The World Wide Market for Museum Information

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... Reconfigurations of when, where and how we work and live have already occurred in this century with the shift out of agriculture and lately away from manufacturing. As befits a new frontier, a vast and creative range of scenarios, reflecting different aspirations and priorities, are emerging. - Miller, 1997: OECD

Abstract

This paper draws on reports and statistics that are available in the public domain to address the question: what is presently known about the audiences and markets for museum and cultural multimedia products? The sources of information are described, and current information and the conclusions that can be drawn are summarised. The paper is based on a study originally undertaken for an initiative of DG XIIIE of the European Commission.

INTRODUCTION

The context

Whether they wish it or not, museums are significant players in the Information Economy. Nearly every EC generated report identifies museums as significant sources of content alongside only a few others. UK government reports on museums and on education make similar references. The Wall Street Journal (23.1.95) reported that acquisition of digital reproduction rights is one of most important new art markets in Europe. Bill Gates' company, Corbis, has already bought reproduction rights to important sets of digitised images in many museums, and is doubtless in conversation with others.

It seems certain that the extraordinary growth of the technological infrastructure and its use will continue for several years to come. The consequent demand for content is only just developing. The issue is, are museums prepared to meet this growing demand, in ways that will advantage them and the communities they serve?

Information about the takeup and spread of the different platforms, on the number and nature of users, and on what use museums are already making of them, will help museums to envisage how they can use these technologies, and assess the effect on their strategic development. The technologies are spreading so rapidly that any such information needs to be constantly updated; therefore, this review also points readers to the most useful sources of information: meta information, to use a fashionable term.

The technology

At present there are three multimedia delivery platforms in common use for what can broadly be called electronic multimedia publishing: the Internet, especially the World Wide Web; CD ROMs (takeaway electronic publications); and local kiosks or multimedia presentations within museum galleries. Multimedia products for these are closely related, and productions for each are becoming more similar. Other platforms are developing: for example, digital TV and its variations, including 'set-top boxes' that will allow connection to the Internet and interaction with broadcasting, and DVD (digital video disks), similar to CD ROMs but which hold over seven times as much data.

Sources of information

Nearly all the information reviewed in this paper was obtained via the Internet (the World Wide Web). Sources include commercial marketing companies (which often publish summaries or descriptions of surveys, the full document being available for purchase); academic surveys by workers in various universities; information that is regularly collected and published by some Internet marketing companies; information from official Internet administration centres. Several substantial surveys have been generated by EC programmes, such as the FAIR and MAGNETS reports for the ACTS programme, and that on electronic publishing for INFO2000; these too are available on the Internet or on demand.

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THE INTERNET AND THE WORLD WIDE WEB

The 'size' of the Internet can be defined by three different parameters: the total number of computers connected to it, both those offering content and those accessing content ('hosts' or 'connected computers'; the number of computers holding content to be accessed ('domains' or 'Internet sites'); and the number of people who actually access the Internet ('users'). Each of the Internet parameters is dealt with by different surveys. The number and distribution of connected computers are regularly surveyed electronically by different organisations, as are statistics for Internet content sites - which will include newsgroups as well as the World Wide Web, and files such as software or electronic publishing. A further distinction is the number of World Wide Web (WWW) servers, since for estimates of the growth of provision of multimedia content this is the most important sub-set of Internet sites. It is much more difficult to gain information about users, and equally important, non-users. Users are surveyed and quantified in commercial market population-based surveys.

The number of computers that have Internet connections, direct or by service provider and modem, is still increasing by about 80 per cent each six months, as can be seen in Fig. 1. The Internet, therefore, is more than doubling in size each year. Despite regular predictions that the Internet will become unusable due to the amount of traffic it carries, the capacity of the infrastructure is also enlarging to cope with demand, in the same way as does the telephone infrastructure (parts of which the Internet shares). There were about sixteen million connected computers in January 1997; by the year 2001 there will be somewhere between fifty and one hundred million. Over half these are in the USA, and a further 28 per cent are in Europe. The fastest growth in connection numbers is in the Far East: Japan and, coming up, China. Each connected computer is likely to provide access for several, or many, people using the Net.

The number of World Wide Web servers connected indicates the amount of content on the WWW. This is growing at an even faster rate than is the Internet, as Fig. 1 shows.

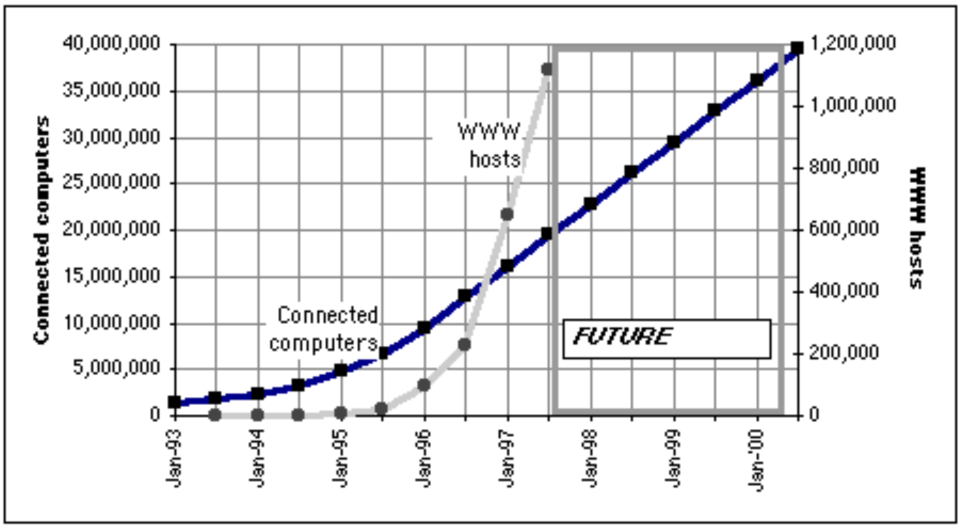

Fig. 1. The growth of the Internet and of the World Wide Web

Internet users, ordinary people

Who uses the Internet? The rapid trend, in the USA, which is the lead market, is for it no longer to be dominated by youthful males (apart from some notorious subject areas!). Over 40 per cent of American women now have Net connections; 45 per cent of present users are aged over 40. Users are well educated - 56 per cent have a college degree at least - and affluent. In fact, the general demographic profile is very like that of museum visitors. People use the Net most commonly for research, education, and entertainment. On average, North American users access it for about 5.8 hours per week. People take the time they now spend on the Internet from time they previously spent watching television. (GVU survey and Cyberatlas.)

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Museums on the Web

Museums are enthusiastic providers on the World Wide Web. In early 1995 there were 120 museum World Wide Web sites; in December 1996, 630; in June 1997 around 1,200 had WWW sites (see Fig. 2). These statistics are from the listings in the Virtual Library of Museums. So museum use of the Web is following the same growth curve as other Internet statistics. According to the ACTS FAIR report, published by the European Commission, more European museums than libraries are on the Web.

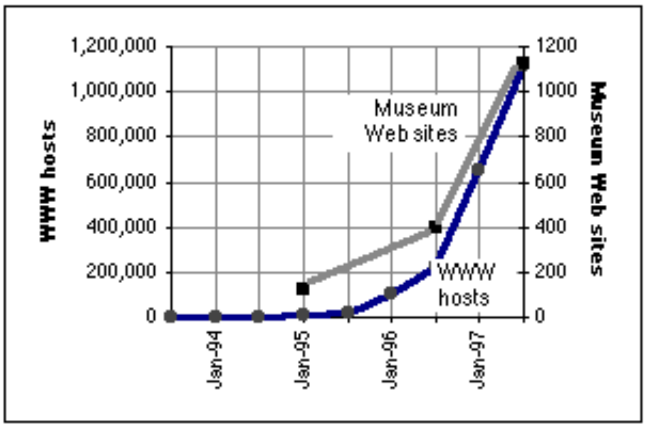

Fig. 2. The growth in numbers of museum WWW sites compared to that of the WWW as a whole

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Fig. 3 shows some broad geographic distributions of museum WWW sites. Western Europe has more museum WWW sites than does the USA. The UK and Sweden are the European leaders. Eastern Europe, particularly Russia, is adding sites fast, as is Japan. Factors that seem to encourage Web sites are: the presence of a central organization (CHIN in Canada; the MDA in the UK; the main ICOM site in Sweden; a central museum site in Russia); widespread use of the English language in the country (sadly, the Internet is presently overwhelmingly English); general spread of computers in the population. Not all museums that are on the Web will be listed in the Virtual Library, but most will be, and the trend is clear.

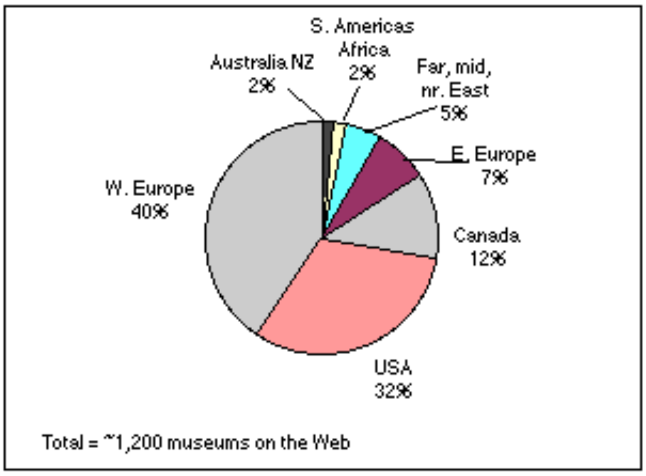

Fig. 3 Geographical distribution of museum WWW sites

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Popularity of museum Web sites

The administrators of the central World Wide Web Virtual Library publish figures for visits to the different subject categories. According to these statistics, museums are the most popular listing (followed by the USA government, Latin American Studies and Association Football).

The Web market: what we don't know

The vital information lacking is on the nature and number of users, potential users, and non-users of museum information; their habits and wishes. A survey similar to that carried out by commercial market research organisations - Nielsen in the USA, or National Opinion Polls in the UK - would be necessary to supply this. Web content is presently overwhelmingly in English. How attractive is this to people who have a non-English first language? A problem is that virtual visitors can actually live anywhere in the world, but it would be impractical to conduct a world wide survey. However, we know well enough where most of them are! We also lack reliable information on the extent to which museum Web sites encourage actual visitors.

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CD ROMS AND ELECTRONIC PUBLISHING

CD ROMs are also regularly predicted to be becoming old technology. But CD ROM/multimedia capability is standard in most new personal computers, and the ACTS report predicts that by 2000 around 60 million of European households will have a multimedia capable computer. In fact, the market for CD ROMs is still growing, but it is so new that it is very turbulent. Some publishers are pulling out, finding the return on the development cost too little, while others are joining (MAGNETS Report). An identified problem is that it is quite difficult for customers to know where to go to buy CD ROMs: book shops? music shops? electrical goods shops? None of these consistently has a good range. CD ROMs usually cost much more than people would normally spend on a book, and one can get no idea of what the contents are like before purchasing. In general, the impression is that although many potential purchasers have the necessary hardware, they presently have a hard time finding high quality, affordable CD ROMs.

Of CD ROM multimedia titles, 30 per cent originate in Europe (OASIS Green Paper). By 2000, electronic publishing could comprise 40% of the turnover of the publishing industry (INFO2000, From Scribe to Screen). But as the 1995 OASIS Green Paper reports, large US companies dominate: in 1995, Microsoft, Broederbund, Electronic Arts and Interplay (games) published 60% of CD ROMs sold. Sales are also increasing. For instance, in France, the electronics/leisure retailer, Fnac, sold 25,000 CD ROM titles in 1993, -> 250,000 in 1994, -> 1m in 1995. Of these, 50% were games, 20% business training/software, 18% culture/arts, 12% edutainment (OASIS Green Paper).

It is thought that the most successful museum products are the title, "Art Gallery", of the collections of the National Gallery, London, published by Microsoft; and the French Réunion des Musées Nationaux's CD ROMs, including those on the Louvre and on the paintings of Cezanne (ACTS report; MAGNETS report). In the general CD ROM market, some of the most commercially successful productions are small-run academic CD ROMs selling for thousands of UKP.

The museum CD ROM market: what we don't know

There is a comprehensive and highly informative review of the CD ROM market and costings in the MAGNETS report. There are many commercial surveys, but these are expensive. More comprehensive information on the exploitation of this market by museums is available in the IVAIN database, accessible on subscription.

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ON-GALLERY OR IN-MUSEUM MULTIMEDIA SYSTEMS

It is commonplace these days to find multimedia or interactive screen-based productions in museums and galleries, complementing the object-based displays.

Multimedia presentations within galleries are very similar in nature to those for the other delivery platforms. This form of multimedia production avoids risking the museum's information rights, helps to enhance the displays, and can allow visitors access to parts of the collections not displayed. Studies have shown them to be very popular with visitors. Such products may thus increase the number of visitors - still the most important measure of performance for most museums.

Although they do not at present generate income directly for museums, these productions are important. Through them, museums can become familiar on a manageable scale with what is involved in multimedia production (especially the true cost to them of generating the content), and derive benefit in familiar ways through enhancing their conventional gallery displays. The public use of them can easily be evaluated. Museums can also begin to generate content, such as digitised images, that can be reused in other multimedia projects. And these productions raise public awareness that this is a way to enjoy cultural heritage information. In the UK at least, more people visit museums than attend football matches, so the importance of actual visitors should not be overlooked.

On-gallery systems: what we don't know

There is no general information on the prevalence of these productions, but they are certainly popular with museums. The total spend on their production, including museum staff time for generating content, design and software production, and hardware, must be quite considerable.

OTHER DELIVERY PLATFORMS OR MECHANISMS

There is the potential for museum information to be delivered via interactive TV, 'set top boxes', etc. These technologies are still at an early stage, and user trials have not been very positive. Museums are not known to be using these at present.

On the near horizon is DVD (digital video disk) technology. DVDs are similar in nature to CD ROMs, but they will hold several times as much data, such as full length feature films. MARKET PREDICTIONS

The principal delivery platforms for the near future are seen by the ACTS FAIR report as being CD ROMs and the Internet, or similar online services, possibly with complementary or hybrid products developing. The INFO2000 report sees cable broadcasting as the next mass market for electronic publishing. Both predict very large markets. The ACTS FAIR report does not discuss the evolving standards for CD ROMs. New technology high-density products (DVD: digital video disks) may introduce uncertainty over compatibility when the market is already very sensitive to obsolescence. The memory of Cdi, video disks, the BetaMax video recorder format, and so on, must be quite vivid in many sectors of the industry. Uncertainty will also affect home investments in high-cost hardware and CD ROMs.

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ISSUES FOR MUSEUMS IN ELECTRONIC MULTIMEDIA PUBLISHING

Museum objectives

Museums have yet to fully formulate what are their reasons for using multimedia. Publishing in print format has been for them a peripheral activity: why should multimedia publishing be different? It may be argued that multimedia productions are a very good fit with museums' overarching objectives to interpret their collections. All forward-looking organisations are assessing their position in the predicted new age, and museums have as much reason as any to be affected.

Museums share with other organisations the difficulty of deciding what are the benefits from a presence on the World Wide Web, never mind actually reaping them. Are they after increased visitor numbers? An enhanced reputation? Income? Or simply to keep up with the Museum of the Joneses? As yet, it will have dawned only on the first ones in this field that the task of keeping up a high quality presence is an ongoing expense that will require very serious organisational committment.

Future audiences

It was really very surprising to find, in a survey undertaken for the European Commission's Memorandum of Understanding initiative, that most museums with sites on the WWW did not even count their virtual visitors. (However, in defence of museums, it is highly likely that this is equally the case for most other organisations with WWW sites.) If multimedia and electronic publishing are going to be important, how will museums address and evaluate their existing and future audiences? This will require some concerted thought about audiences and markets, rather than the 'try it because it's there' approach that has obviously dominated up until now.

Requirements of the multimedia market

Turning now to the viewpoint of the commercial players, the OASIS Green Paper identifies some of the main requirements for a market to develop that will deliver multimedia content to publishers and the public as:

Users must be able to discover what assets are available to them. This implies some sort of cooperative index or 'list of providers' system, as well as, crucially, search and indexing mechanisms, and perhaps expert staff, so that users can find what they require from the very large databases of assets. These could run into millions of digitised images in the case of commercial picture libraries.

Second, the owners must be able to protect their property and to get an economic return sufficient to ensure that they continue to be able to generate the assets. This implies electronic rights management systems, coordination over pricing, and simple ways of collecting revenue. Such mechanisms are already developing for performing rights and publishing copyright, but they have not yet been seen as useful by museums.

Third, there must be straightforward ways for users to obtain multimedia content, at a reasonable price. This includes copyright clearance and standard formats including the availability of technical, contextual and administrative information about the asset.

Most small to medium sized museums will lack the commercial muscle and experience to deal successfully with large commercial partners. There is safety in numbers! In general, it may be noted that museums are beginning to form or join cooperative groups, such as the Art Museums Network, in the USA, and AMOL, Australian Museums OnLine. SCRAN, in Scotland, could be seen as belonging in this category. It seems to be the case that existing organizations or initiatives are acting as coalescing foci. An existing organizational structure can help to overcome at least the first barriers.

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CONCLUSIONS

This paper has set out to describe the information that is available on the markets for museum information, in practice meaning multimedia products, and to give a taste of what is currently known. From this, there are some clear indications for the future.

Museums and the politics of information

Governments certainly see museums as important players in the economic future, as a defence against the submergence of national and cultural identities; or, conversely, as a means of strengthening a common identity in countries with dispersed populations, like Canada or Australia. They are also seen as important providers of the all-important content that will give us something to do with all this technology.

Building information assets

The digitisation of content is fundamental to any economically viable exploitation of the museum information market. Content encompasses not just collections images, but the related contextual material that makes them interesting. Just as countries have created actual museum collections, exhibitions and galleries, they now need to create 'information collections', the basis of their presence in the world of multimedia entertainment.

Two issues arise. There is the high cost of generating and maintaining, the basic digitised sources for multimedia content. Few museums have access to the risk capital to invest in the hardware, software, skills and time needed to develop large scale digitised collections, for no immediate return. The costs of permanently maintaining such multimedia databases have scarcely been discussed. Secondly, there is the expertise and ability to market such content, to attract and build the new audiences for it, and to distribute multimedia productions whether online or via media such as CD ROMs.

It seems inappropriate to leave the business of assembling content assets to the private sector. This, to a degree, is what is happening at present. A few large companies - Kodak, Corbis - have the foresight to make this investment. Some museums and museum groups are also in the game. The Canadian Museum of Civilization has been assembling a database of digitised images of its collections. The Art Museums Network is using a site licensing mechanism for its member museums' collections. SCRAN in Scotland is developing a multimedia asset bank.

Another route to developing these assets is through public investment. If the new long term future lies in information, then digitised information collections will constitute an economic asset to the community. Governments in several countries are presently considering whether and how they may assist museums to invest in building digital collections.

Productive partnerships

On the other hand, creating, publishing and promulgating multimedia productions is not something that museums are geared up to doing on their own. Here, there seems good reason to encourage public / private partnerships of one sort or another, as discussed in the MAGNETS report. Museums will do still do well to continue to form groups, so as to be in a better position to negotiate in these new and turbulent markets.

Essential relationships

New audiences are developing for museum information; many museums are obviously eager to take advantage of them. As ever for museums, long term objectives have to be served in parallel with immediate ones. The absolute necessity for success lies, as ever, in relationships: among museums themselves, and between public / private partners. To participate properly in these relationships, museums need continuing awareness of developments worldwide and in the market place.

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INFORMATION SOURCES

URLs have been checked at the time of writing. Most of those given are well established ones. Many of these WWW sites contain links to further information sources.

Futureology, the Information Age

International Futures Programme, "The Internet in twenty years: Cyberspace, the next frontier?". Riel Miller. OECD, 1997.
http://www.oecd.org/sge/au/highligh.htm
A good study if the Information Age and the Information Economy from one of the most respected economic development organisations.

The general market, and the electronic content industry generally

These reports deal with Europe, but discuss other countries as part of the context.

Europe and the global information society: Recommendations to the European Parliament (the Bangemann Report). European Council, May 1994.

http://www.earn.net/EC/report.html
The report was commissioned by the European Council from a group of prominent persons. It gives an overview of the impact of the Information Society on Europe, and sets the context for subsequent actions by the Commission. It summarises the global information market and recommends that immediate action needs to be taken within the European Union.

INFO2000: Proposal for a Council Decision. European Commission: DGXIII, May 1995.
The INFO2000 report is a communication from the Commission to the European Parliament and the Council. It proposes and defines a programme to stimulate the development of a European multimedia content industry, and to encourage the use of multimedia content in the emerging information society. It discusses in general terms the disadvantages suffered by the European market, identifies measures under way within the EU, and recommends Action Lines.

MAGNETS: ACTS Project Report, Brameur Consulting, March 1997.
http://www.brameur.co.uk/vasari/magnets/
Comprehensive review of the market, of relationships between museums and commercial companies, and of the technology. It is also a good practical demonstration of the shortcomings of electronic publication, being only available on the WWW.

ACTS FAIR report: Review of developments in advanced communications markets
ACTS FAIR / Databank Consulting, October 1996.
http://www.analysys.co.uk/acts/fair
ACTS (Socioeconomic impacts of advanced telecommunications) is one of the major DGXIII programmes. This is a comprehensive survey of the consumer market, infrastructures and platforms, the business market and Intranets, and public and social services. It includes statistics on PC and CD ROM publication and takeup in Europe, on Internet and World Wide Web use, and on using information technology to deliver public and social services, including virtual museums.

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The Internet

Cyberatlas. I/PRO. Updated regularly.
http://www.cyberatlas.com/market.html
I/PRO is an Internet marketing information services company based in the USA.This invaluable survey of surveys contains a series of 3-4 page discussions under headings such as Internet size, demographics, geographics, drawing together and comparing the results and conclusions of major recent surveys.

Network Wizards Internet Survey. Twice yearly, 1981-
http://www.nw.com/
Network Wizards is a Silicon Valley marketing company. This is one of the most-quoted sources for statistics on the size and growth of the Internet. The survey has been undertaken regularly since 1981, when there were 213 computers connected to the Internet. Each computer on the Internet is electronically polled twice yearly, in January and July. Also a list of other useful links.

Netcraft. Monthly statistics update.
http://www.netcraft.com/
Netcraft is an Internet information company specialsing in statistics on the use of World Wide Web software, and publishes regularly updated statistics on the total size of the World Wide Web.

RIPE Network Coordination Centre. Quarterly, 1990 -
http://www.ripe.net/
RIPE is the coordinating body for the Internet in Europe. It collects the same statistics as those from Network Wizards. Number of European hosts ('connected computers') has risen steadily from 31,724 in October 1990 to 3,358,686 in October 1996 - roughly doubling each year, as it has globally.

GVU's WWW User Survey. Graphics, Visualisation and Usability (GVU) Center, College of Computing, Georgia Institute of Technology, USA. 6 monthly report.
http://www.cc.gatech.edu/gvu/user_surveys/
GVU surveys are another well established service. The current one is the seventh in the series. It is not a random survey, since it relies on users volunteering information to it. However, it does give a lot of useful detailed information about users' behaviour (with health warnings that respondents have not necessarily told the truth). A list of other useful surveys and resources is provided.

Nielsen surveys. CommerceNet / Nielsen.
http://www.commerce.net/
Nielsen is a large commercial marketing company. These surveys are based on samples of the USA / Canadian populations. An excellent series of them since the advent of the Web has charted in detail the penetration of Internet use in the USA, and also the evolving characteristics of users, from youthful males towards something much more like the general population. Up to the latest, detailed official summaries have been avilable free of charge. A summary of 1997 results is available on:
http://www.womweb.com/commerce.htm

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Museums on the Internet

There are no surveys as such of museums on line. There are two comprehensive listings of museum World Wide Web sites: the Virtual Library of Museums, and the museum classification in Yahoo!'s directory. Other lists are not comprehensive. The MAGNETS report includes a chapter on museums on the WWW.

The Virtual Library of Museums. ICOM, regularly updated.

http://www.icom.org/vlmp/
This is a distributed listing of WWW sites by subject matter. The Virtual Library of Museums was started by Jonathan Bowen of the University of Oxford. There are now contributors from other countries, too. In total, 630 museums are listed. They are analysed by country and by subject.

CD ROM and electronic publishing market reports

The MAGNETS report contains a really comprehensive survey of the CD ROM publishing market, and costs. The ACTS FAIR report and the OASIS report also contain useful information.

INFO2000: Electronic publishing - from Scribe to Screen. Andersen Consulting, and Ienm (Techno-Z FH-Salzburg), 1996
http://www2.echo.lu/elpub2
Anderson Consulting is a global management and technology consulting firm. Offices and centres in Chicago, Palo Alto, California, France.

The Institute for Information Economy and New Media: The Ienm and the new polytechnic university college, Techno FH Salzburg, is Austria's first and only institution of higher learning dedicated to the Information Highway and Multimedia Development. Techno Z FH Forschungs und Entwicklungs Corporation is their not-for-profit operating research company.
OASIS Green Paper. OASIS, 1995.
http://cobham.pira.co.uk/oasis/

Platforms surveyed: Electronic content market, especially in Europe
OASIS is a consortium of multimedia organisations. This Green Paper was compiled partly through general information gathering, partly through a series of Forum meetings for publishers, users, etc. It is a thorough review of the issues concerning the new and immature market for electronic content. Useful because it conveys the viewpoint of commercial electronic publishers.

ITEM (Image Technology in European Museums). IVAIN (International Visual Arts Information Network), updated six monthly.
http://www.ecna.org/dacor/profiles/ivain.html

IVAIN is a not-for-profit enterprise which aimes to promulgate information about museum electronic information. The Image Technology in European Museums and art galleries database

(ITEM) is a comprehensive information resource on uses of image technology in Museum and Art Gallery collections and exhibitions.