

18 INTERACTIVE MULTIMEDIA IN SMALL MUSEUMS AND ARCHIVES

A Case Study

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This paper discusses the objectives, planning and implementation of **Danske Billeder**, a collaborative project involving more than 30 Danish archives and museums, the Danish Ministry of Education, DRIVE and Pioneer Electronics Denmark A/S. Most of the archives and museums involved are small, local institutions with limited budgets which had not previously considered using or publishing interactive multimedia as part of their activities because of their size. The first product released in August 1993 will consist of a videodisc, computer software and barcoded workbooks making use of the rich visual and aural materials on the disc which covers selected aspects of Danish culture since the mid nineteenth century. The interests of the various parties to the project are outlined, and details are given of major issues which arose during the course of the project. The author suggests that the approach used offers a low-risk opportunity for archives and museums of this kind to acquire first-hand knowledge of the practicalities of using interactive technologies prior to embarking on full-scale projects of their own.

Introducing interactive technologies in museums is by no means an easy task. The size of the institution seems to be a decisive factor. One of the most frequent responses this author has heard over the last seven years when discussing the use of such technologies in Danish museums has been "Yes, but the budget of our institution is too small. Where would we get that kind of funding from?" This paper deals with our experience with **Danske Billeder** (Danish Images) and the approach which was adopted to enable as many small museums and archives to gain first-hand experience of interactive media without spending a fortune in the process.

Although Denmark is relatively small in terms of population and size - 5.1 million inhabitants and 44,000 square kilometres - it has more than 600 museums. From the time I wrote this paper until it was presented, at least five new museums will have opened their doors including the Museum of Cartoons and the Tivoli Museum, to mark the 150th anniversary of the Tivoli Gardens in Denmark. With the exception of national institutions such as Nationalmuseet (the National Museum of Denmark), Statens Museum for Kunst (the Royal Museum of Fine Arts) and Det kongelige Bibliotek (the Royal Library), museums tend to be small in size and staff. Apart from the computerisation of their collection management systems, only Nationalmuseet, Eksperimentariet (the Danish Science Centre) and two of the Fine Arts museums have worked on interactive museum exhibits. Nationalmuseet is alone in having produced interactive titles such as "Danish

Resistance and the German Occupation of Denmark" and "The World of the Vikings" which are also for sale to educational institutions and the general public.

The use of interactive multimedia (IMM) in Danish schools and educational institutions began eight years ago. Initially work was based on imported titles, but today there is a small number of domestically-produced Laserdisc and CD-ROM materials, and the two Nationalmuseet titles constitute a significant part of initiatives to produce Danish titles. Foreign languages, history and the visual arts are school subjects in which the use of IMM has been evaluated by the Danish Ministry of Education. The results of this two-year evaluation are due to be published by the end of 1993. Further details are included in Looms, 1992, 1993a and 1993b.

How the project got started

"Danske Billeder" was the result of a series of discussions among three organisations - DRIVE, the Danish Ministry of Education, and Pioneer Electronics Denmark A/S - on strategies for promoting the use of interactive multimedia in education and at the same time making the cultural heritage of Denmark more widely accessible.

Because of the small size of the Danish market, forecasts showed that it would take several years before market growth would be such that Danish titles could be developed on a strictly commercial basis. Until then, there were three main options:

- public funding of IMM titles
- titles produced in synergy with other projects (as was the case with the Resistance disc), or
- bilingual titles which could be sold both in Denmark and in Europe or North America, generating additional revenue.

As a result of its work as the developer of an IMM product about Greenland and sub-contractor to Nationalmuseet in the field of image transfer and videodisc production, DRIVE had production experience of relevance to both museums and education. In addition, DRIVE had been working with the publishing arm of the Danish Broadcasting Corporation since 1989 on the sale and distribution of IMM titles to schools, libraries and museums.

The Ministry of Education through its Media Office had been supporting the production and use of IMM in education since 1987. In addition, funding was available for primary and lower secondary schools to experiment with the use of IMM as part of a nation-wide curriculum development programme, and this was then followed by a two-year evaluation programme for IMM in education which commenced at the end of 1991.

Pioneer produces both videodisc players and CD-ROM drives. To facilitate the experimental use of IMM in schools, Pioneer had supported a hardware loan scheme which enabled those wishing to try out new materials to borrow the necessary player free of charge for a limited period. The only condition made was that the school involved should write a short account of its work and make this public. It became clear to Pioneer staff that in order to further the use of videodisc and CD-ROM technologies in Denmark, more Danish titles were required. Pioneer discussed these issues with both DRIVE and the Ministry of Education, and indicated that it would be prepared to sponsor a project involving the production of a Danish title of general interest to education and cultural institutions. Based on DRIVE's experience with the SIULLEQ/Greenland project, and inspired to some degree by the French Videomuseum project (Pring, 1992), the author drafted a tentative proposal.

Objectives of the project

The initial proposal drafted in May 1992 called for a collaborative venture involving not only Pioneer, DRIVE and the Ministry of Education but also a limited number of institutions such as the National Museum, the Royal Library and the Royal Museum of Fine Arts. The aim was to produce a resource disc which would be of interest not only to educational institutions but also to the contributors as a resource for use in interactive exhibits or information systems. The objective was to further the use of interactive technologies in education and to promote an awareness of Danish cultural heritage.

The initial distribution medium was to be Laserdisc with the possibility of further versions on CD-ROM, photoCD or a related CD format.

Within the overall theme of Denmark and the Danes in the 19th and 20th century, contributors would be asked to suggest subjects, to prepare existing visuals (slides, films) and accompanying text materials for production, and to arrange for copyright clearance. Pioneer, DRIVE and the Ministry of Education would cover the development and production costs of the disc and the accompanying software and barcode workbook. The disc would be sold for educational use and contributors would be able to use their own and others' contributions in interactive exhibits. The use of the materials by other museums or for other purposes would only be authorised after consulting all the partners involved. Revenue from the sale of discs less distribution expenses was to be returned to the Ministry of Education and earmarked for future IMM grants in this area.

For practical reasons, the Ministry of Education agreed to fund the development of the barcoded workbook, whereas Pioneer assumed responsibility for videodisc development and production and most of the remaining costs. DRIVE agreed to cover the difference. Agreements were drawn up between DRIVE and the Ministry on the one hand, and DRIVE and Pioneer on the other. Negotiations were completed by November 1992.

While this took place, DRIVE sounded out potential contributors to the project and worked on the planning and staffing of the project.

The implementation of the project

Given that the total budget for the project was 800,000 Danish Kroner (approximately £85,000) the original production plan for *Danske Billeder* called for a limited number of contributing partners from national institutions who already had some experience in this field, and who had suitable materials in a homogeneous form. In most cases, it was thought that information concerning artefacts could be down-loaded from computerised collection-management systems or their equivalents, keeping labour costs to a manageable size. In other cases, contributors would be provided with easy-to-use computer applications to allow them to develop presentations and to catalogue individual stills or film sequences on their own premises. The aim was to complete the project within a period of nine months.

Contributing partners

While the Picture and Cartographical Department of the Royal Library accepted the invitation, neither the National Museum nor the Royal Museum of Fine Arts was able to take part in the project. Indeed, as the themes developed, there was a shift from a few, large contributors to many medium-sized or small institutions.

A list of those contributing to the project at the time this article was written is included in Table 1.

Lead-in time

As the number of partners increased considerably, the period required to brief each of them on the aims and requirements of the project also increased significantly. As a number of those who expressed interest had never previously seen examples of interactive multimedia, time had to be found to provide a brief but concrete presentation of relevant examples.

Images and texts

Contributors from art museums usually held high-quality, large-format, professionally-produced slides of the works they wanted to include in the project. The majority of contributors held 35 mm slides of the materials they wished to include in the project, and they were supplied with empty carousels and forms to improve efficiency and safety. In some cases, there were technical deficiencies with the images, including reflections on oil paintings, poor illumination due to the inappropriate use of electronic flash, and geometrical distortions. Where possible, the solution was to get a professional photographer to reshoot the originals on unmounted slides, which were spliced together and then transferred in

Table 1 Contributors to **Danske Billeder** listed alphabetically (Danish names)

AIDS-secretariat	The AIDS secretariat of the Danish Board of Health
Arbejderbevægelsens Bibliotek og Arkiv (ABA)	The Library and Archive of the Danish Trade Union Movement
Arbejdermuseet	The Workers' Museum
Danmarks Design Skole	The Danish School of Design
Dansk Skolemuseum	The Danish School Museum
Det danske Filmmuseum	The Danish Film Museum
De historiske arkiver	The Historical Archives of the Municipality of Ålborg
Ålborg Kommune	Ålborg
Diabetesforeningen	The Danish Diabetics Association
DR - Billedarkiv	Danish Broadcasting - Picture Archives
DR-TV	Danish Broadcasting - Television
DR-Video	Danish Broadcasting - Video
DSB Bygningstjenesten	The Danish State Railways - Buildings Service
Folkemuseet Sophienborg	Sophienborg Museum
Hjerteforeningen	The Danish Heart Association
Det kongelige Bibliotek	The Royal Library
Kort- og Matrikelstyrelsen	The Danish Cartography and Land Registry Board

Kunstakademiets Arkitektskole	The School of Architecture, the Danish Academy of Fine Arts
Kunstindustrimuseet	The Danish Museum of the Decorative Art
Kvinfo - Danske Kvinders Fotoarkiv	Kvinfo - the Danish Women's Photographic Archives
Københavns Lærerforening & Invandrernes Fællesråd	The Teachers' Association of the Municipality of Copenhagen & the Joint Council of Immigrants
Københavns Universitet, Institut for film- og medievidenskab	University of Copenhagen, Department of Film and Media Studies
Københavns Universitet	University of Copenhagen
Institut for Historie	Institute of History
Lolland-Falsters Stiftsmuseum	The Lolland-Falster Regional Museum
Louisiana, Humlebæk	The Louisiana Museum, Humlebæk
Medicinsk -historisk Museum	The Museum of Medical History
Mellemfolkeligt Sammenvirke	The Danish Association for International Cooperation
Museum for Fotokunst	The Museum of Photographic Art,
Brandts Klædefabrik	Brandts Klædefabrik
Museet Psykiatrisk Hospital, Risskov	The Psychiatric Hospital Museum, Risskov
Montergården, Odense Bys Museer	Montergården, Odense Municipal Museums
Novo Nordisk	Novo Nordisk
Peter Zeuthen	Peter Zeuthen
Radioarkivet	Danish Broadcasting - Radio Archive
Ragnarok	Ragnarok (photographers)
Rosenborg-samlingerne	The Collections of the Rosenborg castle
Rødovre Kommune lokalhistorisk samling	The Local History Collections of the Municipality of Rødovre
Skov- og Naturstyrelsen, Hørsholm	The National Forest and Nature Agency
Statens Seruminstitut	The Danish Serum Institute
Sønderborg Slot	Sønderborg Castle
Tegneseriemuseum	The Museum of Cartoons
Vejle Kunstmuseum	Vejle Museum of Art

DRIVE's semi-automated image transfer system. In all cases, images had to be masked in a consistent and appropriate manner during the transfer to master medium.

Texts represented less of a problem, as we were able to convert most of the computerised text into the appropriate format regardless of the original operating system or application which had been used. On the other hand, a proportion of the texts needed editing and rewriting by the project's editorial team, and these issues required careful discussion and explanation with the contributor.

Copyright

As Billie Munro (1993) in a recent article pointed out, multimedia publishing can be a copyright quagmire. In previous DRIVE projects, copyright, credits and *droite morale* required considerable time and energy on our part. In this project, the agreement between DRIVE and each contributing partner stipulated that it was the contributor's responsibility to get the necessary authorisations to use reproductions, photographs etc for the final disc. For a number of the contributors, the project rapidly brought home the complexity of the copyright issues.

In one case, DRIVE received an enquiry from COPYDAN, which handles many of the intellectual property agreements in the publishing and media field in Denmark, on behalf of a photographer, who felt that we had not negotiated the necessary clearances. Fortunately, the matter was easily resolved and has led to renewed efforts to provide better copyright clearance procedures for multimedia in Denmark.

In another case, a member of staff at a museum in Copenhagen felt that the institution had infringed his rights by allowing the project to reproduce his selection of posters from a recent exhibition. Here the issue in question was whether the employer or the employee had the copyright to the ideas behind the exhibition and their use in contexts other than the exhibition itself. The point to be made here is not whether the person was right or not, but whether institutions have sufficiently clear employment contracts as regards copyright.

At the time of writing, the production of the disc nears completion. Side one contains extracts from turn of the century documentary films by the Elfeldt Atelier and nearly 11,000 stills from more than forty contributing partners. Side two contains a cavalcade of extracts from the earliest Danish feature films with a new piano accompaniment. The remaining sound tracks on side one and two contain a radio cavalcade entitled "100 years in 100 minutes" with key audio clips from the late 19th century. Contributors can acquire copies of the disc at cost.

Each still, film and audio sequence is documented and will be available - probably on CD-ROM - for Apple Macintosh and IBM and compatibles running under Windows 3.x. Work begins next month on the barcoded workbook to act as a demonstrator of the potential of the project in schools.

There will also be a low-cost delivery system for museums and archives requiring a LaserDisc player and a programmable smart card system with a simple interface developed by i-Media in the UK to allow partners to customise the disc to suit their own requirements.

Conclusions

Although the product will first be available just before this paper is presented, it seems clear that the approach has had a number of benefits:

Overcoming the limitations of small scale

A number of the contributing archives and museums have gained first-hand experience of IMM production and interactive exhibits by taking part. Because their contributions were largely in kind (slides, texts and manpower), many of the smaller institutions could afford to take part and to experiment with interactive exhibits for the price of the hardware, a copy of the disc and a small additional sum to adapt the software or the smartcard system.

New collaborative networks

Several of the partners have established cooperative links as a result of their participation in the project. The Museum of Medical History and the Serum Institute are good examples. Both have significant collections of historical images and were planning to computerise or modernise their systems. While the museum has a well-conceived taxonomy for cataloguing historical images the Serum Institute has database expertise, so it seems likely that they will work together on a joint database system. We at DRIVE hope that many of the partners will feel sufficiently confident to take part in a follow-up using a digital optical disc format or go ahead on their own with a larger project.

"Proof of concept"

In other cases, partners plan to use their contributions as "proof-of-concept" in fund-raising. In the case of the Museum for School History which is yet to open its doors, the disc contains a sample of wall charts and posters used in Danish schools at the beginning of this century. The project should make it easier for the director to show his ideas for interactive exhibits, rather than just describe them on paper.