

ELECTRONIC PUBLISHING CONSEQUENCES FOR LIBRARY SERVICES

Offentligt föredrag på UB 2 fredagen den 5 mars kl 9.00-10.00

UB 2s WAIS-projekt "Lunds Universitets Elektroniska Bibliotek" får under vecka 9 besök av en av Europas ledande experter inom området "Elektronisk publicering".

Dr. Achim OSSWALD från Frankfurt i Tyskland arbetar som konsult åt bibliotek och informationscentraler, för närvarande med biblioteks-datoriseringen i det Schweiziska Nationalbiblioteket. Under sommar-terminen kommer han att undervisa vid Fackhögskolan för Biblioteks-väsen och Dokumentation i Stuttgart.

Sedan 1986 har Osswald forskat och författat en lång rad artiklar inom ämnet elektronisk publicering, sammanfattade i dissertationen 1991 med titeln "Dokumentleverans i den elektroniska publiceringens tidevarv" (Inst. för Informationsvetenskap, Univ. Konstanz). Han har också under flera år varit docent vid det tyska Utbildnings-institutet för Dokumentation i Frankfurt.

Föredraget hålls på engelska, tolkning av frågor och svar mellan svenska och tyska kan ordnas.

Plats: UB 2s undervisningslokal, John Ericssons väg 4, Lund
Tid: Fredagen den 5 mars 1993 kl 9.00

Närmare upplysningar: Traugott Koch, tel 046-10 92 33

Electronic Publishing -

What does it mean and what are the consequences for library services ?

0. Introduction

Most of the changes we are facing in the library and information field are caused by EDP. This is nothing new. Nevertheless it is still a topic of conferences and papers, of journal articles and discussions. So it is the topic of my paper I have the pleasure to present to you today.

I will not talk about problems a lot of libraries have not solved during the last decades. This has several reasons: one is that you of Lund University Library have a lot of experience in library automation which rather might be a reason for Germans to come to your library and see how library automation works - and not the other way around. Another reason is that you have a group of staff members who are famous for their future oriented services they offer to members of Lund University as well as to the library community all over the world. So what is the topic I want to talk about today? It is Electronic Publishing (EP)- something you surely have gathered experience with during the last years. This will be a good chance to get into a discussion, e.g. about the consequences of EP we have to face in the area of library services.

Let me start with a thesis: Electronic Publishing will cause fundamental changes. I will explain that looking at the work flow inside the library. I want to give some examples how EP will influence our work specially what kind of library services influenced by EP can be offered to our users or clients in the future.

These are the topics I want to talk about:

1. Electronic Publishing - What does it mean?
2. In the focus: Electronic publications
 - 2.1 What are the characteristics of electronic publications?
 - 2.2 What types of electronic publications are available?
 - 2.3 What kind of capacities do electronic publications have?
3. What are the implications of the specifics of electronic publications?
 - 3.1 Consequences for "bibliographic" description
 - 3.2 Consequences for indexing
 - 3.3 Consequences for the information of potential users
 - 3.4 Consequences for the presentation of information
 - 3.5 Consequences for the long term usability and accessibility
4. Conceptual conclusions regarding library services

1. Electronic Publishing - What does it mean?

EP is the keyword for a development which will change our concept of publishing and publications fundamentally (Osswald 1992a:22). Essential for the different meanings of EP is the goal to change the process and the results of publishing by means of information and communication techniques.

By analyzing EP it has been helpful to differentiate the concept of EP between process oriented and product oriented aspects (Osswald 1991; Osswald 1992a:35-40).

Process orientation means the innovations which make the electronification of the publication process possible: e.g. the production and delivery of machine readable manuscripts as well as their processing in the electronic information chain - disregarding whether the product will be printed on paper or electronically. The origin of these changes is clear: making the production process more efficient. A result of this change is, e.g. the development and application of SGML-editors which make the markup of texts possible by following a logic concept.

Product orientation focuses on publications which are presented to the clients electronically. I will emphasize on these publications during my presentation. The reason for that is very simple: It is the result of EP, those electronic publications, we are confronted with in our work.

2. In the focus: Electronic publications

2.1 What are the characteristics of electronic publications?

It is a matter of fact that there are a lot of definitions which try to explain what electronic publications are. To agree on their adequacy and usability seems to be impossible because the publications we see and use are very different - and so are the definitions (see e.g. Dijkhuis 1985). Therefore I only want to lay emphasis on two main characteristics of electronic publications.

The first one seems to be an obvious technical aspect: electronic publications are in **digital format**. Of secondary importance is in which way the digitizing was done, e.g. whether the publication is facsimile, an ASCII-file or marked up following a logic concept. It is the same with the type of storage media used for electronic publications. Whether a publication is on CD-ROM, on a WORM, an Erasable Disk, accessible offline or online should be regarded as secondary.

In the context of digitizing we have to consider a trend in EP: more and more it is not only text which is digitized but also graphics, pictures, music, speech and movies.

The second aspect I want to emphasize is the **concept of public spheres**. Electronic publications should be accessible by the public like publications printed on paper. This is the decisive difference compared to private documents, e.g. office documents. We all know that the concept of public spheres is undermined by the technology of EP. Therefore this concept gains more importance than ever and accessibility should be the basic criterion for calling it a "publication".

2.2 What types of electronic publications are available?

Looking at the product side of EP we can differentiate between **parallel publications** (Clarke 1989) and **"fully electronic publishing"** (OAL 1983 Tz4). Parallel publications are those products which are available also in printed form regardless which presentation was the first one. The term "fully electronic publishing" is used for those publications which are available only electronically. But this classification gets more and more mixed by the developments of the information market.

By analyzing the available products people often use categories created on the basis of the traditional publication concept. Examples are terms like "electronic journal" or "electronic book" (Barker 1992). But it is not clear in which way criteria of the traditional print-on-paper concept are applicable on these publications. E.g. it is a matter of fact that most of the characteristics of traditional print-on-paper products are complementary to those of electronic publications (Bailey 1991). A lot of these features - developed over hundreds of years - are elementary for publications printed on paper. Electronic publications need superior characteristics - if they should replace the products of the print-on-paper world. As far as I can see this is still a long way to go.

2.3 What kind of capacity do electronic publications have?

It is not possible to give a comprehensive comparison of features shown by printed and electronic publications in this short paper. Nevertheless we have to keep in mind that the features for presentation and usage developed for print media during five hundred years are used as comparing scale for electronic publications. This does not really make sense because the strength of electronic publications can not be shown by competing with those of printed material. Instead of that we should look at the capacities which are made possible by the digitizing, e.g. **selectivity, interactivity and multimedia**. Additionally the **independence from place and time** create favourable conditions.

Another feature which should be considered as very important is the possibility to obtain data out of electronic products using it in other publications - as long as the copyright is with us. By these means electronic publications offer **value adding options** (Taylor 1986; Kuhlen 1991) which have never been possible in that way with printed publications.

To summarize, electronic publications do have features which are little similar to printed publications. Therefore we have to change our working procedures when handling them. We also have to use them in different ways compared to those printed-on-paper. Logically we will offer different services based on these electronic publications.

3. What are the implications of the specifics of electronic publications?

It makes a difference if the electronic publications are available locally or somewhere else accessible by telecommunication procedures. I will not emphasize that point. Instead I will focus on electronic publications available on a storage media at our desk. This will show main aspects relevant when talking about usage in a library context. Nevertheless the following aspects are only a small part of the changes within a library we have to face when

using electronic publications. Our analyses would surely get more difficult by laying emphasis on publications available over networks like the Internet.

The problems I want to talk about now are

- a) the "bibliographic" description,
- b) the description of the content,
- c) the information of potential users about content and options of usability,
- d) the possibilities of presentation and
- e) the long term usability and accessibility of electronic publications.

3.1 Consequences for "bibliographic" description

Most of you will know the problems we had and still have by recording non-book-material, perhaps even electronic publications. Beside the national standards we have standards for the description of electronic publications, e.g. the ISO standard 10956 called "Information and documentation - Bibliographic references - Electronic documents or parts thereof". In a paper presented at the Essen Symposium 1991 (Osswald 1992b) I described some shortcomings of that standard which I would like to mention here again because as far as I know the standard has not been changed concerning that aspect. An example taken out of the standard's description will explain what I mean. Following the standard more than half of the description of the CD-ROM "Books in print plus" concerns the system requirements which should be added to the standard bibliographic description - just to give the user an idea under what circumstances the CD-ROM can be used.

"Books in print plus: the complete Books in print system on compact laser disk <database on CD-ROM>. 5th ed. New York: Bowker Electronic Publishing, Jan. 1990-. Updated quarterly. 2 computer disks: colour, 5¼ in. or 3½ in.; 1 compact disk. Accompanied by: 1 manual. (Books in print plus series). System requirements: IBM PC, XT, AT, PS/2 or full compatible; 640 K memory; DOS 3.1 or higher; hard disk recommended or 2 5¼ in. or 3½ in. floppy drives; monochrome or colour display; compatible MS-DOS Extensions device driver required; CD-ROM players supported include Amdek Laserdrive 1000, Hitachi 1502 or 1503 or 2500 or 3500, Philips LMSi 100 or 110 or 121 or 131 or 201 or 210 or 212." (ISO/CD 10956:18)

To know what kind of system requirements exist to read and use an electronic publication is not only an essential point for the user but also for all those who are concerned with document delivery. Therefore it is not acceptable that information about the system requirements is called "optional". According to the ISO-standard there are only some specifications as to which components of a hard- and software configuration are to be described. The supplementary field "Information concerning system requirements" is only explanatory. These explanations should "include the specific make and model of computer on which the program is designed to run; the amount of memory required; the name of the operating system and its version; the software requirements; and the kind and characteristics of any required or recommended peripherals. ... To reduce ambiguity, it is suggested that the words 'System requirements:' or an equivalent precede this information." (ISO/CD 10956:10)

There is only a small chance for a librarian to get all the relevant data of the technical environment necessary to use the electronic publication. Such information can "only be achieved with the cooperation of those who produce, store and distribute computerized information" (Dodd 1982:48). To reach that objective we have two possibilities:

- a) The system requirements may be added to the source itself which may thus follow the concept of "autopsy". But there is catch: Reading about those "system requirements" presumes that the work, which remains to be done, has already been done. The data has been read in a computer environment and essential system requirements have been fulfilled.
- b) Information about the system requirements should be added on obligatory accompanying material or on an additional label accompanying the storage medium.

The system requirements themselves can be shortened by creating macro descriptions for typical configurations of hard- and software. Such configurations might be agreed on by publishers, user groups and - very essential- by the information industry. But until now no such initiative has been forthcoming. Even the MAJOUR SGML-document type definition for article headers which has been developed by the European Workgroup on SGML (EWS 1991) doesn't offer a solution to the problem yet.

The question of bibliographic description will get difficult additionally by some other developments: e.g. looking on hyperdocuments we see that the traditional concept of authorship gets lost. Hyperdocuments have several authors concerning special aspects of such publications (Osswald 1992a:70-72).

Additionally those documents are good examples for a trend which leads away from the traditional print paradigm. Issue, page and all the other terms assigned to publications printed on paper will be less usable to describe electronic publications in a proper way (Jul 1992). These categories might be undertaken by some others which - as far as I can see - have not been developed or agreed upon (Barker 1992).

3.2 Consequences for indexing

Electronic publications cross the border of the traditional understanding of documents. Their size and variability as well as their presentation differs from print media. Specially the trend to multimedia asks for new concepts describing the content of these publications. We should see how experiences of media archives can be helpful in solving that problem. They have a lot of interesting expertise about (moving) pictures, speech and music. We should look for the possibility of cooperation with institutions like these to reach our goal: being prepared to inform our (potential) users about the electronic publications available and to open our clients access to the electronic part of the information world.

In contrary we face a trend of reduced willingness and ability of indexing. This is caused by the increasing amount of publications available which can not be handled in the same way as we did this when we dealt with a tenth of them. Therefore we need more sophisticated means to structure documents and allow access to them by textual criteria.

First results of a project sponsored by the European Community give a good example for such kind of content description on a formal, logic basis. European standards are described with SGML, the Standard Generalized Markup Language, and following that concept we

have access to special parts of the content - getting help from the structures of the text (which recur implicitly to the traditional print paradigm).

3.3 Consequences for the information of potential users

As a consequence taken from the problems of the bibliographic description and the adequate indexing of electronic publications we have to recognize that users still see those publications as they do when thinking of a journal article or a book. Even if they have positive connotations when thinking of the electronic media they will lack the traditional appearance of publications they have been used to. This also means they can not use their traditional manners of usage. Even if electronic publications have indexes and tables of content - features which recur on the print paradigm - the access to them is provided by the retrieval machine. And we know from several retrieval tests using Boolean searches that the matching paradigm is not really a successful procedure (Riehm et al. 1992:177-200). Therefore we need procedures which are using concepts of syntactical or semantical retrieval. Those intelligent functions of new library systems will be necessary not only for the users of our libraries but also for ourselves. Because it is also us who are not able any longer to keep trace with the variety of products and services available on the information market. We have to get help by intelligent programs and machines offering gateways to the information available - and not only in a technical way (Osswald 1993).

Due to reduced budgets we have to be aware that it will not be possible to offer services personally to all our clients. Therefore we need help by procedures which allow to transform and process individual questions on texts and electronic publications which are a part of our stocks automatically.

3.4 Consequences for the presentation of information

Like today parts of electronic publication will be offered on paper - printed on demand or just as print publications. But other ways of output will get much more important. E.g. voice output, output on fax machines, mailboxes or any other electronic storage media will be additional options. Users will - like today - download data on their own storage media because it is only the electronic media which offers them additional options for usage or e.g. value adding services. Users will do that not only when staying inside the library but also from their office. Reasons to go to the place where publications are available will decrease. Instead access to electronic publications like we are used to have it to (online) databases of e.g. referral information will get usual. Online access to electronic publications will increase because it offers the possibility of interactivity. The alteration of questions, answers and again questions will allow users to specify their interests and gain new competence.

What are the consequences for us as staff members of library and information centres? We should be able to teach our users how to get these new qualifications. But to be able to do that we first will have to learn to use these features. This means the creation of a two-sided know-how: to know about the information and the features to access it as well as to know how to transfer that knowledge to users. This will be a new kind of competence, e.g. in

teaching tutorials, because it is the library which will be the place not only to get information but also the knowledge how to get it.

3.5 Consequences for the long term usability and accessibility

Today we have a lot of problems with usability and accessibility of publications printed on paper. While we look for means fighting the acid in the paper we face a problem which will get much more complicated: the accessibility of electronic publications. It is not only the life span of e.g. optical disks, but also the availability of special configurations of hard- and software which will be necessary to access special electronic publications. No system vendor will guarantee these configurations. And how long will we have staff members being able to use these hard- and software configurations. There is a danger that libraries will become the technical museums of the coming age.

Even if there is some hope because large (national) libraries start projects to find solutions to that problem we can not be sure that they will succeed. There are a lot of economical and legal problems to solve (Pijnenborg 1991; Garrett 1991).

4. Conceptual conclusions regarding library services

To summarize some of the aspects mentioned:

- a) electronic publications will need specific methods to manage their integration into the existing stocks of libraries;
- b) electronic publications have special features of which selectivity, interactivity and the chance to reuse the data should be emphasized;
- c) electronic publications require special equipment, software and know-how to make them available in future times;
- d) electronic publications will change the relationship between staff members and users of libraries.

These few - and surely incomplete - implications resulting from EP and electronic publications show how our work will be changed. But this does not only mean changes in the internal work flow but also changes in the services we will (or have to) offer to our customers.

We as members of information providing organizations and institutions will have to clarify which rank electronic publications should have in our concept of information provision. CD-ROM and online access to databases is only the beginning of this task.

Even if - until now - electronic publications represent only 5 % of the available knowledge we have to be aware that this percentage will increase and get differentiated in every discipline. We should take care of that development to make sure that there will be no diversification of the library world in those who have access to electronic publications and those who have not. Electronic publications should be seen as a complementary way of providing information offering new chances to our users. We should help our users by offering access and helping them in getting access. This means new kinds of services. It is a chance we have - we should use it before some others will do it ...

References:

Bailey 1991

Bailey, Charles W.: Electronic (online) publishing in action ..., "The Public-Access Computer Systems Review" and other electronic serials. - In: Online 15 (1991) 1, 28-35

Barker 1992

Barker, Philip: Electronic books and libraries of the future. - In: The Electronic Library 10 (1992) 3, 139-149

Clarke 1989

Clarke, J.E.: A review of parallel publishing, London 1989 (British Library Research Paper 75)

Dijkhuis 1985

Dijkhuis, Willem: Electronic publishing - a taxonomy of definitions. - In: Electronic Publishing - Corporate and Commercial Publishing. Sitzungsberichte der internationalen Konferenz in London, November 1985, 169-181

Dodd 1982

Dodd, Sue A.: Cataloging machine-readable data files. An interpretive manual, Chicago 1982

EWS 1991

European Workgroup on SGML (Hrsg.): MAJOUR. Modular application for journals, DTD for article headers, o. O., 1991

Garrett 1991

Garrett, John R.: Copyright compliance in the electronic age: Conceptual issues. - In: Publishing Research Quarterly 7(1991/92) 4, 13-20

ISO 10 956

International Organization for Standardization / TC 46 (Hg.): Information and Documentation - Bibliographic references - Electronic documents or parts thereof, Berlin 1991 (Stand 1991-01-21)

Jul 1992

Jul, Erik: Electronic Publishing. Electronic journals in a print-on-paper world. - In: Computers in Libraries 12(1992) 2, 37-38

Kuhlen 1991

Kuhlen, Rainer: Zur Theorie informationeller Mehrwerte. - In: Killenberg, Harald (Ed.); Kuhlen, Rainer (Ed.); Manecke, Hans-Jürgen (Ed.): Wissensbasierte Informationssysteme und Informationsmanagement. Proceedings des 2. Internationalen Symposiums für Informationswissenschaft (ISI '91) zusammen mit dem 17. Internationalen Kolloquium für Information und Dokumentation, Konstanz 1991, 26-39

OAL 1983

Office of Arts and Libraries (Hg.): The impact of electronic publishing. - In: Electronic Publishing Review 3(1983) 4, 281-302

Osswald 1991

Oßwald, Achim: Perspektiven des Elektronischen Publizierens in Deutschland. - In: Nachrichten für Dokumentation, 42 (1991) 2, 115-127

Osswald 1992a

Osswald, Achim: Dokumentlieferung im Zeitalter Elektronischen Publizierens. Die mediale Differenzierung öffentlich zugänglicher Dokumente als Grundlage der Flexibilisierung von Verwertungsinteressen, Konstanz 1992 (Schriften zur Informationswissenschaft; 5)

Osswald 1992b

Osswald, Achim: Identification of Electronic Documents - The Diversification of Document Supply and its Consequences for Document Description. - In: Helal, Ahmed H. (Ed.); Weiss, Joachim W. (Ed.): Libraries and Electronic Publishing: Promises and Challenges for the 90's, 14th International Essen Symposium 14 October -17 October 1991, Essen 1992, 83-95

Osswald 1993

Osswald, Achim: Intelligent Gateways: Functions for the Benefit of the Electronic Library. - In: Helal, Ahmed H. (Ed.); Weiss, Joachim W. (Ed.): Opportunity 2000: Understanding and Serving Users in an Electronic Library, 15th International Essen Symposium 12 October - 15 October 1992 (Publication announced)

Pijnenborg 1991

Pijnenborg, Mari: The digital library environment: political und legal implications. - In: Iatut Quarterly 5(1991) 4, 237-244

Riehm et al. 1992

Riehm, Ulrich; Böhle, Knud; Gabel-Becker, Ingrid; Wingert, Bernd: Elektronisches Publizieren. Eine kritische Bestandsaufnahme, Berlin u.a. 1992

Taylor 1986

Taylor, Robert S.: Value-added processes in information systems, Norwood 1986