a mode which suffers from the direction of outcome issue most strongly. There is a need for a satisfactory substitute for the value obtained by the artist's direction of a narrative to point to key universals. Narrative is not the only form with relevance to Interactive Multimedia, but it is a critical one. Some interactive experiences are highly physical, others are intellectual: many in the industry are striving for a goal which may be labelled "emotional computing".

Whilst the industry remains immature the roles within it are not well defined: the roles of artists, distributor, engineer, director and publisher can all be defined, but there are no established models for these. They are heavily influenced by the technology and the tools which shift the power and capabilities between them.

The audience/users and what they want, or value, from interaction remains a considerable enigma, at the deepest level. At present they are being satisfied with widely varying modes which offer a sense of community e.g. Websites, physical interaction e.g. games, Internet art, or access to information. Within these modes there is scope for story-telling, emotion, self-reflection, irony, evaluation and assessment and spectacle. The combination of these elements into coherent forms is not systematically achieved.

The mass audience has already been eroded by consumer choice models and specialties, and may be further eroded by the new medium which can more accurately and effectively meet the needs of niches than present media do. This starts to change the role of markets and marketing. The potential of the market is very considerable, but how it may be accessed is not known whilst the understanding of interaction is so limited.

The nature of Interactive Multimedia, because it can provide such a complete environment and set of values makes it an ideal vehicle for enforcing the hegemony of existing industrialized nations. At the same time its very accessibility can support a degree of diversity hitherto unexpected. The role of artists in developing this universality and diversity could be the critical element in the whole industry.

The industry, to meet its greatest potential, needs a telecommunications environment. The Web may evolve to be this, but if so requires substantial development to meet the potential demand levels. The markets to be accessed will be determined by the infrastructure available, and in particular by the way in which revenue is generated. Interactive Multimedia is a way in which experience can be sold, rather than products.

Seven key conclusions are reached:-

1. The interactive Multimedia Industry does not exist at present. Its nature should be different from, but evolved from, existing industries. One aspect of this difference are changes in funding requirements.
2. Its emergence will be accelerated by a focus on requirements for content creation and delivery, and a shift from technology push. This demands a reassessment of the role and value of content-oriented R&D, whose mission should be directed by the industry, including social and cultural theorists, and artists. There is also the potential for stimulation of the industry through financial initiatives.
3. The nature of interaction and its value in the market and to the audience needs to be understood.
4. There are considerable power shifts occurring as the industry emerges. The shifts are the results of huge economic pressures, volatility driven by technology and innovative practice, and the technology by-products of centralization and integration. Interactive Multimedia is part of the pressure on the evolution of the Web to become a broadly functional, high bandwidth, synchronous and asynchronous, facility.
5. New tools for creation and delivery are needed for the potential of the industry to be realized. The universal interface is not an appropriate concept.
6. The mass market will disappear and be replaced by dynamic coalitions of niches.
7. The field of Interactive Multimedia is being moved forward by alliances and partnerships, many of an informal or temporary nature. This degree of common interest and interconnectedness should not be lost as the industry matures. Meetings such as the Summit are important for the range of contacts that they provide.

Interactive Multimedia was seen by the Summit as an opportunity for a richer environment for everybody. It also addresses the underlying tensions of representation: if accessibility is guaranteed for all, then no-one will be left without a voice. The consumer-creator rupture may be healed.

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## Goals of the Summit

The Summit organizers recognized the critical phase that the Interactive Multimedia industry is going through. There are many questions which have been raised and the purpose of the Summit was to ensure that the focus was on the right questions, rather than on trying to answer everything. The goals were:-

1. To bring together artists working in the non-market sector, publishers, galleries, Web creators, critics and analysts with the creative sector working for commercial industries e.g. gaming, CD-ROMs, commercial Webs, systems design, to develop critical terms of grammar and explore collective practice.
2. To develop strategies that would stimulate a local and national market for the most creative aspects of new media practice.
3. To examine different production and distribution models and relationships and improve these.
4. To explore ways that technology developers and the IT industries could collaborate better with the creative sector in fields such as R&D, artists working with companies and information exchange.
5. To reflect on policy, particularly in Canada, but also at an international level, that could help a diversified industry to emerge.
6. To stimulate new relationships which might create breakthrough products.
7. To provide alternative environments for dialogue and new networks through social time, individual challenges, nature experience and the Website.

The approach to meeting these goals is shown in the agenda, which forms Appendix A.

## **Out from the Summit**

### The Summit Summary

#### 1. Introduction

The Summer Summit at the Summit, to give it its full title, was a meeting planned and coordinated by Sara Diamond, Executive Producer, Television and New Media at The Banff Centre for the Arts, in collaboration with Real World.

This report is on the Summit and therefore focuses on matter presented and discussed at that meeting: there is limited use of extraneous sources. This is a single view of the Summit. There is more to be obtained from the recordings of discussion at the Summit, and there are many other sources which contain relevant information.

At the meeting there were many questions for which no answers appeared to be forthcoming, even though the validity of the questions was not challenged. A consequent view is that many of the participants are hanging on by their finger-tips. Their long-term vision, in economic terms, is surviving tomorrow. The orientation is mainly on products, not on process. The industry is in a reactive mode: it reacts to technology, to other innovations and to convergences.

The whole field of Interactive Multimedia is so active that no one organization can be considered to be authoritative in it. This drives a need for alliances. There is also a lack of coordination, which leaves many people working to solve the same problems. There is little sharing in the industry, which leads to the same problem e.g. cost, being addressed by different means e.g. tools, content reuse. The field is more characterized by its divisions than by its unity: for example the fundamental dichotomy of content and vision against technology and delivery. The attendees at the Summit were excited by both the opportunity to see quality creative work and the view of next generation tools.

Participants were invited to the meeting: the criterion for selection was their expertise in some aspect of Interactive Multimedia. This expertise might be in creative practice for platform based games, interactive work, installations, in which they had developed ground breaking activities as precedents, or in technology, both research and early applications, or in review, thinking and writing about Interactive Multimedia, critiquing or in analyzing. The aim was to focus on representation at senior levels who could provide a balanced view, act as spokespeople, and be familiar with decision making or policy setting. The participants were mainly drawn from Canada, the US and the UK, which provided a similarity of basic experience albeit with a restricted global vision.

As specialty television and feature film has provided key opportunities for artists to become small producers, so may the emergence of Interactive Multimedia, provide similar opportunities, particularly in the UK and Canada. Artists outside the market economy provide a key dialogue with the commercial industries. The organizers' thesis was to link these dialogues, if not the economies from which they were drawn. The presence of these artists and critics also allowed dialogue about public sector responsibilities to occur.

Artists included theorists whose work is to strip bare, or expose, the systems underlying new media languages, mythologies and economies. The confrontation between these questioners and the industrial producers was considered by some to be one of the best values of the event, though by others to be too abstracted.

The intention of the Summit was to think through strategies to push interactive media further and ensure survival of the best. This entailed acknowledging the constant change, including new companies, mergers, collapses, and seeking the underlying constants and potentials. The meeting commenced with an agenda (see Appendix A) and a wide-ranging set of questions which defined a session structure. Presentations and demonstrations started the sessions, which then continued in open debate. In general this revealed the gulfs between, and even within, the different groups of participants. The result was an elaboration of the questions, the identification of key underlying issues and the description of specific cases.

This report focuses on some key areas, to which the debate in many of the sessions returned repeatedly. Since the floor debate did not require speakers to identify themselves, the comments are mainly anonymous. They are in any case mainly confluences from different speakers and sessions. The exception to this is for material from the starting presentations.

This report has been prepared from notes taken at the meeting, from discussions outside the sessions with people at the Summit, from tapes of the sessions, and transcripts of those tapes. Because there were multiple sessions at one time it was not possible to draw on direct experience, but Sara Diamond provided extensive consultation, perspectives and review in building the report.

## 1.1 Terminology

A perpetual issue was what was meant by certain key terms. No closure was attempted on this: the following material illustrates the breadth of uncertainty that exists.

### a) partial synonyms for "interaction"

- choice
- decision
- engagement
- experience
- feedback
- guidance
- interpretation
- participation
- response
- selection
- sharing

### b) partial synonyms for "those who interact"

- actors
- audience
- co-creators
- gamers
- interactors
- observers
- performers
- players
- users

c) modifiers for "convergence"

- technology
- market
- content
- process

d) forms of content

- advertising
- art
- brands
- bulletin boards
- data
- directories
- education
- entertainment
- environments
- games
- graphics
- images
- information
- movies
- music
- narratives
- news
- software
- stories
- video
- Websites

## 1.2 Organization of this report

The report looks first at the Interactive Multimedia industry, examining what areas it covers, what parts it should have to be a genuine industry rather than a collection of loosely related elements, what models might apply and what relationships exist between the parts. This section concludes with a review of five key issues for the industry, and a summary of how it might develop.

Section three examines the content creation issues: this starts with an assessment of what interaction means for content development, and how interactive content is limited by the current vehicles. The four convergences which are important to the industry are of development process, markets, content and technology: each is addressed in turn. The next area reviewed is what innovation is occurring in the industry. The final element is what is meant by good content and what forms can deliver it.

Section four looks at issues related to the structure of the industry. The issues are grouped under roles in the production and delivery aspects, the audience related factors and the types of audience which may be addressed, and some aspects of policy. The section concludes with issues which relate to more than one element of the industry, namely infrastructure, the Web and markets.

The critical factors are highlighted in the review section which is the fifth part of the report. The sixth section identifies some of the issues arising , particularly as they relate to Canadian interests in Interactive Multimedia.

## 2. Interactive Multimedia Industry

### 2.1 Naming the industry

The meeting was designed to gather members representing the Interactive Multimedia industry, or proto-industry. The definition of membership was broad and included artists working in alternative and non-commercial settings. This reflects the fact that the role of R&D and of non-market driven creative practice is a vital part of the emerging industries.

It was agreed, both explicitly and implicitly, that interaction is important, though the level of that interaction is open to question. (See section 4.1.4.2). The term immersion was also important because of the complete absorption that implies. Interaction may force a degree of open-endedness to any undertaking, which becomes key to the industry: it fundamentally alters the relationship of creator and audience, and can compel the audience to address at least some levels of the issues which are normally left to the artist. This in turn allows for a significant record of the experience of the audience to be potentially captured and reused. If interaction is merely a branching process, then it becomes secondary to immersion.

This differs from the classic McLuhan concept of "cool" media, in that it is information rich, and engagement is through the same channel as the information delivery, not separately. It is closer to the phone model, than to the TV model.

The second term is multimedia. Although this word has an unfortunate etymology, it has come to mean presentations which include sound, video, image, graphics, text and, potentially, more. Accordingly the term Interactive Multimedia is adopted as a placeholder in this report. Other terms such as "digital media", or "new media" were alternatives. The organizers hoped to prompt some precision in thinking about and naming the range and forms of what the industry produces.

Another contentious term was "content". None of the creators present cared to classify their work as mere content, but in the absence of a better term, it was continuously used through the Summit. The chief limitations of the word are its suggestion of passivity, and the suppression of the variety encompassed. For example content applies equally to raw video footage and carefully edited movie, to experience rich games and information rich environments. Also the complex relationship between programming and content is not evident in the term. Tools in interactive media are less passive than in traditional media.

It was repeatedly emphasized that this industry, or potential industry, should be treated as new and different. The film/TV industry model should not be applied to it. The existing models do not provide the requisite critical grammar or production models. There is not a need for total re-invention as some elements of existing models can be repurposed, however care is required in identifying these lest the outcome is not the new model that is needed. Robert Morrice, identified the large investments made by the Royal Bank in the industry (1\$ billion in loans to content producers) and in the infrastructure (\$17 billion in loans in entertainment, information, and communication.) Despite this investment the bank still does not have a satisfactory business model for the Interactive Multimedia industry.

2.2 Elements

End Markets	<b>Entertainment</b> <ul style="list-style-type: none"> <li>• arcades</li> <li>• home TV</li> <li>• home computers</li> <li>• games systems</li> </ul>	<b>Promotion</b> <ul style="list-style-type: none"> <li>• corporate image</li> <li>• products and services</li> </ul>	<b>Education</b> <ul style="list-style-type: none"> <li>• homes</li> <li>• businesses</li> <li>• institutions</li> </ul>	<b>Information</b> <ul style="list-style-type: none"> <li>• homes</li> <li>• businesses</li> <li>• institutions</li> </ul>	<b>Social</b> <ul style="list-style-type: none"> <li>• homes</li> <li>• clubs, etc.</li> <li>• arcades</li> </ul>	<b>Art</b> <ul style="list-style-type: none"> <li>• galleries</li> <li>• museums</li> <li>• communities</li> <li>• Websites</li> <li>• outreach programs</li> </ul>
Intermediate markets	<b>Subscription channels</b> <ul style="list-style-type: none"> <li>• bulk service providers e.g. cable</li> </ul>	<b>Advertising channels</b> <ul style="list-style-type: none"> <li>• interactive service providers e.g. Netscape, Riddler</li> </ul>	<b>Service channels</b> <ul style="list-style-type: none"> <li>• commercial Websites</li> </ul>	<b>Retail</b> <ul style="list-style-type: none"> <li>• department stores</li> <li>• electronics stores</li> </ul>		
Infrastructure	<b>Creation</b> <ul style="list-style-type: none"> <li>• artists</li> <li>• authors</li> <li>• designers</li> <li>• performers</li> <li>• directors</li> <li>• producers</li> <li>• writers</li> <li>• programmers</li> </ul>	<b>Distribution</b> <ul style="list-style-type: none"> <li>• publishers</li> <li>• networks</li> <li>• retail stores</li> </ul>	<b>Integration</b> <ul style="list-style-type: none"> <li>• Website production and management</li> </ul>	<b>Advertising</b> <ul style="list-style-type: none"> <li>• agencies</li> <li>• mutuals</li> </ul>	<b>Trade associations</b> <ul style="list-style-type: none"> <li>• industry representation</li> <li>• press</li> <li>• artists' organizations and collectives</li> </ul>	
Techniques, tools, practices	<b>Standards</b> <ul style="list-style-type: none"> <li>• technical</li> <li>• content</li> </ul>	<b>Tool suppliers</b> <ul style="list-style-type: none"> <li>• software companies</li> <li>• object libraries</li> </ul>	<b>Review bodies</b> <ul style="list-style-type: none"> <li>• internet standards committee</li> </ul>	<b>Critics</b> <ul style="list-style-type: none"> <li>• reviewers</li> <li>• analysts</li> </ul>		
Economic infrastructure	<b>Human resources</b> <ul style="list-style-type: none"> <li>• technical</li> <li>• management</li> <li>• creative</li> </ul>	<b>Technology</b> <ul style="list-style-type: none"> <li>• telecommunications</li> <li>• computing</li> <li>• design</li> <li>• human factors</li> </ul>	<b>Finance</b> <ul style="list-style-type: none"> <li>• investment</li> <li>• loan</li> <li>• insurance</li> <li>• seed funding</li> <li>• R&amp;D funding</li> <li>• broadcast funds</li> <li>• government agencies</li> </ul>	<b>Regulation and Government</b> <ul style="list-style-type: none"> <li>• ownership</li> <li>• cultural content</li> <li>• delivery</li> <li>• funding</li> <li>• taxation</li> <li>• spectrum allocation</li> <li>• IP protection</li> </ul>		

Figure 1: Interactive Multimedia Industry elements

No formal definition of the components of the industry was undertaken during the Summit: it was implicit in the invitation list, though with the focus on the cultural, art and entertainment sectors in the hope of furthering dialogue between these. The following model identifies some of the important elements and the layers in which they exist. It is presented here to identify areas emphasized and areas ignored by the attendees.

When the industry matures then in each category there will be evidence of specialized operations e.g. in the Finance area a developed industry will possess standard business plans for presentation to financial institutions in mutually agreed terms, there will be risk management processes linked to insurance, etc.

Of the End Markets, entertainment and promotion were most continuously identified, with passing references to the others. All of the demonstrations came, by choice, from the entertainment field.

The Intermediate Markets, the channels of distribution, were indirectly represented. So little of the potential is currently being exploited, save through the physical distribution of CD-ROM based products, that this represented a significant void in attendance. In part this arises from a lack of clarity about what the end audiences require or want, and hence why there is a business opportunity for the intermediate markets. The issue of whether the Web can be an adequate channel for distribution is crucial in this.

The Infrastructure was represented mainly by the creators and distributors, whilst in the Techniques layer, the emphasis was on the tool suppliers. The Techniques layer is not generally well-populated at this time as many creators also build their own tools. The Economic Infrastructure was more generally represented by Technology, Finance and Government.

This representation may be expected for an immature or evolving industry. The economic infrastructure is to a large extent shared by other industries and hence is present early in the evolutionary process. The higher layers represent specializations which have to be created to characterize an independent industry. Initially these layers are populated by individuals and organizations creating diversity for themselves from other industries, and hence importing the preconceptions and practices of those industries. Because these source industries are diverse, so there are mismatches in the preconceptions and practices imported. It is the resolution of these mismatches which heralds the maturation of the industry and creates the stable business model.

The research basis for the Interactive Multimedia industry is not yet identified. At present it rests on technology shared with, or borrowed from, other industries. This leaves a number of gaps e.g. support for interdisciplinary tool research, mechanisms to foster ongoing collaboration, recognition of the hybrid nature of techno-artistic creation, and the paucity of consequent linkages e.g. of artistic and cultural communities with scientific, technical and business communities, and of creators with researchers, technicians, tool makers, and network builders.

Initiatives are needed at all levels: within regions to allow businesses or groups of businesses to focus researchers on their needs, nationally to develop centres of excellence and internationally to maintain information flows in a rapidly changing environment.

### 2.3 Industry Models

The Creation Assembly Distribution Consumption model was identified as possibly applying to Interactive Multimedia. However, this does not easily cater for the return path from consumption to creation arising from interaction. This industry potentially creates new value during the consumption of existing value, and hence does not have the requisite uniqueness of consumption for the CADC model to strictly apply. In addition if the Web becomes the distribution vehicle, the near cost free nature of this channel will create substantial power shifts. In particular it may mean that niche markets become more viable relative to the mass market. In the extreme case it means the elimination of the mass market as the crucial consideration, and the need to bind niches together to create surrogate mass for when mass is needed.

Given the existence of the Interactive Multimedia industry, arising from the convergence of the economic structures for TV, the Web and the gaming industry, its total relationship to these other industries e.g. TV, movies, has to be considered. At present Interactive Multimedia products such as games carry recognition values that may be exploited by TV, movies and advertising: the reverse flow is limited but should have equal value as the market sizes become more comparable.

The form that the industry eventually takes can have far reaching outcomes: it will affect the content that is produced and the forms in which it is produced. It will also compete or collaborate for funding with existing industries. It will be incorporated in other media to a greater or lesser extent. It may be noted that recently the feature film industry is moving away from new media, whilst TV is moving towards it. The emergence of the Interactive Multimedia industry will result in a repositioning of the existing industries and potentially in their restructuring.

### 2.4 Industry structure

If the industry or proto-industry exists, or if it may exist, then in the absence of an adequate dynamic model, at least the relationships of that industry to others need to be determined. The following diagram suggests some possible linkages.

Inputs	Peers	Output Channels	
Visual Artists	Film production industry	Schools and institutions	
Creative workers			
Research Institutes	TV production industry	Galleries, theatres, etc	
IT Industry	Interactive Multimedia Industry	Movie theatres	
Home entertainment products industry	Music industry	Video and game libraries	AUDIENCE
Music industry	Publishing and information industry	Book stores	
Publishing and information industry		Retail	
Government and regulators		Cable and broadcast	
		Telecommunications	
		Web	

Figure 2: Interactive Multimedia relationships

In this model the Interactive Multimedia industry is shown as occupying its appropriate space, but it is far more fragmented and undefined than this alignment with peers suggests.

This model incorporates a number of facets which were discussed at the Summit as well as some which were implied. The movie and TV production industry is in competition with the new Interactive Multimedia industry to some extent; even if Interactive Multimedia comes to dominate there will still be radio, TV and movie survival just as radio and movie have survived TV. Likewise other cultural vehicles will continue, books, live events, paintings, etc. Nor do the existing vehicles remain static: enhanced delivery mechanisms, namely asynchronous broadband services, will change TV in content, distribution and form. The net effect should be an enrichment of options.

The model suggests a static view which is not the case: this is a snapshot only. There is a move by the telecommunication carriers to be content providers, or at least able to define the content they carry: this will make them more similar to the Cable industry, but different from their present status.

Revenue streams emerge from the audience, shown here as the termination point of the structure, and also from advertising. The advertising industry depends on the production

industry for the creation of advertising material, and the cable and broadcast industry for distribution. For the audience there is direct value received e.g. entertainment, education, and indirect value e.g. information about what to buy, where to buy. The publishing industry is drawn into competition: it previously used distinct material with its print, quality image orientation, but now this can overlap with the Web. Currency and depth have partly displaced quality as values, dynamic forms e.g. video, have replaced static image.

The Interactive Multimedia industry has amongst its options the Web and the existing cable and broadcast industry as its marketplace and delivery vehicle. In either case the delivering industry will have to adapt, the telecommunications industry with increased investment in capacity to provide quality service, and the cable/broadcast with facilities to support interaction, e.g. the TV top box, being produced by the IT industry. The productization of interactive multimedia products as CD-ROM's, or as DVD's, means that there are non networked alternatives as well.

The trends towards convergence, may escalate to integration, so that all-wired and non-wired channels become part of a single network to be used at the option of the audience and not selected by the provider. There are also hybrid options where a product e.g. CD-ROM is used in conjunction with the network.

The distribution issues include

- how to carry high quality, rich media
- how to handle large volumes of data, beyond existing CD-ROM capacity
- ongoing shifts in platforms, particularly for games

## 2.5 Core Issues

In the debates a number of issues arose which were related to the Interactive Multimedia industry itself: the set presented here are those which seemed most important.

### 2.5.1 Can an industry exist?

The Interactive Multimedia industry does not exist. At best it is in an emergent state at present. It was not apparent to everybody that there should be an industry, which implies that the existing content and distribution industries should evolve to take advantage of the new technologies. The counter view is that interaction offers a new dimension which fundamentally shifts some of the power balances of the existing industries and hence change is so radical that a fresh start is needed. The middle path is that Interactive Multimedia is new and different, but that it will coexist with the existing industries and will compete for some market share as well as create new markets.

The fact that all industries are going through change at present suggests that the Interactive Multimedia industry may well benefit from a fresh start, as it will not have to jettison baggage that other industries have to do. There is the possibility that the industry will not be mainly populated by large players in all levels but will be a virtual industry,

composed of fluid partnerships between creators and technologists. This is most nearly true at the developer level, but there are also trends towards vertical integration e.g. the Microsoft Network, and to large size for economies of scale e.g. games publishers.

Interactive Multimedia today is in an equivalent to the period before cinema emerged, rather than when it was established. Although we are in the period before the medium really gels, people are being encouraged to believe that we are in the post adoption period, which may lead to substantial disillusion. Cinema started at the instant the key tool, the camera was there. For Interactive Multimedia we don't have a single instrument or even a single medium. However, there have been so many changes since the emergence of cinema that consensus appears to reject the validity of the experience of prior industries.

In some respects the Music industry would be a better analogy. It has produced many new instruments, and new capabilities which have permitted a rapid evolution. An equivalent to this is where the Web has recently added the capability of refreshing full-screen image in near real time: this unleashes a whole new group of possibilities. There is a distinction between capabilities and technologies: multiple technologies are employed to deliver each capability: "quasi-capabilities" emerge where only some of the needed technology advances have been made which accounts for the "pending" nature of the medium. There will not be a sudden realization that we are "there".

From the snapshot view presented in Figure 2, it is possible to define boundaries and interactions which are fundamental to the existence of an industry: however the boundaries are changing rapidly because of the very forces of convergence which make the Interactive Multimedia industry a conceptual possibility. For the possibility to be realized the industry must offer some unique capability or value, else it can never exist as other than an adjunct to other industries.

### 2.5.2 How to be an industry

What are the key activities which will promote the emergence on an Interactive Multimedia industry? Based on the layered elements shown in Figure 1, there is the need to understand what the relationships between the layers are. The most important relationships are those of the ultimate audience to the product which creates the market demand and the value of the market, and to the vehicle which carries the product.

Once these relationships are established the specializations which are required to make the product perform as required and to deliver it at appropriate price on a reliable infrastructure can be developed. These in turn will dictate the kind of technology required and the whole system will become requirements driven instead of technology driven. This will have the benefit of creating a greater degree of stability than exists at present. This means successive releases of a tool and not a new tool every time. Changes can become incremental without discarding all that has gone before.

From the technology perspective this allows market stimulation as the means of driving demand and not technology input stimulation which is a much more uncertain mode. A crucial change is to make the technology available to the creative people rather than letting

technologists do the creative work. This will support the critical quality improvement that is required.

There is a sense of unity that existed amongst the attendees of the Summit, and this is a large asset on which the eventual industry can be founded. The industry will rely in operating in a profit driven mode, which means expanding niche markets and in developing a mass audience.

### 2.5.3 Funding

Does there need to be an agreed and identifiable industry for sources of money to become available? Money is available for traditional film and TV industries: is money available for Interactive Multimedia? The traditional industries have access to funding because they have known processes including risk management and insurance. Further they have well defined markets and revenue streams. To some extent the criteria for success are well established, albeit not certain.

There is an emerging funding model in Canada based on the licensing approach, whereby telcos have been required by CRTC to place money in a development fund. At present this is part of a trial focus; it could become a more permanent phenomenon.

If the markets for Interactive Multimedia are mainly niche then there is a greater risk for obtaining the return on investment. With existing games publishers Stewart Kosey noted that 90% lost money in 1996. This creates an unwillingness to invest.

One option is to look for worldwide markets rather than North American ones and to look for international deals to sustain this. This either increases potential revenue, or shares some costs, depending on the degree of rework needed for these worldwide markets.

Another route is to promote a competitive environment with all of the consequent pressures to produce cost effectiveness. If the trades and infrastructure that exist in the movie or TV industries existed for Interactive Multimedia, and if less were built every time from scratch then the possibilities of improvement and cost control emerge. These possibilities can also be approached though one of the Summit goals, which was to encourage tool and engine sharing. Continuous innovation is costly: can the industry afford it? Does it need it to the extent it appears to think it does?

#### 2.5.4 Is content reusable?

One of the routes towards lowering costs, and one which has been extensively used by companies providing content on the Web, is the reuse of existing content. The implied model is of some delivery vehicle independent material which can be adapted to whatever vehicle is required, in the existing conventional industries, or in Interactive Multimedia. This downplays the influence of delivery vehicle on form and content. Can content be reused, or what kind of content is reusable?

An elaboration of reuse is repurposing. Old material used in a new context can provide new value. This implies some degree of reworking, but can be used to leverage existing value.

David Perry told the Summit that from Earthworm Jim, Shiny ended up with 30 to 40 licenses. These licenses were for characters which could then be used in TV series, as children's toys, or for advertising. This is low level reusability but it offers considerable versatility. The attraction is that the toy market is worth about \$70 billion, and depends on character driven product. If character is what sells and can be reused, then character development is important. Shiny split roles between game developers and character developers and found that as well as promoting reuse, character helps the game development process. Their goal is to finish what they start i.e. get all the value that can be obtained from creations. The ultimate outcome of this is branding.

The down side of this is the expense entailed in obtaining copyright for all the material that is to be reused to ensure that the revenue streams are protected. This entails stepping outside the one industry and dividing efforts between very different fields. If the Interactive Multimedia industry were more completely developed and the relevant specialization existed then this could be a more economical idea. It does imply that Interactive Multimedia is not enough on its own. Can the industry be an industry when its main product is developed for reuse? Does this make it a commodity supplier to other industries? It suggests that Interactive Multimedia is a way of promoting ideas and characters which can then, if successful in the one field, be transported elsewhere to make real money. Interactive Multimedia could remain simply as a prototyping or ancillary environment.

Another aspect of reuse was that the real cost arose in packaging not in content creation. This was also elaborated into the retrieval issue: reuse is only effective if the retrieval cost is less than the writing cost: it must be cheaper to retrieve than recreate to make reuse worthwhile. For these issues there may be technology solutions: are there people addressing such problems in R&D facilities?

At the core of this is the issue that each delivery vehicle needs its own creative strategy. For example, highly interactive material is assembled in extremely short clips. This means that each industry needs content which is aligned with its own purposes.

If content creation is separated from any specific delivery then there is a structural change which affects all existing media industries. The production industry for a given delivery

vehicle will take common content and put it in a proper form for that vehicle. In this scenario, there is the potential for the one:one matching of form and vehicle to disappear.

### 2.5.5 Churn

In a rapidly changing environment prior experience has less value than in a stable state. Publishers ask game developers to create new games which are essentially clones of existing hits. This is not evidently a winning strategy. Tools change frequently, new technology stimulates new artistic horizons, and new skills are required in implementation. Without the fundamental ability to learn from past experience, the industry may get stuck at the lowest performance level.

The important issue here is how much of the change is actually required and how much is self-inflicted. So long as companies market their products because the vehicle is different, rather than the content being different, the demand for change will be perpetuated. However the mass market has only limited tolerance for change. There will be niches where early adopters are happy to be continually learning about new products, upgrading technology and never being in more than a temporary state of mastery: this is not true for the mass market.

Even limited stabilization will help: stability in tools can allow more focus on creative content. Beyond this, if the tools are artists friendly and easy to use for the artist's task, then they will stimulate content, and potentially, support new audience relationships. The rate of evolution of Interactive Multimedia technology at present may be instrumental in maintaining a scarcity of creators, and a scarcity of creative forms.

Changes that reduce costs are important. For any existing technologies few of the complete capabilities are ever exploited and technology limitations are over-emphasized. This is symptomatic of technology being the focus of the industry rather than the requirements being seen as key.

In all of this there are industrial realignments which keep taking place through acquisitions and divestitures. Keith Kocho believed that Microsoft are trying to become Disney in the sense of being a dominant content provider. Another interpretation is that Microsoft are trying to become fully vertically integrated to avoid some of the uncertainties of an emergent market. This would allow them to ensure that what is developed at any level in their business will find its way to a market, and that hardware, communications, software and content will match. What are the strategies for other, smaller players to adopt?

## 2.6 Summary

The Interactive Multimedia industry has not yet fully emerged. It is still subject to immense changes and there does not appear to be any good reason to expect these to decline. Existing industry models are not ideal for application to Interactive Multimedia: the creation of a new model will delay emergence. Issues to be resolved include the relationships of all content creation industries. The key element in change is a shift to a requirements driven industry from the existing technology push.

The maturation of the industry will also help its funding processes, by providing risk management mechanisms and the opportunity for completion guarantees. In a mature industry process stabilization occurs which opens the way for performance improvement, reduced costs and quality enhancement. At the same time cultural maturity establishes the value of R&D, the validity of critical and feedback processes and degree to which the audience needs to exercise "suspension of belief".

Most businesses in the industry operate in an organic mode so as to be as responsive as possible to changes. This mode is characterized by all employees contributing to the common task, tasks adjusted and redefined through employee interactions, little hierarchy, distributed knowledge and control of tasks and lateral communication. Whilst this mode is robust, it does not encourage the emergence of specializations which will improve performance of the business and allow the industry as a whole to start to organize. The proto-industry is therefore in survival mode awaiting an opportunity to emerge.

### 3. Content creation issues

Interactive Multimedia is inherently flexible: it is composed of a variety of media joined together and delivered through a single vehicle. This results in many differing views of what it is and what its uses are. Much work is exploratory, in which participants expressed their immediate goals in terms of incremental changes to previous goals. There has not yet emerged a complete theory of the field: the models that exist e.g. for technician/artists collaboration in production, or for virtual experience as an outcome for the audience/user, are at present partial and not linked into a whole.

The issues noted here generally fall into these partial and limited categories which reflect the present pragmatic approach.

#### 3.1 Explosion of outcomes

One implication of interaction is that there are many possible end-states associated with a single start. If choice between alternatives is used the number of end-states is finite i.e. the number programmed. If there is real input from the audience, then the number of end-states becomes infinite. Creators have looked for ways to abridge the number of end-states. Michael Naimark gave two illuminating cases:-

- Movies stop at certain scenes, and an actor invites the audience to make a decision re outcome; votes are shown round the screen. The movie was a series of flashbacks moving a certain outcome. At each node whatever the vote, the outcome was always the same.
- World's first kinetic interactive movie. Audience members each choose to exit through one of two doors after each scene is shown. Eventually all the audience ends up at the same screen, viewed from multiple positions, and when the screen rises all the four groups of audience are shown to be in the same room, so the outcome is fixed for the movie. The complete outcome is not fixed for the audience i.e. the group they find themselves in prior to the screen rising is selected by some sequence(s) of choices made.

In most non-interactive work the artist chooses which pathway through a body of possible material is most illuminating and then creates only the material relevant to that pathway. In some games there is a single desired outcome, namely the achieving of a goal, which may be survival, or the finding of some hidden content, and all other outcomes i.e. dying, or failing to find something, merely result in endless cycling over precedent material; there is no requirement to create multiple outcomes.

All this may be seen as the evasion of the outcome explosion issue. In works where the quality of experience is critical there is usually more content, more parallelism created, but even so of a limited nature. The critical step of allowing the user to create material is employed on some Websites, though mainly as an undirected activity, offering neither goal nor experience.

Motivated chat provides limitation through framed environments. This is based on the need for information or guidance of members of a group, it builds a sense of community and may be governed by a moderator. The desired outcome may be couched as a search for a story conveyed through shared experience. This may become a base on which to build future products.

The model of interaction is governed by conditional logic. This operates either to constrain the user to find a specific outcome, as in the game example, or to allow exploration until the user is satisfied with the outcome. The role of the audience is crucial and this is discussed in Section 4.

### 3.2 Imposed Structures

For complete creative possibility the medium should exert only a focused set of constraints on the artist. With Interactive Multimedia there are constraints which are by-products of the source of technology being used. For example, the use of documents may be blanking out much of the potential of the Web: technology such as avatars are document breaking elements. Elements such as streamed audio and video can be recreations of the document in new forms. The ability to interact is governed by the duration of single elements. The Web/TV model offers another constraint in that it offers branching, not true interaction.

Different hardware systems have different levels of performance, particularly where there is a communications element. Creators tend to focus on the lower levels of performance to make sure that their material will work well enough to be recognizable there, and hence compromise some of the possibilities that could have been achieved if the high end of performance had been the main consideration.

Where a requirements approach is adopted, the implementation employed is usually a function of what is at present available, as the creators are not generally well-linked to developments that are emerging from technology R&D. Hence there is a potential for reimplementing past creations in a form which might be more faithful to the artist's intentions. This potential does not seem to have been extensively considered at present.

The technology development cycle is short and has been reducing: the development cycle for content can be eighteen to twenty-four months for large budget productions. This imposes a need to plan for the delivery mechanism in ways that allow for technology change. The need to remove the accidental limitations of Interactive Multimedia, and to define an ideal Interactive Multimedia environment, for both development and delivery, is one that should be investigated, with the outcomes addressed to the R&D community. This provides direct input to technology development: there should also be input based on content R&D programs findings.

### 3.3 Convergences

Convergence of various kinds is seen as the key driver behind the Interactive Multimedia industry. Convergences of markets, technology, content, and development process have been identified as having differing impacts. Each type of convergence looks for economies of scale to offset the prior economies of specialization. The parts that don't fit into the converged whole are left to combine in new ways to ensure that the entire system will continue to work.

At the same time convergence is not and will not be complete. The requirement for specialized creative approaches to each outcome medium will remain.

#### 3.3.1 Development Process

This convergence has resulted in a drop in production costs based on new specializations e.g. 3-d image creation, and on high productivity tools. Wm Leler also showed how Javabeans could allow extensive reuse of object libraries. The negative side of this drop in costs is a potential rise in production expectations, which demands higher quality output and more detail simply because it is possible.

The use of reliable development processes associated with software engineering is only partially adopted by Interactive Multimedia, possibly because the practices rely on repeated processes which are not yet well-defined. A model, somewhere between software development and linear media production is needed. This model would include elements such as synopsis, treatment, prototype, design documentation and technical specifications. It would also serve to focus on the funding burden sustained by the developer before the product idea reaches the publisher for production funding.

#### 3.3.2 Markets

Market convergence arises from two forces: the availability of appropriate hardware in a significant number of homes, and the increased ease of use resulting from better interfaces and more automated procedures e.g. for game installation. Stewart Kosey suggested that 10 million of 70 million PC units in North America are game capable i.e. have CD-ROMs and sound cards.

This is a convergence in the home where it has already been recognized that those people with Web access spend less time watching television than do their peers without Web access. Hence Interactive Multimedia is creating competition for the existing leisure market. In Keith Kocho's view there are only so many dollars for consumers to spend, and there is no market growth. In this case the mass market can only be reached if the costs of serving it, and the perceived value received outperform existing services. This does not preclude the ability to offer potentially better service to the niche market. Hence the interest amongst the telco's and broadcasters to diversify their markets.

The market intermediaries do not show the same convergence. There are specialty retail stores offering software and games, music stores, Websites which offer direct download

or product ordering options, toy stores, book stores, department stores e.g. Walmart, and television. This distribution system will probably simplify in the immediate future leaving a few dominant distribution channels.

In the long run the different services might work together to offer their individual strengths as required to each audience. However, the creation of compelling links between the media has not yet been achieved.

### 3.3.3 Content

Addressed as a key issue in section 2.5.4.

### 3.3.4 Technology

There was some uncertainty about what the exact convergence was that made Interactive Multimedia possible. In the CD-ROM game market it is the availability of PC's equipped with high performance video and sound. In the Web market it is the availability of reliable, low-cost communications and browser software. Interactive Multimedia is riding on hardware and software which were developed for other purposes and hence need only address marginal costs at this time. If purpose built technology were created, then fuller cost recovery might severely impact the economics of the fledgling industry. At this stage it is appropriate that some benefits should be obtained from technologies developed for other purposes, but this may not be considered to be a permanent state of affairs.

Dedicated games systems still employ a variety of platforms e.g. SEGA, Nintendo 64, Sony playstation. Each platform evolves by building on technology created elsewhere e.g. Silicon Graphics workstation. This still provides a diversity which is different from the PC environment which is dominated by a single standard. The existing grounds for this diversity is the push for very high quality graphics (number of pixels, refresh rate, etc.), but this may reach a point of diminishing return, when standardization will rapidly follow as economies of scale dominate the market.

At present Interactive Multimedia is technology driven: industry maturation has been associated with the adoption of a requirements driven mode. Requirements driven means that there are goals set by the Interactive Multimedia industry for the ways in which it develops and delivers content, which are based on needs and underlying principles. This allows a balanced approach to the set of technology goals, which allows the whole set to be met: the technology driven mode may overachieve one goal and leave the rest compromised.

If the need to undertake a requirements driven approach is accepted, then immediately the new cost balance will come into force. In the case of the Web, which is also taking a "free" ride, there is serious concern about how costs and revenues will be balanced in the future. One possibility is that the revenue from the value of the content will be able to subsidize the cost of carriage. However this should be seen in the context that CD-ROM games sell for between 4¢ and 12¢ (Canadian) per Megabyte. This does not offer much room for loading.

### 3.4 Innovation

What is driving innovation? Some people felt that Interactive Multimedia is entirely technology driven and that the creative dimension is entirely subjugated to what is technically feasible. Others felt that there was an opportunity to liberate creative endeavour, which is only being partially realized, because the rate of change inhibits artists from making a commitment to the medium.

Another form of innovation is the artists initiatives in content invention, which has provided key benchmarks for the commercial industry, in new and in existing media. This form of innovation is heavily influenced by funding availability, both quality of dollars and purposes to be achieved e.g. the Bell New Media Fund.

Innovation can be classified according to where it is being applied. The categories of greatest significance appear to be the frameworks within which work is undertaken, the requirements which are being brought forward, the technology which delivers capabilities and the tools which are available to make the technology amenable to the creative process. Innovation is occurring in the development processes employed for imagining, assembling and presenting content, in the way in which requirements are being met, in the technology deployed for creation and delivery, in the tools available, and in the recombination of creative forces e.g. technologists and artists, team driven production.

These categories are not independent and there are sequences which may have great significance. For example, creators may have abstract expectations of what they want the technology to do and will assemble such technologies as will contribute to this in a piecemeal fashion to achieve their ends. If such an assembly gains any significant level of user acceptance then the industry will respond by making a system which will do most or all of what is required at a better performance level, and easier to use. This is a desirable sequence and an issue is how to promote it, to ensure that it occurs more frequently.

An undesirable sequence arises where technology pushes the industry so that creators become aware of what will fit the new technologies and will use them, potentially compromising their creative requirements. The corresponding issue is how to avoid this.

#### 3.4.1 Frameworks

The framework considerations extend to delivery of the product, development process used and the content structure employed. The latter is a critical and extensive issue which is addressed in section 3.5 of this report.

Existing delivery options include the Web, CD-ROM for equipped microcomputers, and dedicated hardware e.g. game machines, specific installations. There are also some hybrid channels e.g. TV programs which link to Web sites. A proposed hybrid approach from Haney Armstrong was to create a multi-player story over the Web, but where each player has a CD-ROM. The moves in the game are made by all players synchronously and a

computer program is used to assess outcomes and report back the status for the next moves. DVD, with its large storage capability, is on the horizon as a major delivery vehicle.

The development process tends to use whatever tools are available. Collaborative tools, allow artists and engineers to create and implement: integrated tools allow a single creator to implement. This area is characterized by rapid evolution: each approach which has worked in the past is reused and new approaches are incorporated as required. The main view is one of incremental change i.e. like the last piece but with these additions. This means that ability to complete product is critical and cost and time constraints are only secondary factors.

A field which received limited attention was that of testing the developed product to ensure that it performed as expected, or the step beyond that to trial versions and see what resulted from beta testing. This latter mode is not ignored completely as some developers put samples of work on the Web and allow players to have free access to it.

Overall the developmental process approaches can be described as improvisational, with the prototype as the critical completion point to find out what works. Partly this is driven because the platforms for content are continuously changing in their capability and it was suggested that knowing what is in development now, would help developers get ahead of the edge of technology change and to be more anticipatory.

### 3.4.2 Requirements

A common theme was the need to have some novelty in each new product. A counter view was expressed by those who noted the success of some low-resolution, poor graphics quality products of the "stand up and shoot them" kind, which exploit very fast engines. There is market testing of product but this can only provide deep market research if it is applied to intelligent goals e.g. improved interfaces, enhanced usability. The striving for repetition of a market success is also a basic form of testing. However the fact that no rules can be written down to ensure success, points to structure in the market which is not yet understood.

The novelty factor appears to be a requirement to differentiate one game from another. For example, David Perry noted that the innovation in MDK is "sniper-mode" to see things far away in close-up. This becomes a feature of the game which can be used in advertising material and on the game box. It also allows the enemy to gain personality through detail and focus, and hence makes the game richer as well.

Other innovations allow the point of view to be changed, e.g. Super Mario, which may create the illusion of a more complete environment, escaping from the linear, single protagonist vision. This leads to the perceived need to get games out of closed rooms, and into a landscape.

### 3.4.3 Technology

The prevailing view may be described as "technology is a good servant, but at present is a bad master". Many speakers noted that technology requires a maturation period between discovery and use. There was a significant gap between the discovery of electricity and its application for lighting in homes. During this maturation period there is the development of a syntax for the technology, which includes the establishment of relationships with other technologies. This is crucial for Interactive Multimedia where it is a combination of technologies that is creating the opportunity.

In addition the technology has been developed for other purposes e.g. business computing and is restrictive for the more general artistic process. For purposes other than those anticipated by the technology developers, the concept of "user friendly" is an exaggeration, or even a myth. User friendliness is more than ease of use: it is partly a guarantee of accurate delivery, i.e. results meet intention. Timing was seen as part of the problem: the early technology dictates the forms that the more developed technology will adopt, and hence the lack of influence on technology form now, may be perpetuated in future inappropriate forms. This may be an extreme view, since, if we are riding a continuous technology wave, rather than experiencing discrete technology events, history is not necessarily a guideline.

The crux is that business is at present the dominant form of value: the real question is the relation of art to business as a value system. Usually art is subjugated to business, when it is treated simply as a commodity for sale: user interaction shifts away from the possibility of continuing the simple model. For business there is also the problem of the appropriateness of the interface: creativity has a role in defining the entities which we see and manipulate in the Interactive Multimedia space. Hence business may have a practical dependence on art.

The sustainability of other art "delivery" environments, such as galleries, public spaces, R&D Centres, that allows the critical dialogue and innovative work to emerge, becomes of great importance in this context. The Web is being used in a variety of ways, which are at best challenging and interesting. The danger is that a model close to that of "community TV" might emerge, which with attractive economics could create local clusters devoid of broader reference.

From this point the discussion naturally follows into issues about content R&D vs. delivery R&D. The immediate concern is that issues associated with content are being ignored whilst the technologies of delivery, manipulation and storage proceed apace. Who are the bridge builders between technology and content? We need to address forms of expression as well as means.

Without these links there is a divorce of tools and creation. Some people suggested a freeze on tools, to allow the maturation process to occur. This however ignores the real issue that few, if any, of the tools are created with artistic expression in mind.

One stabilizing approach is to consider what exactly the innovation is that technologies deliver. Do they bring new forms of interaction or simply new ways of realizing existing

interactions? It would be worth examining the history of interaction to determine what, if anything, is fundamentally new.

If interaction is one key feature of Interactive Multimedia, then the role of the Web is fundamental. The Web allows interaction between different users i.e. peer interaction, and not simply interaction with the stored intentions of the game or product designers. Hence an understanding of the Web, of the factors and issues which affect it, both technological and economic, is required for those who would use it as a delivery vehicle. The evolution of the Web has shown that it is viable to be platform independent, which allows for continuous evolution, rather than stepwise progress. Its more important lesson for Interactive Multimedia is that content must be treated as being distributed: localized control of content, even the sense that it is possible to consider the content of a work to be complete, has to be dismissed. Information in the immediate context offers the sense of disintermediated information, which challenges the conventional artist/audience assumptions.

#### 3.4.4 Tools

Tools were repeatedly seen as the biggest technology problem: because they change so quickly there are no adepts, and this relates back to the industry structure which is incomplete at present because the necessary specialization cannot arise. If there is a mapping between specializations and tools this can be seen as a single problem.

The tool effectively defines the medium. VRML offers the ability to create a 3-D world, but it is still presented as a 2-D image on a screen. The sense that we work with anything is achieved through the tools with which we work and not the actual medium itself.

It follows that the tool is what defines the content possibilities. This extends the view of hot and cool media. A hot medium extends a single sense in high definition. A PC is hot as far as sound is concerned: most sound is still one way, coming from the PC, but cool as far as the video image is concerned because of the opportunity to interact through mouse and icons. If we expect more complete user interaction, then we are looking for the gradual cooling of the medium, which arises through the intervention of tools which can support this interaction. If voice response systems become more viable, then we expect a corresponding cooling of the sound dimension. Consumers want a mixture of hot and cool media experience. An example is interaction which is "play" within a narrative. The issue is to find the delivery vehicle/tools/interface combination which can support this.

Tools are ideally driven by an alternation of requirements and technology precedence. Requirements define the tools, which technology creates: they make possible the idea of a new application, which in turn leads to advanced or improved tools.

Tools are a critical factor for the costs of content. The cost of a presentation is a combination of the cost of delivery and the cost of content: these are correlated with the detail of presentation and detail of content. The costs may relate more to infrastructure, lack of specializations, than to the product. What are the differences for Interactive Multimedia compared to TV and movies? To what extent are these costs imposed by

following the same production processes as TV and movies, rather than creating specifically for Interactive Multimedia?

In the games industry, David Perry reported that for Shiny, each new game starts with a new set of tools. Engines have little repeat use because the presentation standards keep rising. This is a high expense factor. Stewart Kosey took a different approach and licensed the development tools to a creation team for five units at a time. This encouraged the team to invest in the training that would make the tools more useful. Wm Leler addressed the convergence of the software industry on Java, which is a key technology for 42% of software companies. Riding on this is Javabeans, a component architecture, which may offer a breakthrough in reuse.

If distributed Interactive Multimedia is seen as an addition of a component to every kind of software today, then there will be a focus on tools. This implies using rich media within business environment as a critical step. The present focus for the business market is software to provide a wide range of functions: the market for this is about \$3.3 billion. The rising need is for content delivered in meaningful and useful forms to the business sector: this is a potential \$65 billion market.

Many tools are too hard to use. To support distributed Interactive Multimedia we need new tools not adapted tools. Such tools can be employed for multiplayer games, network enabled conferencing, electronic commerce, and networked education.

The scope of work is large and in most cases is addressed by teams. How do we get people to work together more effectively? This points to the pivotal role of collaborative tools, and that there are criteria other than economy and reuse of code that define good tools.

### 3.5 Good content

Once the technology issues are set aside we need to be able to define what our requirements are. Some interactive experiences are highly physical, others are intellectual: many in the industry are striving for a goal which may be labelled "emotional computing". The Summit addressed this through a series of questions:-

- what makes good content?
- what existing and new forms are appropriate to Interactive Multimedia?
- what are the objective criteria of goodness, e.g. market acceptance, peer approval?
- what are the subjective criteria of goodness e.g. quality of experience, capacity to enlighten or entertain?
- is the product aimed at the mass market or at the niche?
- is the interaction designed to give a more complete awareness of the possibilities of some form e.g. does EVE show you more about Peter Gabriel's music, than a CD does?

#### 3.5.1 Criteria and criticism

The premise of the Summit was to start developing the language, concepts and key questions associated with Interactive Multimedia. The discussion on the topics were wide-ranging but agreement on the basic definitions was not forthcoming. The sources, ranging from games to complex installations, are very different in their purposes, so that a single basis for criticism may not be viable. A conventional test for quality has been time. Works that remain prominent in cultural consciousness are considered better than those which follow fashion. For some artists significance may only emerge later and not be synchronous with working. In a regime where rate of change is altering the significance of time, and where cultures have global rather than local significance, which increases the volume and range of works to be considered, the combined effect means that survival may be more dictated by accident than by essential quality.

This basis of judgement was also questioned by those who asked, "How many human experiences are still valid after 15 years?" Interaction is ephemeral and the art may exist in the interaction not in the thing interacted with. A subsequent experience may effectively invalidate an earlier one.

The pragmatic approach is equivalent to the market i.e. if the product is bought in large numbers then it is better than one that is ignored. Some Interactive Multimedia artists require a suspension of disbelief. Criticism requires not suspending disbelief i.e. not doing what the artist requires, or even depends on. So, in this case, the pragmatic approach is inherently different from the critical approach. Other artists offer a heightened awareness of structure and the medium, leading to a high degree of engagement. In this instance criticism is closely aligned with artistic process and goals. Interactive Multimedia presents substantial critical problems.

An assertion about quality was that quality is not a function of cost. In many cases the need for large investments disarms the critical approach. Quality, which may be divided between presentation and content, is a key factor for the mass market. Raising quality is one approach to gaining a mass market for Interactive Multimedia, but the threshold of quality required continually rises. Without the mass market the basis of irony is not available, nor is the full potential range of experience tapped. The knowledge of the completeness of the Interactive Multimedia range, is an important basis for criticism.

The graphic, whether realist or cartoon, is based on conventions: do the graphics help in the adoption of character or do they distance, and hence work against the suspension of disbelief? The graphic of an explosion is easy to create: the belief in the death of the individual is harder. Overall it was felt that the conditioned experience of the graphics in Interactive Multimedia is a narrowing and limiting view. An exception might be in the use of avatars at certain Websites, where the existence of the real personality behind the limited image, transcends the graphic.

Some things are easier to implement than others, at least given existing tools, and hence developers tend to think and create in these terms. Shooting is simple to code: other interactions are much harder. Soft curves are hard and hard straightedges are easy.

A converse perspective is that there has been much good stuff delivered by Interactive Multimedia, but the hype levels are so high that they have been doomed to failure. This raises again the issue of what the standards of failure might be. Is success measured by popular acclaim, long-running events, high sales, or influence of successors? There is no systematic data for any of this. Even sales figures are suspect because of the indirect revenue streams associated with license revenues from properties, or from advertising.

An alternative basis for judgement is plausibility. It was considered that there is a need for a higher degree of plausibility in Interactive Multimedia to retain the suspension of disbelief versus cinema. This arises from the juxtaposition of the delivery vehicle with other purposes i.e. it is the multiplicity of uses of the computer which works against it. This confers an advantage to dedicated hardware e.g. games machines, or Net TV's.

Plausibility is increased by the number of alternative paths offered in a product, and in the reduction of delays, as well as by the "realism" of the appearance. The experience must flow naturally, and the choices to be made must be real choices. If this is so, then the same content does not work for movies and for games because of the different flow and plausibility requirements. For example, a game which requires a player to destroy and kill, requires a suspension of belief and not a suspension of disbelief.

The fundamental question remains unaddressed: what is the basis of criticism? This resulted in the two events planned for 1998. For some people critical activity cannot exist with interactive media because interactive means too many things and some interaction may preclude art. If criticism is a dialectical form, it becomes closely allied with what the Interactive Multimedia experience does not offer, and hence is strongly related to the lack of definition of requirements for Interactive Multimedia. If criticism is based on an authoritative view, then its application to Interactive Multimedia must be only partial at best. One may admit to authoritative data but not to authoritative experience. If criticism is based on debate and agreed lexicon, then the importance of base definitions is paramount.

### 3.5.2 Environments

Interaction is with a world not with a story. The course of the interaction defines the story. In this view it is the environment that is key. Josh Portway showed that EVE and "A Different Drum" are really played in multiple environments, and that finding the path from one to another is a key experience. This approach offers a further kind of interaction by letting one party define the environment and the other party define actions i.e. a game of dissimilar elements. Can the environment beat the actor, or can they together achieve some understanding?

The environment is not neutral: it manipulates people by the set of responses presented and by the speed of response required. EVE contains enough rules exist to prevent displeasing sounds when the musical "toys" in it are played. Real World are looking at frameworks for enhanced CD's, so that the toys represent an increment beyond track selection. In this context EVE is about the audience recreating art.

The environment may be viewed as a safe place in which to employ artifacts which are not safe in the real world, or which do not exist. In the shoot and destroy environments this produces a tension of paradox: the environment is not safe at the level of the game. A rich environment allows for interpretation at a variety of levels, and can hence suggest universality. This may motivate the player to stick with the product and to experience all its aspects.

In the case of hybrids a Web site is an auxiliary for information exchange and for community building. The environment has become distributed and recognizes the participation level and the critical level. The interaction of these two levels is not well understood.

The environment needs to appear relatively simple, at least at the outset, but this simplicity may conceal a complexity. In EVE, and its planned successors, the complex architecture allows people to interact with music. Yet this complexity cannot be expensive: experience suggests that with music enhancement people will only pay the price for the album, and not more.

The desire to take Interactive Multimedia and leave behind the physical constraints of the screen was suggested by the term "out of the box computing". This has three interpretations: the first is the technological one of unconstrained devices and interface design e.g. holograms. The second is the impact of the Interactive Multimedia environment on the real environment of the viewer. This may be achieved through the hybrid approach of linking different media e.g. Websites, radio programs, and live events, or through creating communities who carry the experience obtained from the environment with them into their interactions with other people. The third is immersive virtual environments which are location based, are complete in themselves and whose boundaries are not associated with those of the access devices e.g. size of memory, access software employed

### 3.5.3 Forms

A number of general matters concerning forms of product are gathered in this section before specific issues associated with specific forms are considered.

One view of Interactive Multimedia was of a large field with little clusters of interactive art which challenged the Summit to think beyond the existing achievements and put some stakes in a much larger area. Many people are doing very similar things, but the playing field is much wider than is realized. There could be much greater diversity and more alliances. One aspect of diversity is to address the artistic, linguistic, business and scientific issue of data access. This is a specific case where content R&D is required to guide the progress of the whole field. We need creative ways of accessing data, and of understanding the structure of data.

The forms adopted are influenced by perceived purpose e.g. doing something, achieving something, experiencing. It was noted that of all these, doing something is easier to write.

Some forms separate action from comprehension e.g. a read something - do something alternation, which leads to a disjunction. The extent of the impact depends on whether the reading is integral e.g. part of plot, versus instructions i.e. outside the plot. Effectiveness requires the emphasis on gaming, and not on the separate existence of the player and the game.

The forms have to support the possibility of interaction rather than actually requiring it. The model is to be as interactive as a book. Book access can show disjunction if access is random rather than sequential but satisfaction of the vehicle is still present. Many forms support interaction e.g. narrative with interaction to emphasize a viewpoint or a specific sub theme, or interaction with narrative as a context, which makes interactions limited and hence significant. For multiperson interaction the form requires a grammar, which includes a set of rules which define a space within which people can create together. The example of musicians jamming was raised as a good model for this. Its rules may be more or less extensive, but guarantee to each individual that they can contribute independently to the whole effect.

Form is related to purpose. Sometimes the purpose can be imposed where it should be integral. Eugene Jarvis suggested making puzzles provide real value in learning rather than being arbitrary. This may be more important in fields such as education because "edutainment is more competitive than entertainment as a market". Puzzles which offer experimentation allow the application of logic and lateral thinking to their solution, through the evaluation of a set of conditional statements.

One of the challenges of form which Interactive Multimedia may be well-placed to address is parallelism. If the interactive experience is considered to be essentially parallel because of the multiplicity of pathways, then the non-interactive experience is created by linearization. Narrative, if it employs linearization, may be destroyed by interaction. Interaction undermines the privileged role of the narrator and offers a kind of theatre.

In this context we can see a community brought about by technology, not simply a pre-existing one enhanced by technology. For example the interaction may create the community of simultaneous experiencers of a drama. In the most restricted sense this is like an audience in a live production where the audience responses, laughter and applause, will influence the perception of the drama by all members of the audience. They emerge with a shared experience unlike those who watch separately in their living-rooms. In a more interactive case they may share an interpretation of the piece by posting comments, or by making shared choices at interaction points. This is the foundation of their community.

The environments in which Web users gather to communicate is a more general version of this same effect. Movement through space combined with chat, forms a community in either synchronous or asynchronous modes.

Conversely do we get spatialization of linear forms e.g. multiple views of a single event, to allow interaction? This is a distortion if we can only have experiences for which the conclusion is foreordained. The forms required for interaction may also create distortion

e.g. time distortion. We can have interaction which obeys the time structure of the experience versus interaction which provides the time scale i.e. decisions can take as long as the audience likes and everything is suspended. This is another form of the disjunction identified previously.

In Patrick Clancy's OZ project another combination of time and event effects are used. Weather patterns as they occur provide the basis of the narrative patterns.

Lack of form, or of established forms to provide constraints and hence meaning, means that there is little on the Web which moves its audience as much as a novel does. Interactive fiction as created at present is not very emotionally engaging. But there are also examples of simple things that do work e.g. the Website where a journalist presented some pictures taken at Birmingham and asked visitors to tell what the pictures meant to them in a paragraph. The editor selects paragraphs and attaches them to the pictures to create a narrative, which helps other people relate. It was agreed that this probably works well because it is heavily edited.

In some cases humour works on the Web in cases that allow interaction and simply where the Web is a vehicle for static cartoons. There is the potential for other forms to work e.g. science fiction, murder mysteries, and soaps. At present they are mainly present as transliterations of other media.

Whatever forms are adopted they have to address the limitations of the technology. These limitations include the single screen, single space as a communication form. This does not match our real environment even though it simulates this. The existing VR alternatives offer even more restrictive impositions. The challenges include breaking our existing mental models and finding new forms that can exploit multiple time-spaces. This may entail addressing the cultural fundamentals i.e. what is dictated by our norms of perception, what is the cultural basis of a multinational group, what are the common conventions?

### 3.5.4 Games

Games are important because gamers represent the second largest market in the interactive world. Web users are the largest market but their activities much more diverse than those of gamers. Games cover a wide range of levels i.e. from being complete in itself, requiring very little prior knowledge from the viewer and no active engagement only reactions, to depending substantially on the viewer and potentially expecting considerable prior knowledge e.g. strategic games. It is also possible for a layered audience to exist in which some part is more engaged and another less engaged. An example is of some people watching others play games, leading to the possibility of professional game players.

Game types are very diverse and include:-

- 3D real time
- simulation
- strategy
- "shotgun in the corridor"
- action/adventure
- character driven
- role playing
- cooperatives
- multiplayer
- mediated

Haney Armstrong described the width of a game as being the multipathing potential it offered. This multipathing will determine how many times a person plays a game. "First Degree" was planned for about fifteen hours playing. On a game cost basis this is about \$3.30 US per hour of play for a single player.

The arcade game offers a more stringent world because the player has to be motivated to continue to feed the machine with money, so the cost is real, and is a series of decisions rather than a single choice. Eugene Jarvis looked for instant gratification for the gamer, allowing about 10 seconds to get involved, and then continuing to motivate the gamer to stay involved.

Even in the boxed game similar considerations hold sway: Stewart Kosey looked for immersiveness in game, richness of environment, and degree of engagement. For young players, slow entry, slow purpose revelation is a problem, e.g. no reading how to play game should be required. Fast entry to game is needed but the game should be hard to master, whence the use of levels. In non-strategic games there is the need to see only the next part of game. For adults puzzles, simulations and strategy games offer a more significant challenge and also allow a greater diversity.

These views support at least two types of game market: those for which there is a defined task which is understood from the start e.g. in First Degree to get the criminal to jail, and those for which there is mainly reaction to the present situation. This does not deny the strategic element of the game but this exists over a series of playings in each of which

experience is gained about how to respond to certain situations e.g. which weapon to deploy. In terms of market size Stewart Kosey quoted 3 million core gamers who don't like puzzles, and 10 million potential crossover who are interested.

With the strategic game there is some method which the player has to adopt. In First Degree the method is background research, carried out by using the defined sets of nested questions for each scene. The goal is to figure out the psychology of witnesses to get them to tell the truth and come to your side. The game process is getting close to witnesses and manipulating information. The game works well because it has well-defined and well-understood structure i.e. the trial process. People are familiar with that structure; the game offers a new way of interacting with it.

In reaction games there are a limited set of genres, e.g. driving, shooting. The game is a real world because of its visual richness. The ongoing motivation is the survival instinct. The quality of the game is determined by its excitement, which is usually violence related, and the unexpected humour.

Games may relate to the real world through character or through story. Eugene Jarvis argued that the news shows what people value, i.e. death, violence, tragedy. The story world should have real people in a fake environment doing real things and suffering real consequences. If content is shared between games and TV shows then this raises the issue of how players would interact with existing characters of the TV series, for example. It is better to start without too much baggage and to use real settings with original characters. The Web offers mechanisms whereby games may be made superficially contemporary and "real" e.g. the game may incorporate "news shows" which can be continually updated to show present headlines. On the Web this is easy by simply providing a feed from a live news site.

The technology continually offers more potential for games. The size available for games can be exploited by increases in number of settings, duration, complexity, or image realism. The choice depends on what is seen as the present most restricting feature. For example, any picture always has something wrong and can always therefore be improved, but this may not be the most beneficial gain. The limitation may be assessed in terms of the bandwidth of game interface relative to the implicit bandwidth. The implicit bandwidth depends on what the player is meant to bring as knowledge to the game. For most games this is targeted to be very little. The relevance of the game experience is narrow and focused. A book has very high implicit bandwidth because of what is loaded into us i.e. all experience, and the time available to access it. When it is adapted for other media, it is adapted down e.g. TV productions of novels. A larger game can put more explicit information on the screen and still maintain the limitation on expectations of the player.

The legitimacy of games as art was debated. At one extreme "Games are true interactive art". They are created, people use them, have a different experience each time of use, and different people play in different ways. This implies the richness associated with art. However it is only true for certain types of game, and good games at that. Most games force an outcome and the forcing makes for a sameness of experience, and a limitation of value.

The reward a game offers is a particular problem. Migration to a higher level, a running score, the achievement of a sub-goal are all used to maintain reward during play. The use of levels is an important genre as well as a structure: it offers a true experiential learning environment. Levels carry the idea of a sequence. Another version is domains, in which a set of rules may be common, but the environments are different.

Games cannot have long sequences without interactions else the viewer switches between the two modes (viewing and interacting) which have different expectations and hence effectiveness is lost. The lessening of experience within the game, lowers the commitment to it, and vice versa.

Where games are combined with stories, if the game does not materially affect the narrative e.g. changes it, what is its relevance? In the extreme this reduces to a guiding through the story as against interaction. The combination is hard to sustain because of the different characteristics; the game has tests, physical or mental and specific skills, with content access limited by the tests. Narrative offers superficial access to everything and the quality of experience depends on the non-specific skills, prior experience and knowledge of the user. Hence, narrative exploits a high implicit bandwidth.

There are more opportunities for combination than the pure state view suggests. Most games use narrative structure and/or a narrator to provide linear set-ups and shifts from one sequence to another. Training sequences and levels are specific instances of this.

Framing is a critical factor e.g. the duration of a game, or of a game session. Most games are equipped with restart capabilities which provides an arbitrary framing. During long durations e.g. a year, the individual changes and hence the experience changes. This may lead to an inconsistency. If the changes in the individual arise from the game experience e.g. skills learned (including mental models) then consistency will exist, but all extraneous factors cannot be accounted for. If EVE is regarded as a game rather than as an environment as defined above, the duration issue will be pronounced. In particular there will be auto-erosion of the value of the experience obtained from EVE when the successor product is released. This is a version of induced obsolescence. This relates also to the issue of critical framework: if the Interactive Multimedia work is of a transitory nature, then there is no time based view which can assert its quality.

The game demands conventions. This may be the courtroom framework which defines roles and sequences of actions. The conventions of violence and death have been adapted to the screen to appeal to boys. The game is more real than the toy-gun. The characters in the game die according to the rules whereas physical playmates may cheat. Whence the control is also enhanced as well as the reality.

The market of games for girls was a specific topic of the meeting. Some new products were described which offer a basis for successfully approaching this market. For some people this is seen as the top priority is that games shall not be gender oriented.

Yet for girls no convention has been successfully adopted. The dressing of the doll on the screen is less real than the dressing of the physical doll. Can the interactions of the dolls with each other be modeled in some conventions? The problem with girls playing is that they may not employ sufficiently structured conventions for any easy implementation in games.

### 3.5.5 Narrative

If a game is highly structured and an environment is minimally structured, then a narrative offers some compromise between the extremes. There is some structure associated with the ideas of a start, a middle and an end. The narrative of a book generally imposes a linear view on the reader. Interactive Multimedia offers ways of breaking this linearity, but either by foregoing the sense of an "end" to the narrative, or by demanding a multiplicity of endings which must be provided by the audience. Diffuse narrative was identified as an important concept in which a group of narratives may be intermingled and in which subsets make for satisfying content.

Storytelling functions differently for different groups and this suggests that narrative is no one thing. Narrative is a process for people to make sense of the world through a collaborative sharing of stories. This is seen as one function of news media, and can be construed as interpretation of events or as acceptance of events through retelling (even to oneself) to provide an acceptable, self-reinforcing, meaning. Narrative in this sense does not even imply a separate audience.

A variation of this form of narrative is where a group creates parables. The group of people work together in a community to create the narratives which gives meaning to that community. In this case Interactive Multimedia must address the community of interactors and not merely individuals.

Narrative can require performance and hence merge with theatre. In this case a function of narrative may be to stimulate emotions and feelings so that feelings become the basis of interaction. Narrative is not the only emotional source: Josh Portway suggested that gardens are emotionally powerful environments.

The question was asked about the role of narrative in Interactive Multimedia. In one case narrative has a sustaining role for the meaning of a piece, which may be more important when the simple coherence of sequences as in a book, is lost. In another case the narrative is the piece. The answers depended on whether one regards the narrative as essentially invariant e.g. the parable which exercises a different impact on successive generations, or whether it is the evolution of a narrative that is crucial.

An example of narrative with great richness and depth was shown in Toni Dove's tape of an interactive installation which allows the audience to change the level at which they perceive an unfolding narrative i.e. from within the vision of the chief character, from within the circle of those involved with the protagonist, or from the context in which they exist. The demonstration was a transcription of interactivity onto a linear tape. The depth was enhanced because the sound was also affected in the interaction. The movement of

the viewer towards or away from the screen affected the background music, and hence the emotional tone. This was a convincing demonstration that narrative is a legitimate Interactive Multimedia form.

4. The structure issues

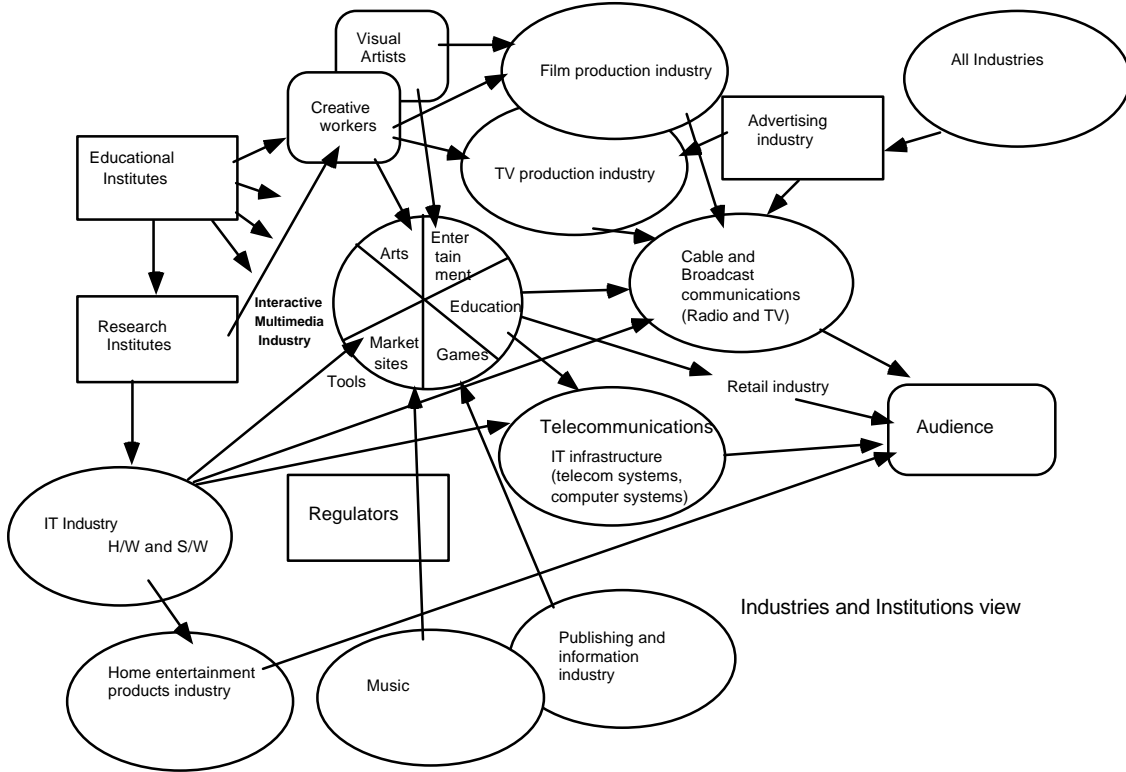


Figure 3: Interactive Multimedia industry relationships

Figure 3 tries to convey the number and extent of the relationships in the Interactive Multimedia industry. As it stands it is certainly not complete, but it does provide a feeling for the context in which the industry is placed. The structure issues are those which relate to the organization of the Interactive Multimedia industry. The first set relate to the existence and nature of the elements in the above diagram. The second set are based on the relationships between elements in this diagram.

4.1 Single element focused issues

4.1.1 Roles

The role issue is closely related to the industry structure issue. How many distinct roles are there and what is each responsible for? This is one point where the possibility of existing industry models being applied to the Interactive Multimedia industry is particularly pertinent. The tools and technology which allow creators to be highly productive also allow an individual with a vision to achieve that vision with reduced outside help. Hence looking for the same set of role as exists for TV, for example, could be highly counterproductive, particularly if TV is seen as competing with Interactive Multimedia, when cost differentials and efficiency could be critical.

At the same time it must be recognized that Interactive Multimedia supports a greater range of sizes than do existing media industries. There will be role differences between large scale producers and small individual producers which result simply from size differences.

The roles and management methods in Interactive Multimedia lie somewhere between the software industry and existing media. When these two archetypes align, then roles are well-defined: in the cases of non-alignment problems arise.

Titles in the industry were classified as to whether they fell under development or publication. The following list is for guidance as there is little unambiguous about roles.

<b>Developer</b>	<b>Publisher</b>
Producer	Executive Producer
Art Director	Product Manager
Programmer	Marketing titles
Writer	Technical titles
Composer	
Project Manager	
Tester	
Designer	
Lead Artist	
Animator	
Model	
Director	

Author is also used for artist, director or designer. Designer and Director are sometimes a shared position, as may be Director and Producer.

One of the possible classifying factors for the various roles is the type of drive of the individual i.e. process or goal. In the Banff Centre experience the following generalizations may be made:-

Goal driven - producers, technologists, engineers, directors  
 Process driven - artists, software designers

#### 4.1.1.1 Artist

The ongoing impact of technology means that there is a continuing relationship between the artist and the engineer. This is characterized by a dissimilarity of values from each side. The artist tends to be focused on effects, what is to be achieved or presented to the audience/user, whilst the engineer addresses means, and how things are to be realized. If that simple dichotomy were all that existed then the relationship would be clear. It becomes muddled when the artist tries to find appropriate technologies to implement their

vision and to exploit technologies in ways that the engineers had not thought of, or when the engineer tries to create something to show what the technology is capable of.

Where a part of the creative task is handed off to some support role e.g. the building of an image, then unless precise specifications are provided for the task e.g. maximum polygon size, then the result will be subject to the discretion of the intermediary, and the result may compromise the intention. This is not like a task handed off to a junior assistant, whose function is to do the routine work that the artist could easily do for themselves, but is efficiently delegated. In this circumstance the result can be assessed by the artist, who will know from direct experience whether it has been done satisfactorily.

Where the artist does not have the direct experience of performing the task, or of knowing exactly what the outcome should be like, their critical capability is to some extent suspended. They may believe that imperfections are artifacts of the medium and not limitations of execution.

From this flows the second topic: the goal of tools appears to be the creation of autopoietic systems, which allow the artist to control creation all the way to delivery. The single person organization can be achieved through the combination of specialization i.e. narrow focus (may be function, market, or geography based) and the use of high performance tools. This places the artist in a singular role e.g. the solitary artist addressing a mass audience. In this mode the propagation of knowledge and experience across the artistic community is hindered. The richness of the community with its concomitant elements e.g. critical structures and understanding, is lost.

This goal has not been realized, nor is it likely to be in the near future. It is the common goal underlying many software systems. In practice team production is the norm and hence communication between persons is key, rather than the interface of the tool to the person. There are many tools, many purposes and many interfaces. Without a common language the achievements of the team may be jeopardized and the results may fall short of the vision. With the common language dialogue and critique within the artistic community is also enhanced.

Most art is produced from the drive by a single person with some vision. Specialization of function allows for higher efficiency, performance level, and quality, but may lose the vision. What are the capacities of teams vs. individuals? If productivity is an issue, how much output can be created? Do the tools enhance creativity (by making new things possible) or the efficiency of production? Do they increase the creative output of existing creators, or do they allow additional individuals to become creative? These questions eventually revert to the issue of critical assessment i.e. what is the quality of creation?

The relationship of the artist to the audience may also be changing: the tools and technology which are available to the artists are also available to the audience. The technology that has crossed over from the business sphere to the creative sphere, can also support a reverse flow. The expressive capabilities found in the technology may also be used for business purposes. This has been true with previous media innovations e.g. photography. In that case the photographer was a specifically skilled and experienced

individual who carried the techniques of photography to realization of specific business goals.

In the present case the very accessibility of the tools disintermediates the application of the medium to the business goal, and the medium can be debased to a technical realization issue from an artistic visualization. This can work against the business use as well as against the interest of the medium.

Uncertainty about the path taken through an interactive work may be seen as compromising the artist's vision. The artist is still responsible for creating the possible paths and hence maintains a unique role, but it is difficult, if not impossible, to ensure that the audience obtains as much value from the experience of an interactive piece as they may from a fully constrained piece. If the artist's task is the interpretation of human experience, then there may be only a limited, intermediate role for the interactor, in creating a body of experience to be drawn on to find meanings.

The issue of disillusion was also raised. The disillusion may be something which affects all roles, but it may be most critical for the artist. If disillusion causes a serious turning away of the best, then the medium will be dramatically underserved, and will fail to achieve its potential. The medium is far from mature: what we see are really experiments. This is the early trial period and not the post-establishment era.

The last issue regarding the artist's role was put forward by Frank Boyd. He proposed that we should use artists as the leaders to find their own way in Interactive Multimedia and this leadership would justify their subsidy. If this artistic role was also extended into a social role, because of the potential wide based accessibility of the medium, then there was an ancillary role for artists as social activists, equivalent to entrepreneurs.

In the late 20th Century, the artist's role may be considered as a composition of a variety of elements, which include

- self reflection
- provision of localized identity
- questioning of representation and image
- creation of connections between experiences to rebuild "universals".
- immersion
- critique of the medium and its applications

How does Interactive Multimedia extend the artist's opportunities in these roles? What new roles may it allow? These are appropriate starting points for a new dialogue.

#### 4.1.1.2 Distributor

Distributors were seen as a bottleneck to mass audience development, based on their lack of understanding about the Interactive Multimedia industry and its potential. The key issue is whether they represent a useful access path to audiences or whether a new path is

required. For multiple uses of developed content the existing distributors are at least part of the access process and hence there is a task to educate them.

Some distributors e.g. Walmart, impose a level of censorship on content. Providing a lockout on profane or violent material in a game has been found to be inadequate to meet Walmart's requirements, so redevelopment, or at least versioning, is required if they are to be used as a channel. About 26% of sales were reported through Walmart by Stewart Kosey, and hence they cannot be ignored.

Physical distribution will remain important because of the limitations of the Web, i.e. limited bandwidth, geographic limitations of access. If better charging mechanisms are available for the Web then the balance may alter. However payment per use is a slow way of collecting revenue compared to outright purchase. Whilst many types of product will continue to only be available in box form, the rate of change of distribution mechanisms will remain slow.

#### 4.1.1.3 Engineer

This is the other side of the discussion on artists presented above. One group spoke of a joint engineering/artistic capability. This might be a way of expressing creative content in an implementation independent form. The engineer is seen as a translator of an expression into concrete form. If this is to be sustained then artists have to know the medium or the expressive form, i.e. tools are a language for artistic expression. The expression must be a means of explaining requirements between artists and engineers, and possibly to marketers.

This proposition appears to require the definition of an ideal medium, which defines a target language for expression and a virtual machine for engineers. Much discussion centred about "What is programming?", as programming was seen by some as something which real creators don't do. Others believe that interactive artists should also be programmers. The difference may be related more to tools available than to practice. Director was considered as an authoring tool: its limitations, when its Lingo capabilities are not recognized, make for very cumbersome expression of simple concepts e.g. moving an object across a screen, yet it receives widespread use. There appears to be a void in which a new capability might be created.

An extension of this interface between artist and engineer would address artistic communication in a single project amongst a project team. There is a need for tools that support this. These are engineering problems and ones which have some solutions in software engineering, yet the engineering focus is nearly exclusively on the realization technology.

#### 4.1.1.4 Director

Steven Forth identified the prime linkage required is between the market and the director. Different forms have different requirements. Edutainment CD-ROMs require a very different approach from games: games have a short lifecycle because their innovations will be rapidly surpassed. DNA uses the Web as a means of market building, and also of finding what the market feels. This is a process not of simply catering to a niche market, but of actually building that market.

The range of costs in Interactive Multimedia production is very large. At the high end Super Mario cost about \$30 million to develop: at the low end, some individual artist's CD-ROM's cost about \$100 to \$200 thousand. The average CD-ROM production costs appear to be around \$1 million/ title. If sales are 100,000, at a unit price of \$50, then a total return of \$5 million is created. 80% of that revenue has to cover manufacturing, distributing, marketing and all associated costs as well as profit. Haney Armstrong related that First Degree entailed less than \$100K in shooting costs, but post production costs were high because of blue screen cut versus background. The other large costs were in programming. It seems that despite technology opportunities the cost associated with technology is still a dominant cost.

Does interaction remove or change mainly the role of direction in creation? Production in movies looks for the best path to take, the best experience. How do we take the richness that the artist possesses in control and replace it by the richness of interactivity, where most of the audience is much inferior in execution than is the artist? A movie may relate thousands of things in a carefully scripted fashion: interactivity may lose the end to end coherence and only permit choice relative to adjacent elements, or based on past history without any foreknowledge, e.g. a director may employ foreshadowing. The loss of control is not relative i.e. a shift from one person to another e.g. director to audience, but absolute i.e. there is no longer the possibility of the single, transcendent, overarching view. Does this impoverish the medium?

The recovery of the single view may be approached through controlled works i.e. where a set of tests or conditions have to be satisfied to reach a defined end-point e.g. a game, or to experience all that is available in a piece e.g. EVE. In such cases interaction may be limited, and not supportive of creative input by the audience/user, save in the experiential mode e.g. playing with embedded "toys".

Control may be manipulative but is interaction less manipulative? If the audience is forced to choose between a limited number of options there is still the implication that there are only a finite set of options.

The perils of professional production were also mentioned e.g. professional production is making the Web a one-way communication system because of the seamlessness and directedness of sites, which is what production companies sell to their clients. the site is goal oriented. Full two-way interaction implies an element of incompleteness that the site, or the game must offer, and which the participant must provide.

Another view of the director's role was that they should identify all assets created and exploit them. This is their value increasing function. This implies that we know what all the assets are, and why they are assets i.e. what revenues, direct and indirect, they link to. In the exploratory world of Interactive Multimedia this may not be true.

#### 4.1.1.5 Publisher

Publishers were perceived as being a very ambiguous position in the Interactive Multimedia industry. Stewart Kosey said that 90% of publishers lost money in 1996. Publisher market must consolidate to 8 to 10 by 1998. Steven Forth identified that offsetting risks by being publisher and developer does not work. You need 20 active titles to carry the cost of publishing: this is too many for a small company.

Publishers are looking for ways of reducing their costs e.g. Syrnix in Europe, and Digital Arts and Sciences are merging to reduce distribution costs. Publishers appear to be at high financial risk because of the options of direct distribution and because of the lack of maturity in the industry. In a well-established market each role is well-defined, the cash flows can be planned and the risks managed: in an emergent market this is not true, hence the reluctance to embark on new ventures. So, how does a developer sell a new idea to a publisher who is looking for a repeat of a previous success?

Publishers look at other publishers as their main source of competition; hence the battle is for market share and not for market growth. This inhibits the advent of the mass market.

#### 4.1.2 Production models

A number of models for getting the content out were postulated at the start of Summit: factory, film studio, cottage industry. Each model will offer a different set of roles for the production team members, will have a different propensity for innovation, and will propagate different production values. They will also sustain different financial and inter-organizational relationships.

Terry Braun characterized Illuminations Interactive as a cottage industry which focuses talent as required. The film, multimedia, TV companies within Illuminations, are owned by four people, who are the core. Their commitment is to never go over-budget or over-schedule. This makes them reliable in the eyes of their clients. An innovative aspect of the cottage industry approach is to look for new channels for distribution e.g. museums.

This is not functionally different from Real World which is a group of companies, owned by one person, Peter Gabriel. They have a music based entertainment focus, e.g. CD's, CD-ROM's, enhanced media, performance, studio recording, festivals. They are formed by a more constant set of individuals who work in collaboration which is made easier by the multiple skills that the people possess. The key descriptors they subscribe to are "organic hi-tech", "hand-made", "worldwide".

Most companies represented were relatively small, all were highly involved in partnerships, and few, if any, had a narrow focus of specialization. This again is characteristic of an industry which is still creating its mature form.

#### 4.1.3 Audience

At present the audience for Interactive Multimedia is a series of niches. These have widely differing characteristics: more separates them than unites them. The common ground may be technology, the new channel of communication. The audience is not well-characterized: the open questions include:-

- what are their needs?
- how do they play, where and why?
- what part does interactive media play in their lives?

Other characterizations of the audience as a virtual community have not been well-worked out either. Further open questions include:-

- what happens when people play together?
- does interaction bring groups together or isolate individuals?

The audience/users and what they want, or value, from interaction remains a considerable enigma, at the deepest level. At present they are being satisfied with widely varying modes which offer a sense of community e.g. Websites, physical interaction e.g. games, or access to information. Within these modes there is scope for story-telling, emotion, self-reflection, irony, evaluation and assessment and spectacle. The combination of these elements into coherent forms is not systematically achieved.

With the many vehicles which convey Interactive Multimedia to different audiences there are different interfaces; each has some specific virtue: is it possible to obtain more than one set of virtues through a combination of interface features?

From all these questions a number of structural elements can be recognized e.g. mass vs. niche, value provided vs. price paid, competition, degree of investment in hardware and in learning, ability to use in a variety of modes e.g. like radio as a background. The Summit discussions are presented as they addressed some of these topics.

##### 4.1.3.1 The Mass Market

Does Interactive Multimedia wish to address the mass market, or is its strength its ability to address a wide range of niches in a cost effective fashion? John Carlin, whose Red Hot organization focuses on social issue oriented programming, wants to be in the mass market to raise awareness. This suggests an outreach process through channels which may draw an audience, which is captured by the ideas presented, to Interactive Multimedia. As mass audiences do not respond well to volume and complexity of content so the outreach must address multiple, credible narrowcasts in a piecemealing approach. In this view the mass audience never really exists: it always an amalgamation of niches.

This identification of a new niche in the mass audience to exploit some new Interactive Multimedia product e.g. games which appeal to more than the hard-core game circle may cost considerable money. Buying an audience, and taking risks which may end in failure, are both expensive, but may be required to bring Interactive Multimedia into more of the world. Some successful small companies have collapsed because of their attempts to reach beyond specific, loyal audiences or markets e.g. Colossal, Inscape.

A key factor for the mass audience is what Interactive Multimedia is capable of. The audience must receive some marginal utility increase, either through increased value from new functionality, or through reduced costs for the same functionality. There is a tendency to focus on reduced costs at present e.g. Robert Morrice stated that TCI declined to invest in 2-way digital video, because 30% of audience was functionally illiterate. The mass audience is not able to absorb the high-end product. This connects to policies which intervene to raise the mass audience capability e.g. computer literacy programs in schools, education in support of the development of international markets.

Cost is a critical factor; the cost of art defines the size and nature of the actual audience. The potential audience will influence the extent of the investment. Commoditization occurs at a lower threshold if the market is worldwide and technology supports it.

Another view treated the mass audience as an indirect rather than a direct goal. Who you sell to may be more important than reaching mass, if you influence the next wave of creators. A practical way of creating influence is to start with material in small circulation publications, which are used by those creating content for wider circulation media, etc.

The mass audience has already been eroded by consumer choice models and specialties, and may be further eroded by the new medium which can more accurately and effectively meet the needs of niches than present media do. This starts to change the role of markets and marketing. The potential of the market is very considerable, but how it may be accessed is not known whilst the understanding of interaction is so limited.

#### 4.1.3.2 Needs

Why does the audience need and value interaction? What parts of the interactive experience does the audience respond to? Interaction can be defined at a number of levels:-

1. Selection or navigation, where the significance of selection is governed by the granularity of the medium i.e. how much follows on the choice we make, when will the next choice be available? Can we back out of a choice?  
This type of interaction may be driven by goals, or by level of experience/learning.
2. Participation, where the audience defines when it will interact. Chat falls into this category because the audience/user need not participate, or may participate partially e.g. contribute to one aspect of a topic.
3. Collaboration as co-creation. Can enough options be given to allow for real user interaction to be creative? The interface is very important for this level of

interaction e.g. Thecla Schiphorst's work , "BodyMaps", where an image is moved by touching a surface.

For any level of interaction we need to know what attracts people, and what value they obtain from the interaction. This identifies what the basis of different audiences may be, and raises some fundamental questions about the part interaction provides in our lives. In Interactive Multimedia events are only rich and complicated because of the audience interpretation and recognition. Actual branching, at present, is very sparse. Much of the value of Interactive Multimedia is what the audience brings.

From a fundamental understanding we could identify the two things which will define the market, how much people will spend and how much time they will invest. This time is not simply the direct time spent interacting but also the time spent learning. Any work e.g. books, theatre, dance, music, interacts with its audience, eliciting responses based on the prior experience and knowledge of the audience. Does Interactive Multimedia expect more than other forms?

The work may look for certain expected presences i.e. cultural norms, to achieve some standardization of response. The Interactive Multimedia environment tries to condition the audience by providing them with the totality of experience that they need to interact, or at least to bring all the audience up to the same base level. This becomes a scope issue: is the scope of expected audience knowledge being broadened, and if so what price is being paid e.g. lack of depth? The issue is the immersiveness which is an attribute of Interactive Multimedia.

This can be treated as an each time problem i.e. for each new Interactive Multimedia experience there must always be a conditioning, or qualifying element, e.g. the new genre "software toy" easy to play and with low skill requirement, or as an overall learning environment where experience can be carried from one Interactive Multimedia product to another. The latter is achieved by building familiarity with the environment and changing characters. This encourages the reuse of interfaces and capabilities. Ultimately it rests on the desire to revisit an environment, which may need some motivation for the player to want to improve performance. This continuity of games i.e. preserving some knowledge from one game to another, may be an efficiency for the creator, or for the player, or for both.

This implies that if Interactive Multimedia expects more of the user than other media, then this expectation is liable to be culturally biased. To use the creations one must adopt the norms of the originating culture, or each culture must produce its own works. This can also be cast in didactic terms: to be successfully used by the largest possible audience a work must carry some indoctrination in the norms of the originating culture. Success in the use of Interactive Multimedia entails the adoption of the culture, which can be a problem regarding the maintenance of cultural diversity.

What does the audience obtain of value from interaction? The view alluded to above is that it permits some understanding of the world as experienced. This may be through selecting events which mirror those being experienced by the audience, at the lower level

of interaction. At the highest level, that of co-creation, there is an interaction with information, which entails association and intuition, which may lead to working out what interpretation and structure the artwork has been designed for. This appears to be akin to the scientific process of experimentation leading to hypothetico-logical interpretation of data.

Interaction may be classified in another way: that which offers similar experience to that displayed and interaction which criticizes the experience displayed. This could be termed constructive versus deconstructive interaction, where the latter interaction reveals the underlying reality is not as apparently perceived. This may also be described as "suspension of disbelief" versus "suspension of belief". In this model there was a suggestion that a preliminary step was in defining "self", before defining interactivity. Such a definition works back to the assertion of the culture in which the individual fits, and hence the validity of a given, culturally loaded, interactive product for their experience.

This mainly treats the audience as individuals: the other case is where there is a group interaction. Such group interactions occur in various modes at present e.g. in chat groups on the Web, in game stations which provide a physical interactive setting to jointly play games, or in multiplayer games. This has the potential to extend the market demographic by using the sense of community. This sense of community does not apparently exist in all cases e.g. game stations may be joint but PC products are individual, and there is limited cross-over between these. A possible cross-over path would be generated if players learned on a game station and then went live on the Web to play real people. This learning path suggests that there must be a value to the audience in appearing expert in the game, either for admission to the group, or to excel in the group.

A possible expectation, which was supported by a GameSpot survey, is that games may become spectator sports. This evolution of games would be marked by the identification of skills that enhance performance, and formats in which execution level and execution style would both offer interest. This is already a part of the arcade culture, where pleasure is linked to watching people play or perform.

Will interaction then steer us towards the greatest personal gain? What gain will the individual expect? Will group interaction maximize the gain for the group, or for the most powerful individual? The mapping of the various classifications of interaction onto the different audiences in terms of interest and motivation has not been attempted. The only level at which any information exists is that of types of game and size of markets.

One virtue of Interactive Multimedia was its potential continuous availability. This is usually assessed as a benefit compared to time-based entertainment. The mall was put forward as the model of this, yet it was noted that the mall has time-based elements e.g. sales. Some people like the time-based aspect of TV, which may be seen as creating a kind of scarcity, which promotes the value of the programming. Overall it was agreed that there will not be one right vehicle for everything: a multiplicity of forms and channels will be needed, which suggests that the mass market may be a dying element.

In the end this may be seen as another case where technology push is creating problems. The vehicle exists first and then content tries to exploit this. The match is not necessarily good, and the content forms are more compromised than they need to be. The framework for delivery needs developing first, which will be a combined view of technology and content form. The present time was characterized as "desperately seeking for a grammar".

These requirement based considerations have significant value at a time when the medium is so fluid. One extension which can be considered is the relationship of the physical interaction and the system response. Some attempts are being made to incorporate this into game stations which vibrate when certain events occur on the screen. The richness of the medium will alter as we introduce more tools to help the user interact e.g. intelligent support engines. These will be different from "cheats" i.e. bypasses, but could work, for example, by helping to break codes.

#### 4.1.3.3 Niche

If the mass market domination is ended, to be replaced by coalitions of niches, then we may not get the same domination by superstars. However, if a group of niches e.g. CHUM group, is controlled by a single entity, this may not be true. The collaborative mode of communication will be very different from the existing authoritarian approach e.g. as in news channels and their use of experts.

Neil Seiling commented that the mass audience requires much greater administration overhead than the niche. This is the cost side of the mass market benefit. However in his experience, where they have given a number of first exposures of artists and techniques to a current audience of 1 to 2 million on PBS, success is adoption of artists by mass vehicles e.g. HBO. Without a mass market to define success we need other measures.

A problem is that niche seen as a negative word. This is partly from the conditioning applied by Nielsen ratings and similar measures, but also for the practical aspect that a niche channel will saturate with narrow focus and needs growth capability. If a niche is too narrow it will be unstable, or short-lived. The preparedness of the audience to consider itself in niche, or multi-niche, terms is suggested by the way in which Web users visit their own small set of Websites for most of the time.

The girl market was addressed in terms of a niche i.e. possessing unique properties. Martha Ladly's assessment was that girls like to play with toys, make things, tell stories, make props and use them, make believe, construct relationships and then create worlds, something to care for, with some real and concrete pay-off. This is not goal oriented play. As noted above this requires forms which are harder to implement than existing games. It does point to the identification of requirements, which becomes increasing complex as the niche becomes narrower i.e. there must be more differentiating factors. Realization complexity is likely to move in parallel with requirements complexity and cost will also be correlated. Hence the addressing of niche markets will produce a diminishing return on investment.

From an investment point of view this creates the problem that the niche demographic does not exist before the audience is created. The audience is only assessable through the use of pilots and similar trials until the understanding of need, and consequent value, is achieved. There is a requirement for a risk-taker, or possibly a risk-absorber.

#### 4.1.3.4 Potential

The immediate market potential is seen as substantial whichever vehicle is considered.

- there are 20 million Web users in North America, there are 10 million PC's which are games capable, of which 3 million machines support a \$3 to \$4 billion market.
- The youth market is expanding with high literacy in the medium, at least in part.
- there are certain products e.g. Myst, Flight Sim, which do not appeal to hard core game market, but sell in large numbers every year. It is hard to know what characterizes this market.
- there is a new element, new in accessibility if not in basis, interaction, which offers a new dimension in creative work, and a new relationship between the artist and the audience.
- artists with significant histories in existing media are gravitating towards digital media and Interactive Multimedia, creating a rich resource base of talent and a deeper knowledge of emotive and experiential arts.
- there are many exciting and interesting creations in all the forms that technology has put forward.

The missing piece is the lack of understanding, or of theory, for what is being done, and why it is of value to the audiences. This translates into an uncertainties about where the dollars are to be found to support the possible businesses, about what happens to communities in the interactive world, about what makes innovation work in new media, and about what the requirements are to support creative use and interest in Interactive Multimedia.

#### 4.1.4 Policy

Given the propensity for hegemony being exerted through Interactive Multimedia, it must be an issue for national cultural policy around the world. As the Web is one vehicle for Interactive Multimedia, an immediate issue is the relevance on a national policy in such a field when the level of control possible is so limited and the boundaries of control are so leaky. If control is not a realistic option, what policies are viable to support existing cultures? These are urgent questions when it is expected that the regulatory environment in Canada and elsewhere, will extend to include networked and new media products.

#### 4.1.4.1 Control

Michael Century referenced a paper by David Rothkopf (In Praise of Cultural Imperialism: Foreign Policy, Summer 1997, p38.) in which it was stated that "For the United States, a central objective of an Information Age foreign policy must be to win the battle of the world's information flows...". Such a policy would be realized by flooding i.e. if there is a market then there must be an American product which leads that market, provides the standards, etc. Many nations will accept such products rather than undertaking the costly development of their own, and will follow the technology lead rather than try to influence it.

Such a control of Interactive Multimedia proposed by US is seen as threat by the "Western" world. Equally the setting of the forms of Interactive Multimedia by the "West" is seen as a threat and limitation by the whole world. There is a need for diversity which is counter to the short term economic drive of conformity, but which is probably critical to its longer term health. The diversity is likely to be retained in Interactive Multimedia at the lowest levels. Different cultures may need different types of interface and structure to allow their culture to be included.

Interactive Multimedia because of its potential accessibility, proffers culture as a third force along with economics and politics. Cultural values are not directly associated with either economic or political value. They are more supportive of marginalized groups and of empowerment. This situation may be more recognized in international gatherings than within nations, yet it addresses the needs of groups within nations. Frank Boyd mentioned the ACE (artists, citizens, entrepreneurs) initiative of the Council of Europe, as an instance of this. The ACE perspective is that there is a crisis which affects everybody, because it is based on forces which have global impact, and hence the broadest coalitions are required to identify and address the issues.

#### 4.1.4.2 Rules

Michael Century saw Interactive Multimedia as a potential enrichment of the policy environment, with a key focus on access issues. An industry has some form of regulation, either self imposed or government imposed. The Interactive Multimedia industry may be adapting existing regulation rather than starting afresh. This may distort the eventual industry and impair its competitiveness with other channels, and also create disparities between nations.

The rules that may be required will need to sustain the distinction between cultural policy and information society policy. They will need to recognize the opposing forces of globalization and re-emergent nationalism. They will need to be based on new and meaningful measures e.g. for the production of quality content, for the economic value added by the industry. Access will be assessed through participation and creativity, not simply as audience counts. This shift of measurement focus is starting now for the broadcast industry.

Where access is addressed in this way then the focus becomes inclusion, whereas exclusion is related to power. Given the uncertain nature of power in this environment support for inclusion may be the better vehicle for policy. Exclusion rules are a sensitive topic because they can define markets in a limiting sense, and hence negatively impact growth.

#### 4.1.4.3 Support

Inclusion translates into support. This topic was addressed briefly, which underplays its importance. The issue of subsidy was recognized: provided the culture is the source of subsidy, rather than the market, subsidy will be a valid form of support.

There are also more strategic levels of support e.g. links between artists and researchers, coordination of funding councils to recognize the interdisciplinary nature of Interactive Multimedia, and strategic, not project based, networks.

It was noted as a specific issue, that amongst the incomplete structure of the Interactive Multimedia industry, in Canada there were no serious Canadian publishers of games or media, though there are plenty of content creators.

Financing models for creative content at the development and production stage through mechanisms such as the Canada Council, media funding agencies, tax credits, and long term venture investments, need to be developed and tested.

## 4.2 Relationship focused issues

### 4.2.1 Infrastructure

Because the industry is a hybrid and contains many vehicles, the infrastructure is also hybrid and hence there is no single point of responsibility or control for it. This means that it may be incomplete, inadequately planned, lacking capacity and not well understood. From a Web perspective the lack of a single point of control is seen as strength. In the emergent state it does pose the risk that infrastructure development will be a bottleneck because the flow of revenues is not yet sufficient to support a market driven capability.

In this regime the role issues re-emerge, e.g. can service providers be content creators, control issues surface, e.g. are we heading to a new monopoly, possibly on a world scale, the status quo is challenged, e.g. will the existing players be able to hold onto their powerbases, and innovation mechanisms are questioned, e.g. will newcomers require substantial earnings from the existing system, or will the existing system subsidize the new forms?

Without the presence of a significant industry association, representing the new opportunities, rather than clinging to the power of the old, there is no focus for the infrastructure. This is one of the key factors in industry maturation.

#### 4.2.1.1 Control over Infrastructure

In one view control of the Interactive Multimedia industry, and hence control of the infrastructure, could occur. The scale of Microsoft Network dominating Web space was put forward as a threat to the entire industry. Marty Katz defended the Microsoft position and argued that they were providing market access to anyone who had content which was potentially marketable. This could be seen as a market stimulation activity.

An opposing view was that Interactive Multimedia significance will occur when means of production is in the hands of individuals. New media can't immediately become mass media, and hence the basis of creative input is more significant than markets in the present phase.

Although various speakers suggested ideal openness for Interactive Multimedia others recognized that the existing channels and media did not approach that same openness, nor what already exists on the Web.

Other factors raised were:-

- cost of reaching audience cost vs. cost of content
- retention of symmetry of channel as key to type of communication supported i.e. the producer consumer differentiation must not be enforced by the infrastructure
- how to provide access so as to meet the requirements of cultural democracy as well as reaching audience numbers.

Without an industry forum these issues are likely to be addressed piecemeal and will not be resolved in an overall, ideal fashion. Hence the early emergence of the industry, with all the specializations identified earlier, is crucial for this.

#### 4.2.1.2 Development

Two key issues were identified for the development of the infrastructure. Free communication (flat-rate) model may only occur in North America. The assumption of on-line access may not work worldwide.

There needs to be an alignment of the education system with industry requirements: however these requirements have not yet jelled into job opportunities for established industries but remain tied to entrepreneurial opportunity.

#### 4.2.2 The Web

Will the Web play the major role in Interactive Multimedia? The existing Web is still a weak point in the infrastructure, but this position is gradually changing. If the Web can become as ubiquitous as the telephone, then it becomes the obvious vehicle for accessing the markets, whether they be mass, or niche coalitions.

#### 4.2.2.1 Evolution

The required Web evolution will address ease of use: Pointcast was perceived as a drop in Web access requirements, but with a severe reduction in interactivity. The evolution process needs to be controlled. Without universal high bandwidth for the Web, we end up in effective balkanization i.e. a divided, inefficient world, dependent on local supply. Globalization becomes ineffective, and mediated through agents.

GTI sees Web games as competition in the market share strategy. Real World sees the problem with Web as quality. Another problem is maintaining content over a period of time: the Web threatens to be immortal. The Web's strength is its symmetry: it allows content delivery, and allows users to create and distribute content. The existing Web is the model of practice: what is the model of theory?

#### 4.2.2.2 Development

It is inevitable to compare the Web and TV. One danger of this is comparing existing TV to the existing Web: TV is changing e.g. through the advent of digital TV and through distribution changes with low earth orbit satellites. The NetTV may be seen as an attempt by TV to capture desirable features of the Web for itself. It fails because it does not do this independently, i.e. it uses the Web. The challenging issue is whether TV could evolve and bypass the Web.

Drew Takahashi asked whether the Web lowers the cost threshold for creation and distribution. Without some compensation for the costs associated with novelty in technique, there is no economic basis for the Web. If the Web opens the distribution bottleneck then this will allow evolution. This could be the first of many steps needed to create the new environment.

Interactive Multimedia raises issues about what content is. The Web needs to avoid show-based containment and replace this by ongoing presence. This is far more than re-presentation of existing content. However, using old things in a new context may create an identity of sensibility, which will validate the experience for the audience. The Web can create new environments for this.

#### 4.2.3 Markets

In reviewing audiences the issues of requirements and opportunities have been addressed. In what markets will revenues be generated and how will they be collected? How will existing money be redistributed? Will new money enter the system? What will happen on the global scale?

All of these questions were posed: none were fully answered. Anthony Harckham identified the issues of direct and indirect revenues from markets, and the competition that exists for the advertising dollar between TV and the Web. Predicting what will attract revenues is still a matter of guesswork rather than science.

#### 4.2.3.1 Marketing

How is Interactive Multimedia to be marketed? It is interesting to note the amount of advertising that exists with conventional media to promote the new medium. This is likely to be a limited term phenomenon until Interactive Multimedia is fully emerged, but there is no existing mechanism for launch within the medium without reference to other channels.

There possible mechanisms. The Web is highly self-referencing and the introduction of hot links can support the rapid spread of information. Navigation through the Web is dominated by search engines, which themselves are a singular point through which most traffic passes onto the Web. Advertising in the search engines is one mechanism, and the appropriate references in their associated navigation indexes is another.

Perhaps as an offshoot of the technology dominance of the medium at present marketing is focused on the medium and not on the content. This can be seen in the examples quoted about the need for novelty in the marketing of games. At present the usual relation where marketing is brought in to influence the design of product and service before they are released does not hold. Marketing is post-fitted to media or content design. This begs the question about what attributes of content can be exploited by the marketing channel.

Incremental marketing is a key in the games world: existing product is enhanced and resold e.g. Mario, Duke Nukem, through sequels or versions. High production values e.g. artwork, music, are not believed to do well in the existing marketplace.

#### 4.2.3.2 Basis of markets

A market is created by a need with product or service to meet it, a delivery vehicle, and a mode of payment. In this view all markets in Interactive Multimedia are immature: the needs are unclear, a variety of products and services are in competition, there are several delivery vehicles and payment mechanisms are not resolved for some vehicles. Competition tends to focus within the existing proto markets for share, and not for development, though that is a voiced aspiration. Without clarity in the basic matters the whole issue of competition remains conjectural.

Most activity is therefore classified at present as "investment". Buying mindshare is seen as an economic process. Celebrity is promoted as a surrogate for currency on the Web. Experience is being obtained and identified as an asset, even though experience is rapidly invalidated by the rate of change. Software is occupying an ambiguous middle ground, from which it will be displaced by content. Because software creation is seen as an investment there has been a resultant reification of software, with commodity value identified for it. In the content world we mainly pay for service not things. Although a CD is a tangible asset, it is the experience of listening to it that we value. Interactive Multimedia reinstates experience as a marketable element.

The real knowledge of markets cannot emerge until this investment approach ends: whilst it persists there are distortions introduced because of the free distribution of materials,

regardless of their cost. Costs are in any case distorted by the continuing attempted reuse of content, rather than by newly creating material.

#### 4.2.3.3 Products

If content is stripped down, we find some underlying elements. These are the products on which content is based, recognizing, as above, that content is really service and not product. Product is what content providers work with, not what they deliver.

These elements are:-

- environments within which interaction and/or immersion may take place.
- characters, which may be presented in various modes, but which have distinct and distinguishable attributes (including avatars)
- expectations or norms, which may be violated to provide surprise or humour, or cultural criticism
- tools which support creation and interaction by developers and users
- history, a legacy of experience which may be reviewed, reused, analyzed, re-experienced

All these elements are brought together into situations, which is the point at which the audience interacts. The binding mechanisms may be games, stories, or other forms, accessed individually or collectively.

## 5. Review

### 5.1 Conclusions

A number of factors stand-out from the Summit as being of a more fundamental or far-reaching nature than the majority of topics. These are summarized here, and the reasons for their importance, stressed.

1. The Interactive Multimedia Industry does not exist as an industry at this time. There are a number of elements which have more or less common interests, or which may be served by the emergence of an industry. The industry may be considered to have emerged when the majority of the requisite specializations appear as per Figure 1.

It is apparent that the industry will be best served by creating a new model, drawing from elements of existing media creation and software development, but not adopting the conventions of the existing industries which compete for content provision. The new model will take a more integrated view of content delivery and will shorten the number of organizations on the path from creation to consumption. Some integration of roles e.g. developer and publisher, will occur. The path shortening can be supported by the tools which will make the use of new technologies more efficient. Networked creativity will be an element of this model.

As part of the industry emergence there will be a recognition of the funding and investment requirements that exist at different stages in the production process. The identification of the production process will play a key role in clarifying these requirements.

2. A key step in the emergence of the industry will be the shift from technology push to requirements pull. The instability of the industry, the lack of routinized processes, the perspective of technology change as a marketing element, are all based on the domination by technology. Technological innovation is still needed, predominantly in the areas of tool development and content access.

Two elements will help the emergence of the requirements view: the first is the establishment of a critical framework within which interactive media value can be assessed and compared, and the development of content oriented R&D, whose mission should be directed by the industry, including social and cultural theorists, and artists. There is also the potential for stimulation of the industry through financial initiatives.

3. The nature of interaction and its value in a market are not understood: until the benefit that interaction confers on audiences is identified the whole industry will operate in a trial and error mode. There will be considerable value to the organizations and countries that first find some concrete knowledge in this field.

4. A considerable power shift is occurring which affects the industry both directly and indirectly. The shifts are the results of huge economic pressures, volatility driven by

technology and innovative practice, and the technology by-products of centralization and integration.

The recognition of the power of this medium for transmitting cultural values in a more complete fashion than any other medium means that it is a base of political power and influence, and will be exploited for this. The democratization of the content creation process which will change the role between artists and audience will create substantial changes in the expectations of markets and in the flow of revenue. Between these two changes there is the infrastructure, which may be dominated by large business interests, but which will play a critical role in how well served communities are. The massive investments required to ensure universal access can only be made by large organizations. It is apparent that the "free" era of the Web is drawing to a close as the users realize that for good value to be obtained far higher service levels are required than can be delivered by existing ad hoc structures. Interactive Multimedia, which for its full flowering will depend on the Web, is part of the pressure on the evolution of the Web to become a broadly functional, high bandwidth, synchronous and asynchronous, facility.

5. In the universalization of the industry, tools will play a critical role. Two types of tool have been recognized, those supporting collaboration in creativity, and those which integrate capabilities in the hands of a single individual. The ease with which these new media can be used, their artist friendliness, and the accessibility of their concepts will be critical to the growth of the market. There are some suggestions that interfaces may be culturally limiting i.e. that different cultures require different interfaces, not simply in the language used, or the icons employed, but in the elementary objects and constructs expected.

The universal interface may be an inappropriate concept.

6. The mass market may disappear as an entity and be replaced by coalitions of niches. This will reduce the ability of single organizations to dominate media, and for a single message to reach an entire population. This will change the whole nature of marketing. It will also promote the recognition of people as individuals. It will also pose challenges in creating experiences and identifications that unify diverse cultures and groups.

7. The field of Interactive Multimedia is being moved forward by alliances and partnerships, many of an informal or temporary nature, which bring together the mix of expertise to realize a particular vision. This dynamic provides a vehicle for the cross-fertilization of the industry, the sharing of ideas and the building of one concept on another. This degree of common interest and interconnectedness should not be lost as the industry matures. Meetings such as the Summit are important for the range of contacts that they provide.

In summary, Interactive Multimedia was seen by the summit as an opportunity to a richer environment for everybody. It also addresses the underlying tensions of representation: if accessibility is guaranteed for all, then no-one will be left without a voice. The consumer-creator rupture may be healed.

## 5.2 Future Initiatives

The intensity of mediated experience may produce a reciprocal desire or interest in direct face to face cultural and social experience. Installations with a strong physical component and performance based interactivity were two directions participants strongly embraced. These themes will at the core of a future "out of the box" meeting.

The area which is still most segmented by technology is that of games. Games have the potential to expand to become the epitome of interactive experience. This possibility will come closer to fruition as convergence in game technology occurs. This forms the basis for the second follow-up meeting.

## 6. Canadian Implications

The following implications from the Summit meeting are characteristic of a fast emerging industry: in each case there are activities within Canada which can promote the emergence of this important, both in terms of dollars and of influence, industry. The following implications or initiatives that can be pursued will each have a positive impact on the industry. The different elements have not been ranked in importance, for though some are clearly more fundamental, and hence precursors, of others, there has been no opportunity to establish a ranking mechanism.

### 6.1 Implications for Market Development

#### 1. Definition of the Interactive Multimedia Industry

**Goal:** To establish the elements and specializations which are needed to make Interactive Multimedia a mature industry

**Benefits:** Basis for professional development, facilitation of revenue and funding flows, recognition of the unique aspects of the industry relative to existing media industries., identification of the required linkages

**Scope:** Identify those elements which exist in the existing industries which can be adopted, and define those new elements, or combined elements, which are needed. (Refer to sections 2.1, 2.2, 4.1.4.3)

#### 2. Definition of the relationship of the Interactive Multimedia Industry to other industries

**Goal:** To establish how Interactive Multimedia impacts and is impacted by related industries

**Benefits:** Recognition of the effects of inter-industry competition and changes in revenue flows, identification of potential unevenness in regulation, ability to support missing elements e.g. publishers, in Canada, definition of appropriate policy vehicles for support of cultural minorities, establishment of appropriate measures covering access and participation.

**Scope:** The existing media industries and the technology industries which provide the platforms for old and new media. (Refer to sections 2.3, 2.4, 4.1.1.2, 4.1.1.5, 4.1.4, 4.1.4.2, 4.2.1.1)

#### 3. Approaches to world markets for the Canadian Interactive Multimedia Industry

**Goal:** To establish mechanisms to assist the Canadian Interactive Multimedia industry in addressing international markets.

**Benefits:** Support of a Canadian cultural presence in the industry, to create export revenues, and to gain critical mass for small businesses.

Scope: Identify those barriers which exist and to define support mechanisms, through policy, legislation and the building of the basis for cooperation, nationally and internationally. (Refer to section 2.5.3)

#### 4. Identification of the business role for Interactive Multimedia

Goal: To determine how business in general can benefit from Interactive Multimedia

Benefits: General improvement of business performance, access to the major market for content

Scope: Identify the benefits that Interactive Multimedia can bring to business in areas such as information management and use, training, customer relations and product development. (Refer to section 3.4.3)

#### 5. Determination of how to build niche markets for the Interactive Multimedia Industry

Goal: To establish the basis of niches, what is required to address them and how they may be brought into coalition.

Benefits: Extension of the existing market to provide more uniform coverage and growth potential, to remove the appearance of gender and age discrimination, improve effectiveness of the industry in addressing niches and provide vehicles for retaining economies of scale.

Scope: Identify the conventions which are applicable to niches and niche activities, and find ways of incorporating these in Interactive Multimedia (Refer to section 3.5.4, 4.1.3.3)

### 6.2 Implications for Professional Development

#### 1. Definition of a skills/role model for the Interactive Multimedia Industry

Goal: To establish what skills are needed for the specializations in the Interactive Multimedia industry

Benefits: Basis for professional development, establishment of education and training program requirements

Scope: Identify the basic skill requirements and not tool use capabilities. There are also management skill requirements to address issues such as the ability to provide completion guarantees. (Refer to section 2.5.2)

#### 2. Development of strategies for small players in the Interactive Multimedia Industry

Goal: To assist small players to exist in a business which is likely to be dominated by large organizations.

Benefits: Retention of an industry base in Canada at least commensurate with the relative size of the Canadian market.

Scope: Establish the needs and opportunities for small players and what alliances are required to maintain them. (Refer to section 2.5.5)

### 3. Provision of leading edge capabilities seminars

Goal: To provide training and education in the potential for Interactive Multimedia for artists, businesses and technologists.

Benefits: Maintenance of a high degree of professionalism in the industry, awareness of change and capability of dealing with it.

Scope: Provide a forecasting and monitoring capability with a view of developments on a worldwide basis, and identify the significant changes. (Refer to section 3.2)

### 4. Definition of the product development process for the Interactive Multimedia Industry

Goal: To establish a process which draws from existing media and software development processes to facilitate the reliable development of Interactive Multimedia products

Benefits: Basis for professional management, ability to ensure results, clarification of funding requirements in the development process, support of team communication and team processes.

Scope: Identify the stages of development and relate to existing industry best practices and define those new elements, or combined elements, which are needed. (Refer to sections 3.3.1, 4.1.1.1)

### 5. Establish the basis of criticism for Interactive Multimedia

Goal: To define the elements and grammar for defining quality and range in Interactive Multimedia

Benefits: Basis for ongoing improvement in the Interactive Multimedia industry, establishment of Canadian culture within the medium.

Scope: Identify how content products and interaction forms may be compared and their richness of expression and precision of meaning can be enhanced. (Refer to section 3.5.1)

## 6.3 Implications for Technology Initiatives

### 1. Definition of a content R&D Program

Goal: To determine what aspects of content preparation and presentation are limited by technical understanding and to assemble them in a program structure.

Benefits: Basis for funding R&D in conjunction with existing funding bodies, provision of direction to research organizations and universities, establishment of Canadian Centres of Excellence.

Scope: Inputs from artistic, academic and business sources will be required. There are some implications for definitions of R&D and the domains of the existing funding bodies. (Refer to section 2.2, 3.5.3)

## 2. Large volume data distribution

Goal: To address the issues of how to distribute large volume data

Benefits: Establishment of a technological direction for the Interactive Multimedia Industry, integration of telecommunication and physical distribution systems. This aids longer term market development as well.

Scope: The cost and effectiveness of different options including their eventual physical limits and the need for new technologies, and the establishment of standard platform definitions. (Refer to section 2.4)

## 3. Definition of the Interactive Multimedia Industry requirements to be met by technology.

Goal: To create a requirements driven approach for Interactive Multimedia to displace the present technology push.

Benefits: Introduce stability into the content creator's field, reduce the impacts of technology change, enhance creator's productivity and range of capabilities, improve the design of delivery vehicles, and define an effective set of tools.

Scope: Establish the basis of Interactive Multimedia in a way which is independent of present implementations to define what the content creator is trying to do, and how the audience receives the results. (Refer to sections 2.5.2, 2.5.5, 3.2, 3.3.4, 3.4.2, 3.4.3, 3.4.4)

## 4. Identification of the role of interaction in meeting audience needs and expectations

Goal: To understand what value is provided to the audience through interaction and the different levels of interaction

Benefits: Basis for development of different product types, identification of different markets, development of fundamental market research information

Scope: Identify use people make of interaction and how it provides value to them, as individuals and as groups, both physical and virtual. (Refer to section 4.1.3, 4.2.3)

Appendix A: The Summit Agenda  
THE SUMMER SUMMIT AT THE SUMMIT  
A Think-Tank on the Future of Interactive Media

THURSDAY JUNE 26

Time: 9 pm

\*Slippery Slope Welcoming Cocktails\*

Test the waters/sniff those pheromones: sip a drink with a challenger or a future friend.

Location: Ceramics Deck/Other Gallery, Glyde Hall

FRIDAY JUNE 27

Time: 9-10:30 am

\*Hello, hello\*

What kind of fish are you?

What or who do you want to eat?

Why are you swimming in this pool?

What 's your lure?

Find your school.

Location: Rice Television Studio, JPL

Time: 11- 3 p.m.

\*Next Big Thing Scramble for the Summit\*

Hike/Race up Tunnel Mountain/lunch at the summit.

You are in an ecstatic landscape. But is it a simulation?

Imagine selling a perfect world.

Welcome to a secret mountain adventure.

Location: Meet Hike Leaders in front of PDC

Time: 3 - 5 pm

\*Stories, games, environments\*

Polymorphous pleasures or lurid love triangle?

Will that be action, sim or episodic?

A dalliance with art?

That infinity feeling

With kick off presentation by: Michael Naimark, response (3 -5 mins.) by:

Eugene P. Jarvis, Natalie Jeremijenko, Josephine Starrs, Chris Crawford, Wayne

MacPhail,. Peter Girardi and Marina Zurcow

Location: Rice Television Studio, JPL

Or

\*Nietzsche meets mass\*

Does convergence mean new markets?

Does cloning cancel biodiversity?

Will small fish survive in the dangerous deep?

Are there sharks in the shallows?

With kick off presentations (3-5 minutes) by: Kathleen Wilson, Neil Sieling, Steven Forth, Keith Kocho, Robert Morrice, David Braben, John Carlin

Location: JPL 313

Or

\*Prowl your partners\*

Physical fun with a focus group

With Instructor Anne Marie Lindell

Location: Sally Borden Gym

Time: 6 - 8 pm

\*Knaw and jaw\*

Gangland Dinner

Or

\*Project proposition supper\*

Don't forget your table manners

Time: 8:00 pm

\*Hot Springs\*

Dream Analysis

Soak

Location: Bus pick up in front of The PDC/Return to PDC at 10 pm

Time: 10 pm

\*Jazz Party\*

Shimmy and Schmooze to the Sound of Jazz Suite

Location: Trans Canada Pipeline Pavilion

SATURDAY JUNE 28

Time: 8:15 am

\*Mountain Walk\*

Location: Meet hike leaders in front of PDC

Time: 9:30 - 11:30 am

\*On the Case\*

Studies in:

-Multiple markets: breaking the gaming ghetto:

Haney Armstrong, Murder in the First

David Perry, Earthworm Jim, Shiny

-Hard core games:

Stewart Kosoy, GTI

Eugene P. Jarvis, MIDWAY

Swimming up stream in unpolluted waters.

Michael Coulson, Geena Davis and Abbey Phillips

-How to Pick up Gals - The Female Market

Martha Ladly

with response from Louise Velazquez, Roseanne Stone, Toni Dove

-Creative, business, technical twists

Location: Rice Television Studio, JPL

Time: 11:30 - 1 pm

\*Hungry Mouths\*

How do people play ?

Where do they play ?

What part does interactive media play in their lives ?

Is it changing ?

What do they want ?

What do we want them to want ?

How do we get them there ?

Who are they?

Who could they be?

Kick off discussion by: Greg Roach, David Perry, Drew Takahashi, Josh Portway,

Barbara Groth, Patrick Clancy, Ralph Derrickson, Michael Dobson

Location: Rice Television Studio

OR

\*Production Models\*

Factory ?  
Film Studio ?  
Cottage Industry ?  
Garage Band ?  
Lonely Poet ?  
Mad Professor ?  
In-house development vs author/publisher model.  
Production Values vs Innovation.  
Personal vs corporate  
Who pays? Who drives ?  
Authors ? Publishers ? Consumers ?  
Kick off discussion by Peter Girardi, Lyle Emmott, Justine Bizzochi, Terry Braun, Heath Bunting, Ellie Rubin, Wei Yew, Martin Katz  
Location: JPL 313

OR

\*Delivery Dominatrices\*  
Can service providers be content creators?  
Merging old money with new?  
Whose rules and regulations?  
How do we work together?  
Plotting pay per play  
Shelf life  
Public domains  
Kick off discussion by Marty Behrens, Michael Century, John Lorenz, Lindsay Moir, Carol Parnell  
Location: Computer Classroom JPL 301

LUNCH

Time: 2:30 - 4:30 pm

\*The One Big Paper Session\*

\$ on The WWW: Anthony Harckham

Please be prepared to Respond: Marty Behrens, Robin Mudge (3 - 5 minutes)

Techno projections: Wm Leler and Philip Goward

Please be prepared to Respond: Michael Coyote, Moshe Lichtman, Bill McCloskey, Glenn Picher, Hamish Forsythe

Collaboration models: Les Routledge

Please be prepared to Respond: Bill Buxton, Sarah Geitz, Janet McCracken

Location: Rice Television Studio JPL

Time: 4:30 - 6 pm

\*Morsal Combat I\*

criticise, debate, tease, provoke, settle scores.

e.g.: XXYY: why are only 10% of us female?

A clash of the titans.

Location: JPL 204

OR

\*Strut your stuff\*

Case studies

Location: Rice Television Studio, JPL 313, Computer Classroom JPL 301.

Or

\*Prowl your partners\*

Physical fun with a focus group

With Instructor Anne Marie Lindell

Location: Sally Borden Gym

DINNER

Time: 8 - 9:30 pm

\*Keep Strutting\*

Case Studies

Location: Rice Television Studio, JPL 313, Computer Classroom JPL 301.

Time: 9:30 pm

\*Language Games Party\*

with Curse of the Horse Flesh

Location: Walter Phillips Gallery

SUNDAY JUNE 29

Time: 8:15 am

\*Mountain Walk\*

Location: Meet Hike Leaders in front of the PDC

Time: 9:30 - 12 pm

\*Tech Tonic\*

Will tech always drive the industry or are specialised hardware (3d cards etc.) and licensed engines and libraries going to lead to moving the emphasis more towards content?

What tools do we want ?

With kick off discussion by: Bill McCloskey, Hamish Forsythe, Jean-Pierre Balpe, Durrell Bishop, David Levitt

Location: JPL 313

OR

\*Out of The Box\*

Environments, theme parks, objects, bodies

Anything that's not on a screen.

Ubiquity

With kick off discussion by: Thecla Shiphorst, Barbara Groth, Mark Green, Natalie Jeremijenko, Joy Mountford, Bill Buxton, Michael McHale

Location: JPL 204

OR

\*Morsal Combat II\*

e.g. Authoring animosities?

Over animated over anime?

Location: Rice Television Studio

Time: 12 - 2 pm

\*Stand and Deliver Lunch Box\*

Cook up a new fast food project

Time: 2 - 4:30 pm

\*Parlay on Policy\*

Should our industries be subsidised ?

Should national or local content be protected?

Regulation?

Co-production treaties?

Access? Democracy?

Laws against bad art?

With kick off discussion by: Michael Century, France Trepanier, Steven Selznick, Jerry Ezekiel, Chris Creighton Kelly, Frank Boyd

Location: JPL 313

OR

\*Multi player Submersion\*

How can interactive media act as a social conduit?

Dynamics of multi player games ?

What happens when people play together ?

How can we effect them, their relationships ?

If avatars can play, can they pay?

Magic tools

With Kick off discussion by: Bruce Damer, Saul Greenberg, S. Joy Mountford,

Allucquere Stone, Doug Cooper

Location: Rice Television Studio

OR

\*Very Last Chance to Sneak away\*

\*Strut your stuff\*

Case studies

Location: The Computer Classroom JPL 301

OR

\*Project Pay Offs\*

Yentas available

Location: Performance Room JPL or Sara's office

Time: 4:30 - 6:30 pm

\*Meltdowns, Success Stories, Non-Disclosures, Dementia\*

\*Summit Up - How was it for you dear?\*

Location: Rice Television Studio

DINNER

Time: 8:30 pm

\*Awards Ceremony\*

Location: Rice Television Studio

Time: 9:30 - 1:00 am

\*Poignant Parting Party\*

Phreak out to the sounds of DJ Style

Should we meet again some sunny day?

Location: The Telus Project Studio

-Le Fin-