Intellectual Property and Multimedia

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Abstract

This paper adresses some of the intellectual property issues which arose during the planning and production of SIULLEQ, a Danish multimedia project about Greenland and its culture. They include copyright, moral rights ("droite morale") and the implications of the Danish Data Protection Act in relation to the creation, use and downloading of materials by different categories of end users.

As regards the non-commercial use of SIULLEQ by educational and cultural institutions, existing copyright subscription systems in related areas in Denmark can be adapted to encompass multimedia products. The author concludes with some observations regarding the future of multimedia in education.

1. Introduction

Electronic multimedia distributed on optical discs began to appear on the market ten years ago. Early titles included "Vincent van Gogh", "The National Gallery", and "Bio Sci", essentially visual resources on video discs with software or printed indices, sometimes including barcodes. Over the last five years, the range of products and optical discs delivery systems has expanded although multimedia in consumer and educational markets is still a niche industry.[1] As these products involve the capture, storage, representation and dissemination of text, sound and images in an integrated manner, they cannot easily be allocated to one particular copyright collective.

I choose the term "intellectual property" rather than "copyright" when discussing multimedia as there are several rights involved:

- copyright in the sense of "right of the author" (ophavsret, droit d'auteur, Urheberrecht), moral rights assigned to the author and his successors to prevent the distortion of his work and to assure that he is identified as the author of the work.
- copyright in the sense of "right to copy," pecuniary rights in the form of a limited monopoly given to the owner to stimulate and reward him for the creation of an original work. The period of this monopoly is usually related to the lifetime of the author. In Denmark, photographers enjoy a more limited right of 25 years from the moment the photo was taken.

A widely-held premise regarding the purpose of intellectual property rights is "both to stimulate the creation and public dissemination of works [in our case multimedia] and to give their authors a generous reward for their contributions to society."[2]

Educational users of multimedia want to be able to work interactively with a given subject, to search, select and (re)organise text, sound and images. The product must offer acceptable and reliable access at a price they can afford.

Producers and publishers of multimedia have to reconcile these potentially conflicting interests. Given the considerable storage capacity of many of the optical discs currently in use as distribution media, I should like first to explore the question of the economics of multimedia before going on to deal with our experience intellectual property.

2. The Economics of Multimedia for Education

Multimedia products vary considerably in price. The cheapest resource discs aimed at the consumer market retail for less than US$100, whereas more specialized products for vertical markets may well retail for twenty to fifty times as much.

There is no clear relationship between the price and "intrinsic value" of multimedia products for education. The latest edition of Danmarks Radio's catalogue of interactive media contains more than 90 titles ranging in price from 15 to 2,000 dollars. The price of discs such as the BBC "Domesday Project" (originally sold for 150 dollars each) and the Danish National Museum disc "Danish Resistance and the German Occupation of Denmark 1940-45" (retail price 220 dollars) reflect the conditions under which the products were produced. In the case of Domesday, there was significant funding from the hardware manufacturers and the European Commission. The Danish disc was developed initially as part of a public information system.

Where multimedia products have been developed on a strictly commercial basis, two of the critical factors influencing their price are projected *sales* and *production costs*. Sales of educational multimedia such as the ABC News videodiscs may exceed 10,000 copies whereas one is lucky to sell 50 Danish discs in the home market. Multimedia products from Denmark either have a high sales price or have to be bilingual or multilingual with a view to sales outside the country.

Where such products use specially commissioned content, the rights issues are dealt with in the employment contract. But multimedia products usually contain a significant proportion of repurposed content. The project "500 Anos Despues" (Five Hundred Years After) plans to offer a series of CD-I discs, of which 80% of the total content already exists. The cost of clearing intellectual property rights, especially large numbers of stills, is one of the most significant and time-consuming aspects of production. A product containing 10,000 stills will usually cost considerably more than a comparable disc with, say, 1,500 if the images in question are still in copyright and have to be paid for. As Nathan Benn recently pointed out in an article on editorial photography in multimedia, "Considering the large volume of photographs that multimedia can use, it is not surprising that the first wave of educational software produced relies heavily on public domain images from the 19th and early 20th century".[3] Benn's articles illustrate clearly that all is not well when it comes to the use of photographs in such products.

Multimedia for consumer and educational markets are price-sensitive, regardless of the nature and intrinsic value of the material. Japanese products for the Sony Data Discman - a hand-held CD-ROM player with screen and processor - retail for US$18-130. In the USA, consumer products (a disc and software or a CD-ROM) retail for US$90-200 and educational products for K-12 schools for US$400-800. In the UK, schools expect to pay considerably less (US$200-400) and the situation is very similar in Denmark and Norway.

In Danish schools, products costing less than US$150 can be bought on the recommendation of an individual teacher. Above this threshold, several teachers of the same subject have to support the proposal. If the price exceeds US$300 the product becomes extremely difficult to sell.

Anecdotal evidence suggests that it is the distribution *medium* rather than the *content* that determines the purchaser's price expectations. The price of multi-media product containing video and 11,000 stills is invariably compared with that of consumer media such as a video cassette, rather than the 11,000 slides it contains.

If multimedia are to find their way into main-stream educational and consumer markets, how are we to reconcile these expectations of end-users with the financial interests of the intellectual rights holders and the publishers? The strategy needs to be mutually beneficial, as no-one stands to gain if prices are set too high or low.

3. SIULLEQ

SIULLEQ (Greenlandic for "the first") is an interactive multi-media database, the aim of which is to describe Greenland, the country, its people, culture and environment. The major partners of SIULLEQ were DRIVE, the interactive media unit of Danmarks Radio, the Danish Broadcasting Corporation, and UNIC, the Danish Computer Centre for Research and Education.

The project was carried out in association with the Autonomous Government of Greenland. Contributors to the content of SIULLEQ include more than 400 individuals and institutions in Denmark, Greenland, Canada and the USA.

Danmarks Radio and UNIC have provided more than two-thirds of the US$ 1.8 million budget. The balance has been provided by the Nordic Council of Ministers and a number of private foundations.

Work on the project started in March 1988, and the final Danish-Greenlandic version was launched in May, 1991. It it is now commercially available to schools, libraries and museums.[4]

4. SIULLEQ - the original specification

At the beginning of the project we wanted to offer at least 30,000 stills and 30 minutes of video, as well as a minimum of 2 hours of audio. Users in Denmark and Greenland were to be able to choose different ways of accessing the content: via maps, a four-level hierarchical set-up, a visual mosaic and a conventional database with Boolean search facilities. The range of options was to include audio-visual introductions or essays, picture series, picture and sound series, and texts with related bibliographies.

A key requirement was that novice users could use SIULLEQ with a minimum of instruction, but that the system should contain authoring tools to allow "communicators" in schools, libraries and museums to adapt the system to their own needs. SIULLEQ was also to contain tools to allow teachers to produce simple work sheets containing small digital miniatures, maps, texts and bar codes so that the video disc could be used on its own *without* a computer but with a bar code reader.

SIULLEQ consists of the following:

LaserDisc videodisc:

- side 1: 10 minutes of video with sound, 40,000 stills, and approximately 25 minutes of music, predominantly in stereo.
- side 2: 35 minutes of historical film and video clips with captions, with a mono sound track where it exists. The second sound channel contains 35 minutes of historical sound recordings (music).

CD-ROM:

- database with texts,
- 10,800 digital miniatures of stills, and digital maps,
- 3 hours of digital sound of which 2 hours are speech in Danish and Greenlandic,
- a Greenlandic/Danish dictionary with 16,000 entries and additional reference materials.

5. Acquiring content

For large data bases such as SIULLEQ the cost of acquiring the rights to use and distribute information such as stills, video and text can be the major outlay, and thought has to be given to how large the database should be without making the cost of the final product prohibitive.

The producers and publishers of SIULLEQ constitute a collective legal entity. Following discussions with copyright specialists including COPYDAN, one of the performing rights societies, it became clear that there was no such thing as "one-stop" copyright collection which could have eased our administrative load.

We felt that the existing tariff structure was not directly applicable to our project. Because it would be impossible to recover all the production costs from revenue generated from sales of a Danish/Greenlandic version we approached potential contributors in early 1988 to discuss the rights issue. Individual contracts have been drafted for each contributor, covering the content to be included in SIULLEQ, the uses to which it may be put and language areas contemplated. These contracts contain an option to produce an English language version and to remunerate the author in the event that this version is released.

In most cases, authors and research workers have been willing to authorize the use of their materials free of charge, provided that they were reimbursed for the time they spent in finding and organising the materials required.

The reactions of both professional and amateur photographers were mixed. Some specialising in a specific field in Greenland saw SIULLEQ as an electronic catalogue of their work. Others were not convinced of the provisions made to reduce unauthorized copying, or could not accept the modest remuneration offered.

The legal situation governing music and recordings from archives turned out to be far more complicated. In the case of music, we have approached all those involved directly and are offering a sum corresponding to the revenue generated from the sale of a similar number of works on a compact disc. As regards excerpts from archival material, we have excluded all recordings containing music to simplify the copyright clearance. As the material stems from Danmarks Radio archives, we have first to clear the moral rights with the producers, artists and interviewees and then deal with the economic aspects as we have done for music. Where films were commissioned by Danmarks Radio but produced by independent companies, getting the necessary authorizations is extremely time-consuming.

Historical film and video recordings stem largely from the archives of the Danish Broadcasting Corporation. Here again, a recent test case brought by the Danish Journalists Association and the Corporation reveals how tricky the isssues are. In its findings, the court ruled:

- That the reuse of broadcast material in other broadcasts was a legitimate activity and the Corporation had the right to do as long as the moral rights stipulations of employees were observed
- The Corporation has the right to reuse broadcast material for other purposes on a commercial basis where the current Broadcasting Act clearly made provisions for such uses.
- The Corporation could not automatically re-use archive material in this way in cases where provision for these activities had not been made in the employees' contracts or in the Broadcasting Act in force at that time.

6.1 Storing content

Although we have not run into difficulties in this area, we have to take into consideration the provisions of the Danish Data Protection Act. This Act regulates governmental, county and municipal storage and use of information *in a digital form* about the race, creed and political and social activities of citizens. Even though this information may be public knowledge and have been published in printed form, it may not be transferred from one agency to another without prior authorization by the supervisory board. Developments this year allowing for local goverment agencies to cross-tabulate different registers coupled with discussions at European Community level should lead to changes in this area.

6.2 Representing content

The main issues here have been moral rights. As regards photos, we have endeavoured to consult the photographers concerned on the representation of their works on a television screen. In most cases, the images are displayed in their entirety and with a neutral gray frame with a white border. In some cases, the images have been electronically cropped to ensure that significant details can be seen.

For works of art and old cartographical maps, we aim to have both the whole work and close-ups. Stereoscopic photos will only be available as pairs of pictures, as the provision of stereoscopic images would have been too costly for the end users.

In the case of music, the sampling frequency (22 khz) and compression algorithms of the digital sound available are inadequate for music, and for this reason we have music on the videodisc only.

One of the other sensitive issues was that of archeological sites and the resolution at which they could be shown on maps. To reduce the risk of treasure hunters any such sites will be shown at a resolution which does not enable unauthorized investigations!

6.3 Accessing SIULLEQ

The materials will be made available subject to a number of conditions regarding their use. Following guidelines drawn up for Danish videograms, the material will be made avail-

able for private use and for non-commercial use in public educational institutions, libraries and museums. All other uses will require licensing. As state museums are likely to charge admission from 1991, we have asked our legal specialists to advise us on the consequences of this change. Will the use of SIULLEQ at the Danish National Museum as one of a number of exhibits constitute "a public performance at which admission is charged?"

We have also argued that while a given user of SIULLEQ has access to the whole content, the probability of a given picture, sound or text being accessed is far lower than in a printed work, given the greater size. This is the premise of our argument that rights payments should be more modest.

6.4 Downloading content

The full-scale system comprising an Apple Macintosh computer, LaserDisc player and CD-ROM drive contains tools for downloading simple maps, low-resolution digital miniatures, captions and bar codes so that teachers can prepare simple worksheets for use in class. The digital miniatures are to be used as iconic representations of the images which can be displayed by means of the bar code (cf. figure 2). The resolution of the images is such that they cannot be used for publications. The authoring tool ensures that copyright notices always accompany pictures and texts. They can only be removed from worksheets by mechanical means. As photocopying is governed by an agreement between educational authorities and the copyright collection society, copies of such worksheets made at schools represented in the annual sample would give rise to payments to the author or photographer concerned. Further details of this are included in an earlier paper on this subject.[5]

Nathan Benn's most recent paper[6] outlines a rights collection scheme for photographs used in multimedia originally proposed by Stanley M. Besen of the Rand Corporation.

The content of video discs can be transferred with some loss of quality to a video or audio cassette. In educational institutions in Denmark, there is an unspoken consensus that downloading to video or audio cassettes at schools for use in the class or at parent meetings is acceptable, but that other uses are not. It has been our practice to cover these issues in user guides and at presentations and courses on the use of multimedia. We feel that institutional abuse will be minimal.

7. The future of educational multimedia - is there one?

Multimedia products published in Europe for use in education have not had the impact that many of us had hoped. Projects such as Domesday, "500 Anos Despues" and Siulleq could not have been produced on a commercial basis given the size of the installed base of players in educational institutions. Multimedia databases in particular have tended to be large, often containing in excess of 20,000 stills. The limited impact seems to have three causes:

- the relatively high price of the user hardware compared with school budgets

- the cost of the materials themselves
- the need for extensive teacher training and/or preparation time before teachers feel secure enough to use multimedia.

The first cause can only be tackled by using simple systems such as a player and remote control or bar-code reader or awaiting the appearance of low cost systems such as CD-I or CDTV designed for consumer markets.

The second cause has no simple remedy in Europe, unless multilingual, multi-cultural materials can be prepared addressing the needs of different national curricula and educational traditions. This should increase the numbers sold, allowing prices to be kept down. "The Sahara Disc" project, headed by a group at the University of Cambridge, is currently exploring this strategy with partners in Denmark and Norway. Attempts should also be made to improve cost awareness at the education authority and school level. We feel that public money should only be spend on "pump priming," after which productions should be possible on a commercial basis.

The third cause reflects the demands made of the end user and the kinds of interaction being offered. Producers have assumed that both consumers and educational users expected highly interactive systems. Our observations of teachers in primary and secondary schools have lead to more modest kinds of interaction - including bar codes in worksheets - which can be handled by a majority of our potential users. With time they will gain experience and move on to more sophisticated materials.

Following discussions with other European producers, we hope to stabilise costs and therefore prices in two ways: by collaboration with cultural institutions and by reducing the content of the product to a more manageable size.

One way to do this is to follow up the work done with the National Museum on resource discs originally produced for their purposes. Museums and, to some extent, libraries and archives often have suitable material which could be made available on a commercially viable basis.

The concept of "multiple media" used in the Canadian project Jean Talon seems a sensible one: in the short term, products can be distributed on a range of media including video cassettes, floppy discs, videodiscs and compact disc formats leading on to interactive broadband systems within this decade. For those interested in the intellectual rights implications of networks, papers by Mark Stephens[7] and Francois Braize[8] are pertinent.

The second factor is to reduce the number of stills to a level where the medium still provides comprehensive coverage but where the cost of the content can be recovered from the sale of the product. We are currently working with the University of Copenhagen - and with the active support of the Royal Library and the Danish Cartography and Land Registration Board - on a multimedia product about medieval church murals. There are 500 Danish churches with a total of just over 4,000 murals still in existence. By making these and

a computerised index available on optical discs, we can further education and research in Denmark and promote a small but significant part of our cultural heritage elsewhere.

Another proposal governing intellectual property and multimedia proposed by the telecommunications industry is to make initial, one-off payments after which materials can be freely distributed, ultimately in broadband networks. The problem with this approach is that it would prevent new authors or artists from gaining a foothold and lead to a reduction in the diversity of cultural expression. After all, who is willing to pay for something that may never be used?

Clearly, all of us have some interests in common to ensure that a reasonable balance between the creation and use of intellectual property is found.

References

1. Peter Olaf Looms After Domesday - multimedia databases in education. Paper presented at EURIT '90 Conference in Herning, Denmark 24 April 1990.

2. cf. "Copyright Law," *Encyclopedia Britannica* volume 5.

3. Benn, Nathan "Editorial Photography in Multimedia". Page 22-25, *The Videodisc Monitor* Vol. VIII, No. 7/8, July/August 1990 Falls Church, VA, USA.

Benn, Nathan "Part Two: The Role of Stock Photo Agencies in Photography Distribution". Page 22-23, *The Videodisc Monitor* Vol. VIII, No. 9, September 1990 Falls Church, VA, USA.

Benn, Nathan "Electronic Media's Impact on Rightsholders". Page 26-27, *The Videodisc Monitor* Vol. VIII, No.10, October 1990 Falls Church, VA, USA.

4. Peter Olaf Looms "SIULLEQ - a multimedia database about Greenland," Keynote address at the Australian Society of Educational Technology ASET '90 Conference presented on July 5 1990 in Sydney, Australia.

5. Peter Olaf Looms A system of copyright protection - experience with institutional users in Denmark . Paper presented at the EVAIN (European Visual Arts Information Network) meeting of art museums in Amsterdam, 5-7 March 1990.

6. Benn, Nathan "Editorial Photography in Multimedia Part Four. Copyright Collectives: The ASCAP Model. Page 27-29, *The Videodisc Monitor* Vol. VIII, No. 11, November 1990 Falls Church, VA, USA.

7. Stephens, Mark "Matters of Copyright". Paper presented at the EVAIN meeting in Amsterdam, on 6 March 1990 (4 pages).

8. Braize, Francois. "Narcisse and its Legal Image: Image Databanks and the Law". Paper presented at the "Electronic Imaging and Visual Arts Conference," London, UK, 27 July 1990. 13 pages and Minutes of Forum on Museums Information Systems organized by CEC DG-XIII-B and held in Luxembourg 23-24 April 1990 (28 pages).

Examples of Greenlandic drum dances
SIULLEQ side A

© H.P. Møller Andersen 1991

Extract from contemporary Greenlandic drum dance on stage (KNR - Greenland Television)

First frame

Play video 13130-13438:A

© Jens Kreutzmann

The first visual records of drum dances are to be found in works of art. In this watercolour, Ajagutak attempts to defend himself by means of a drum song.

Frame 24063:A

© Jens Kreutzmann

Both water colours are by Jens Kreutzmann.

Frame 24064:A

© Gert Hansen

Elderly Greenlanders in Julianehåb.
Woman in drum dance.

Frame 37311:A

© Frederik Carl Peter Rüttel 1900

One of the earliest photographs of a drum dance from Ammassalik in 1900.

Frame 17641:A