

Weinberg Report 2000

FIRST INTERNATIONAL CONFERENCE ON GREY LITERATURE

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AMSTERDAM, THE NETHERLANDS

DECEMBER 13-15, 1993



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Weinberg Report 2000

First International Conference on Grey Literature

■Reports ■Proceedings ■Dissertations ■Bibliographies ■Manuals ■Etc.

GL '93

RAI Congress Centre
Amsterdam, The Netherlands

December 13-15, 1993



Conference Proceedings

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Acknowledgements

In the year and a half of preparations leading up to the First International Conference on Grey Literature (GL'93), there was an almost inherent mission to collect and order the already existing body of knowledge in the field of grey literature and to promote research and investigation in this area.

GL'93 has certainly succeeded in that initial endeavour. On the 13-15 December 1993, more than 200 delegates and participants from 28 countries met in Amsterdam to present and discuss some 40 scientific and technical papers on the State of the Art in Grey Literature. In the pages which follow, you will find the full text of those papers presented both in the Plenary as well as in the Cluster Sessions.

It is indeed appropriate, here, to thank the Sponsors of GL'93 and the Program Committee members and their organisations for the professional support they provided throughout the planning and preparations for the conference. Special thanks go to the Netherlands Ministry of Education and Science for its grant making it possible for those participants from Developing Countries to attend GL'93.

Finally, a sincere word of acknowledgement to the authors and speakers at GL'93, who contributed their resources and expertise in the research and development of Grey Literature. It remains the primary goal of the conference organiser to see that their research results and findings receive the promotion deserved.

Hopefully, the authors and researchers will be persuaded to continue their efforts and provide an intellectual contribution to the Second International Conference on Grey Literature (GL'95) planned to be held in the United States of America in the Autumn of 1995.

Dr. Dominic J. Farace,
Chairman Program Committee

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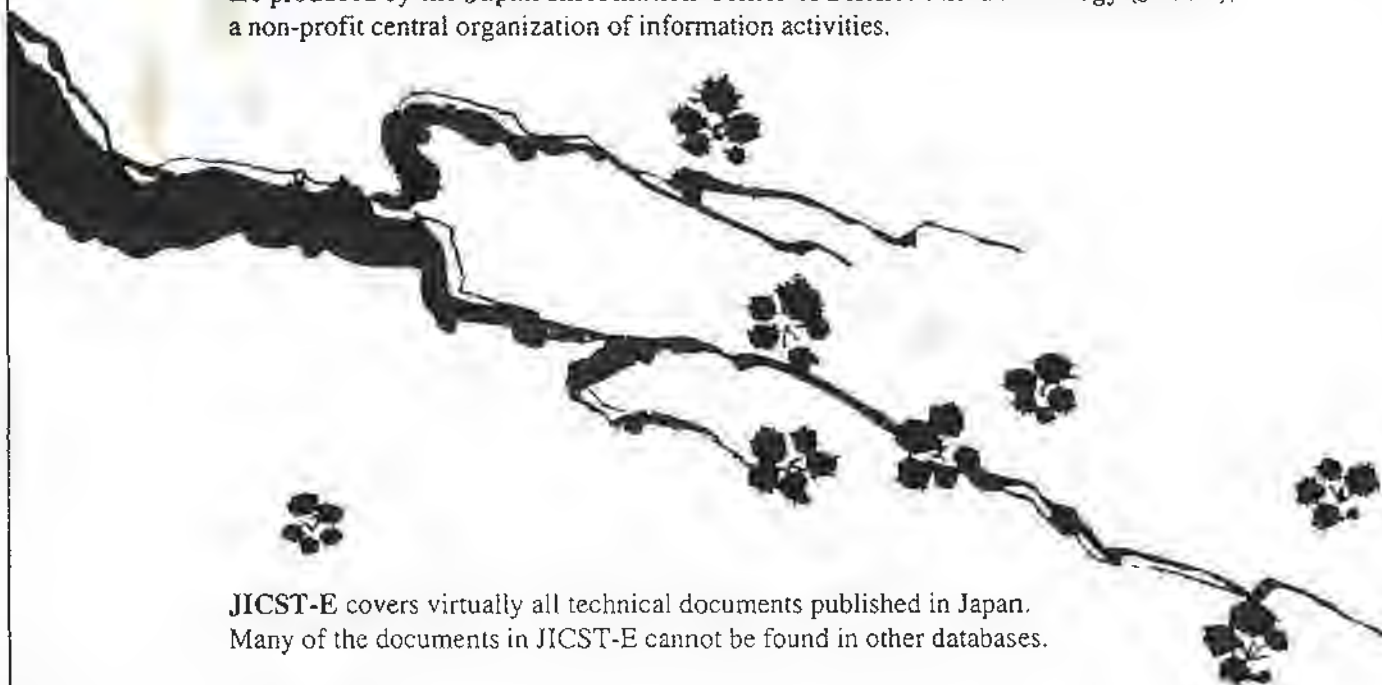


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Source: Technical reports, conference proceedings, government documents and approx. 8,000 journals and periodicals

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JICST

Ladies and Gentlemen,

It is with great pleasure that I accepted the request to speak to the First International Conference on Grey Literature.

The subject of this conference -Grey Literature- is very interesting, but it is a very difficult one at the same time. It has everything to do with the way we communicate in science. And therefore it is a subject not only of importance for librarians, documentalists and other information specialists, but also for scientists. And the government usually also gets involved because information is easily related to the responsibility government bears for the infrastructure of higher education and research. It is amongst others for this reason I decided to give a financial contribution to the organisers of this conference in order to enable interested people from developing countries to attend the conference.

A second reason for me to accept the invitation is the good idea the organisers had to ask attention for the ideas of Alvin M. Weinberg. As chairman of the President's Science Advisory Committee he advised the President of the United States of America by producing the famous report "Science, Government, and Information. The Responsibilities of the Technical Community in the Transfer of Information", now thirty years ago.

Let me turn back to the first point, grey literature. The role and significance of grey literature is strongly changing the last years. The new electronic techniques are causing a fast growth of grey literature. In a way, we can say that by the growing use of electronic devices like bulletin boards, discussion lists and the like, information is growing grey.

The scientific information exchange has got a less formal character. It resembles more and more direct communication in the form of a dialogue. In other words with the easy use of SURFnet in the Dutch context or Internet in an international context the communication of scientific and technical information tends to get the character of a more or less private correspondence, much the same like in the old days when scientists exchanged letters. In this way, of course, information is a short living product, tied to the moment and content of this dialogue, and it will not or hardly be reflected in a formal document to which one can refer later on. Science faces so a real danger of reverting to the privacy of the seventeenth century.

Furthermore every scientist can now easily produce his own

publication with the help of electronic devices like desk top publishing. So we get reports and periodicals with a very limited circulation.

With these technical developments the problems of grey literature are becoming still more untransparent. Thorough thinking is necessary more than ever to answer questions like:

- what is the quality of grey literature in comparison with "white" literature?
- which part will be "whitened" and how long will that take?
- what is the use of grey literature in relation to "white" literature?

A conference gathering experts from all over the world will undoubtedly bring the answer to these questions nearer to a practical solution. I hope, some answers will be given during this conference. Other will be the result of research started as a consequence of this conference.

The role of the government in this regard as we see it here in the Netherlands is limited. The government's role is aimed at stimulation and creation of favorable conditions. The scientists and information specialists themselves must organize their own matters. Later on in my speech I will come back on this subject.

Now I would like to say something on my second theme: Alvin Weinberg, and thereby on science policy. In the title of this conference you refer to Alvin Weinberg. Alvin M. Weinberg was for many years director of Oak Ridge National Laboratory, Tennessee, United States of America. In this position he was a very active and influential thinker in the field of science policy. He had a special interest in criteria for making scientific and societal choices as well as the potential contribution of the big research institutions to science education.

He brought his ideas, which were scattered in many essays and reports, together in a book under the title "Reflections on Big Science". These reflections are still very worthwhile to read. As becomes a great scientist, Weinberg reflects on really big world problems like the population expansion and the concomitant expansion of energy and information, the new social structures caused by the new technology, the effects of the organization and financing of Big Science on the nature of scientific inquiry and -this last subject will interest you here especially- the role of the scientist (which is distinct from, and as vital as the role of the documentalist) in closing the Information Gap.

The lessons Weinberg teaches us on the role of the government in handling scientific information are still of interest for us. In his "Reflection on Big Science" he says the following: "Insofar as good scientific communication is a prerequisite for healthy science, and especially, efficient science the government must be concerned about science's communication system". Further on he gives a second reason for the commitment of the government, in saying: "This has to do with the validity of science as a responsible undertaking largely supported by the public. The "refereed" literature, by means of which scientists criticise each other and maintain the standards of science is one of the most important means of maintaining science as a responsible undertaking. It should therefore be a matter of great concern to the government that supports science if traditional means of establishing and maintaining the validity of the scientific enterprise are submerged in a torrent of uncontrolled scientific information".

Weinberg was very conscious of the importance of information. He was a fervent advocate of an upgrading of the information activities. In his view, the responsibility for information activities would be part of the research and development arm, not of some administrative arm of the research institution, as is often the case.

The ideas of Weinberg, expressed in the report "Science, Government, and Information" of 1963 and incorporated in his earlier mentioned "Reflections on Big Science" had much influence on the development of information handling in the whole world. Though more geared to the American situation the report contains several points which, in an adapted form, were important for the Netherlands.

Shortly after the publication of the report librarians and documentalists in the Netherlands became active. As a consequence of that action the government installed a Working Group for Scientific and Technical Information. The chairman of this working group was professor Böttcher. The advice of this working group led to the establishment of an organisation which must deal with the whole chain of information exchange for science, technology and trade and industry. This organisation got known under the acronym NOBIN which was the direct predecessor of the Netherlands Bureau for Libraries and Information.

But even nowadays the ideas of Weinberg can be traced back in very recent developments. For just one year ago the Netherlands minister of Education and Science expressed his ideas to the Parliament, as to how the field of providing information for science and technology must be structured. Information is essential for science as well as trade and industry. The Dutch government will not withdraw from her responsibilities for a

coherent policy which is focussed on an optimal structure and functioning of the public information system. It is a concern for the government to take stimulating measures for cooperation and coordination between the different partners in the information field.

Some key words of this new policy are:

Firstly, since information is vital for the primary objectives in the field of education and science, policies for information need to be organized at the highest level in university and research institute.

Secondly, cooperation and networking are given preference to a hierarchical relation under a national umbrella organization. This cooperation and networking must not be brought in top down, but preferably be realised by the interested parties themselves. So there remains room for the dynamics of change. Weinberg would undoubtedly agree with this. He warned already for the imminent danger of 'domination by the government'. He would say: user-sensitive systems must not be swamped by elaborate government systems that are less user-sensitive. But perhaps still more important is a international argument. What is in this time of global communication, knowledge and information the rationale for organising centrally all those information functions on a national level? Other connections are perhaps more functional, but must arise from well organised local and regional centres. A national organisation can nowadays by definition only be an intermediate stage. But it is of course important to have an eye for the national interests and therefore to optimise on advantages for the own country.

Thirdly, the emphasis at this cooperation must be laid on innovation, rationalisation and efficiency. This requires a driving force. A motor stat stimulates the renewal, starts innovating projects and coordinates actions. Furthermore such an organization has to persuade autonomous institutions to cooperate by concluding contracts. So problems can be tackled which can only be solved in cooperation. the institutions remain free to do locally what best can be done locally. There is no need for them to feel hindered or bullied. We are still thinking of the place and managerial form of this driving organization. New applications of information and communication technology can cause essential innovations in science. Many examples can be given here. You will forgive me if I mention here a few Dutch examples. I think of the I T initiatives in the library of the Catholic University Brabant in Tilburg, the Open Library Network project of PICA and the interesting Telemann-project of SURF in the Catholic University Nijmegen. This last project aims at offering datacommunication facilities for working at home for scientists and students. By emphasizing the innovative function there will arise possibilities for a stronger participation of the Netherlands in European projects.

In the meantime the boards of governors of the universities

and the research institutions as well as the Royal Library have organised a so called Platform for Innovation Scientific Information. A Steering Group has been charged with the day-to-day management. The Platform has formulated a plan of action, in which they mention some clear areas for special attention. An important first point is the problem of copyright.

You notice that in the Dutch information world many things are ongoing. Much has already been done, still more needs to be done. I am sure that the results of this conference bring us a bit further. Stepping on the shoulders of a heavy weight thinker like Alvin M. Weinberg you can strengthen your own arguments for realizing a better information exchange and communication in science.

I wish you a fruitful conference.

Address

of Dr. P.A.J. Tindemans
Director of Research and Science Policy
Netherlands Ministry of Education and Science

on the occasion of the opening of
the First International Conference on Grey Literature

on 13 December 1993
Forum Hall, Amsterdam RAI Congress Centre

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EAGLE congratulates Dr Dominic Farace for the excellent way he organized the First International Conference on Grey Literature. This initiative will contribute to a better understanding of the nature and value of grey literature for the research community.

Grey literature - establishing a clear identity

C P Auger

Peter Auger Research Services, 82 Malvern Road, Redditch, B97 5DP, United Kingdom

Abstract

Grey literature may be said to have come of age with the holding of the first international conference devoted solely to its consideration. Due recognition can now be given to the considerable achievements of those persons and organisations responsible for the establishment of collections, announcement journals and databases. Henceforth the exploitation of the medium will depend to a great extent on the successful influencing of two quite distinct groups of interested parties - the originators of grey literature documents and the end users of such material. The originators need to be made aware of a new channel of communication which ensures the proper recording of and the maximum accessibility to their output; and the end users need to be made aware of new ways of tapping into an information source hitherto regarded as a difficult area. The paper takes an independent look at the grey literature scene, especially with regard to its growing diversity, and considers likely developments as all the efforts of the past are consolidated and expanded.

1. INTRODUCTION

Grey literature has been described by an American librarian as 'a term which originated with British librarians'. Whether or not this assertion is strictly true, there can be no doubt that the concept of grey literature has now spread far beyond the British Isles, as evidenced by the present conference here in Amsterdam. It is a convenient term generally defined as 'literature which is not readily available through normal bookselling channels, and therefore difficult to identify and obtain', and its main constituents are reports, especially research and development reports; translations, particularly of scientific and technical papers; theses and dissertations; meetings papers and conference proceedings; and certain national and local government publications.

Each of these categories has its own well-established, comprehensive bibliographic guides, as for example Scientific and Technical Aerospace Reports (STAR); World Translations Index (WTI); Dissertation Abstracts International (DAI); Indexes to Scientific and Technical Proceedings (ISTP); and Catalogue of British Official Publications not Published by HMSO.

Grey literature is unusual in that it is the format rather than the subject content which determines whether a document is to form part of the genre. Normally announcement services and databases are subject-oriented, as for example Engineering Index and Chemical Abstracts.

Two other areas do indeed treat material firstly by format and then by subject, namely patents and standards specifications. Such documents however constitute self-contained areas subject to rigorous internationally recognised bibliographical control. Patents and standards are not generally thought of as being available through the book trade, but equally, because they are so well organised, they are not considered part of the grey literature either.

At least one English language journal is devoted solely to the announcement of all categories of grey literature, namely British Reports Translations and Theses (BRTT), and input from this publication, along with entries from a number of European bibliographic

centres, is supplied to the SIGLE database, where SIGLE of course stands for System for Information on Grey Literature in Europe.

2. AWARENESS OF GREY LITERATURE

Awareness and indeed acceptance of the term grey literature is very patchy. In Europe the term has been used consistently since the late 1970s. In the United States the term seems to have been accepted with some reluctance, and references to gray literature (for so the spelling must be) are relatively sparse in American professional journals.

American librarians and documentalists certainly know what the term means, but they seem most disinclined to use it. Many indeed still argue that an older, better understood term, that is to say reports literature, should never have been displaced.

Another aspect of the awareness problem can be illustrated by reference to Molière's *Le Bourgeois Gentilhomme*, wherein the following exchange takes place:

M Jourdain:	What? when I say "Nicole, bring me my slippers, and give me my night-cap", is that prose?
Philosophy teacher:	Yes, sir.
M Jourdain:	Good heavens! For more than forty years I have been speaking prose without knowing it'.

Many librarians and documentalists, and of course the writers of reports and theses, and the preparers of translations, react at M Jourdain did and admit they have been using grey literature without knowing it.

3. CONSOLIDATION OF GREY LITERATURE

Much has been achieved in establishing and promoting announcement services, databases and national collections of grey literature. To take just two examples, in the case of the British Library Document Supply Centre (BLDSC), the collection includes 3.62 million reports in microform, 450,000 other reports, 440,000 US doctoral theses, 100,000 UK doctoral theses, 314,000 conference proceedings, over 539,000 translations, and 25,600 items of local authority material.

Acquisitions are announced in *British Reports Translations and Theses* and details, as already noted, sent on to SIGLE.

In Hanover, the Technische Informationsbibliothek has a large collection of grey literature available through the TIBQUICK service, notably 900,000 dissertations and reports from the USA, 180,000 German dissertations, 83,000 unpublished German reports, over 100,000 translations, 200,000 volumes of conference proceedings, and 190,000 papers and preprints.

Acquisitions are announced in *Forschungsberichte*, and again details are supplied to SIGLE.

Thus grey literature is readily available and it is well-documented - and yet an adjective often applied to it is "difficult". Difficult to identify, difficult to ask for, and difficult to get hold of. The criticism of "difficult to ask for" is particularly well justified, for whilst a request can never be as simple as 'please supply a copy of *Hard Times* by Charles Dickens, 1845', some of the identifiers currently in use for grey literature are not easily quoted, especially over the telephone, and even when written down, can often lead to transcription

errors. A couple of entries taken at random from BRTT will suffice to make the point:

1. 93-09-09-001 Uncalibrated stereo hand-eye coordination.
DSC: 9106.17 (CUED/F-INFENG/TR-125).
2. 93-07-05D-066 Markets and fairs in England and Wales.
DSC:3597.8513 (SAU-DE-DP-93-05).

ISRNI
is due
book
different?

Such problems are properly the concern of the organisers and announcers of grey literature material, and are already being addressed and remedied.

However, two other initiatives are called for if the work so far undertaken is to bear fruit. Firstly, organisations which produce grey literature, whether they recognise the term or not, need to be made aware of the importance of providing input to the relevant national authorities. The sorts of organisations involved are exemplified by the following list, originally identified by the Committee of Scientific and Technical Information (COSATI):

Academics	Groups
Arsenals	Hospitals
Associations	Institutes
Business Corporations	Institutions
Centres	Laboratories
Colleges	Museums
Companies	Observatories
Councils	Proving Grounds
Establishments	Schools
Firms	Societies
Foundations	Stations
Government Agencies	Universities

Equally an effort is required on the part of the grey literature handling community to persuade such organisations that what they issue in the form of unpublished documents has a natural home where the details can be recorded, without the need for formal contacts with the conventional book trade.

Secondly, users of literature in general need to be educated to recognise that no search or survey is complete unless account is taken of material available only in the form of grey literature. The major problem, as already noted, is that an enquirer tends to think in terms of his subject rather than the document format, and needs to be convinced that it is worthwhile making the necessary switch in his strategy.

4. OUTLOOK FOR GREY LITERATURE

The foundations are now in place for a well organised, self-sustaining information service for the exploitation of an extremely valuable and diverse source of information - grey literature. Professionals around the world are already tackling issues of cooperation, compatibility of systems, and methods of announcement and distribution.

Significant efforts are now needed to create a greater awareness of resources contained in grey literature, and in particular to target two distinct groups of people.

Firstly, the writers of grey literature, and the organisations which they serve and represent, need to be motivated to contribute details of their output to the appropriate

authority as a matter of routine.

Secondly, users of grey literature, whether in government, in industry and commerce, and in the academic world, need to be sure that the organisers of grey literature have produced a system of access and announcement which, above all, is user-friendly.

The result will be an expansion and enhancement of the system to the benefit of suppliers, intermediaries and users alike.

A NEW GENERATION OF GREY LITERATURE: THE IMPACT OF ADVANCED INFORMATION TECHNOLOGIES

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Abstract

A basic challenge of the Weinberg report addressed the question of information overload. The Weinberg panel was extremely concerned with the proliferation of scientific literature and the specific issue of how to sift through the reams of data to find the "gems" or wisdom, or that which is truly new and useful. In the early 1960's when the report was being written, computers were not part of the information access and retrieval infrastructure. Writing 25 years later in 1988, Dr. Weinberg recognized that the panel had not taken into adequate account the impact of the computer and the growth of the information industry. Today we have a new world of microcomputers and networked information which is fundamentally shifting the paradigm of scientific communication. We have new capabilities including electronic publishing, visualization techniques, even virtual reality. Without getting into a great debate about the definition of "grey literature", the main characteristics have traditionally been described as: rapid publication, variable formats, no public peer review, no commercial source of general availability. With networked information and multi-media technology, the new world of grey literature is emerging with an interesting set of new and revived challenges. This paper looks at the most interesting characteristics, and based on them, presents the thesis that in the 1990's we are facing a new generation of "grey literature".

1.0 INTRODUCTION

The basic challenge of the Weinberg Report¹ for which this conference has been named, addressed the question of information overload. The U. S. Presidential Science Advisory Board (Weinberg Panel) was extremely concerned with the proliferation of the scientific literature and the specific issue of how to sift through the reams of data to find the "gem" of wisdom, or that which is truly new and useful. In the early 1960s, when the Weinberg Panel did its work, computers were not a regular part of the information access and retrieval infrastructure. Writing 25 years later in 1988, Dr. Weinberg recognized that

the Panel had not taken into adequate account the impact of the computer and the growth of the on-line information industry.² Today we have a new world of microcomputers and networked information which is fundamentally shifting the paradigm of scientific communication. With networked information and multi-media technology, the new world of grey literature is emerging with an interesting set of new and revived challenges. In this paper, we will explore the new generation of grey literature that is resulting from the impact of modern information technology.

It should be noted at the outset that many of the observations and data for this paper have a scientific and technical information (STI) focus. It is also true that data from the United States play the key role in our observations and conclusions. However, we believe that the applicability can be extended.

A basic premise of this paper is that in order to understand the grey literature of the future, one has to understand how communications and resulting documentation are taking place. Further, it is our observation that the electronic world cannot be dealt with as a linear extension of the print world. In this regard, we observe that today's grey literature may be a result of being too much in the public domain. For example in a recent issue of Science Magazine, we have the observation that: "But this embarrassment of riches has created a problem: How can you find anything in that mass of data? Unless you know what you're looking for, you probably won't find it."³

2.0 DEFINITIONS

Before getting into the impact of technology on the forms of grey literature, it is worthwhile to define what is meant by the term. There are many descriptions and practical definitions that can be found in the world literature, and they mainly cover a few themes. Table 1 provides a list of definitions or descriptions of grey literature from various countries over the last ten years.⁴ In general, the working definitions include the facts that the material is not published by established (sometimes meaning commercial) publishers and that it is not easily identifiable or available if identified. Posnett and Baulkwill note in a paper that grey literature can be grey from three points of view: 1) by format as with microform editions of journals or monographs, maps, audiovisual or photographs, 2) text may be processed in a special way, like repackaging or digests, or 3) documents may have traditional form and content but are distributed through non-conventional channels.⁵

One point of discussion relating to the definition which is important when looking at the impact of technology on grey forms deals with the difference between grey "literature" and grey "information". The term "grey literature" originated with documentalists and was associated with their problems of not having good bibliographic control over packages of material and/or not having systematic access to the full text. For example, a predominant grey literature form for information professionals in science and technology in the 1960s was the technical report. The main characteristics of that form of grey literature have

4 pts.
Form
Content
Dist.

TABLE 1

INTERNATIONAL DEFINITIONS FROM THE LITERATURE

• Norway, 1986
"... non-commercial, limited edition publications not available through the book trade, nor registered in the national bibliography, and having poor bibliographic details."
• Japan, 1984
"... material not issued through normal commercial publishing channels and therefore difficult to access. It includes scientific and technical reports, translations, theses, conference papers, house journals, trade literature and official documents. The degree of "greyiness" varies."
• United Kingdom, 1982
"Non-conventional literature is defined here as that part of the literature which would present a non-special library, as opposed to a special library, with more than average difficulty in its acquisition."
• Canada, 1989
"Gray literature" describes any document, regardless of medium, that escapes the normal channels of publication and distribution."
• Caribbean Community, 1987
"Grey, or non-conventional literature, consisting of research documents that never get published, and also of those that will eventually be published but after prolonged delays..."
• INIS, 1993
"Nonconventional literature (grey literature) is defined as any literature which is normally not available through commercial distribution channels and which is generally difficult to locate."
• STIC, 1992
"Gray information is information unclassified at the source and not generally available in the public domain."

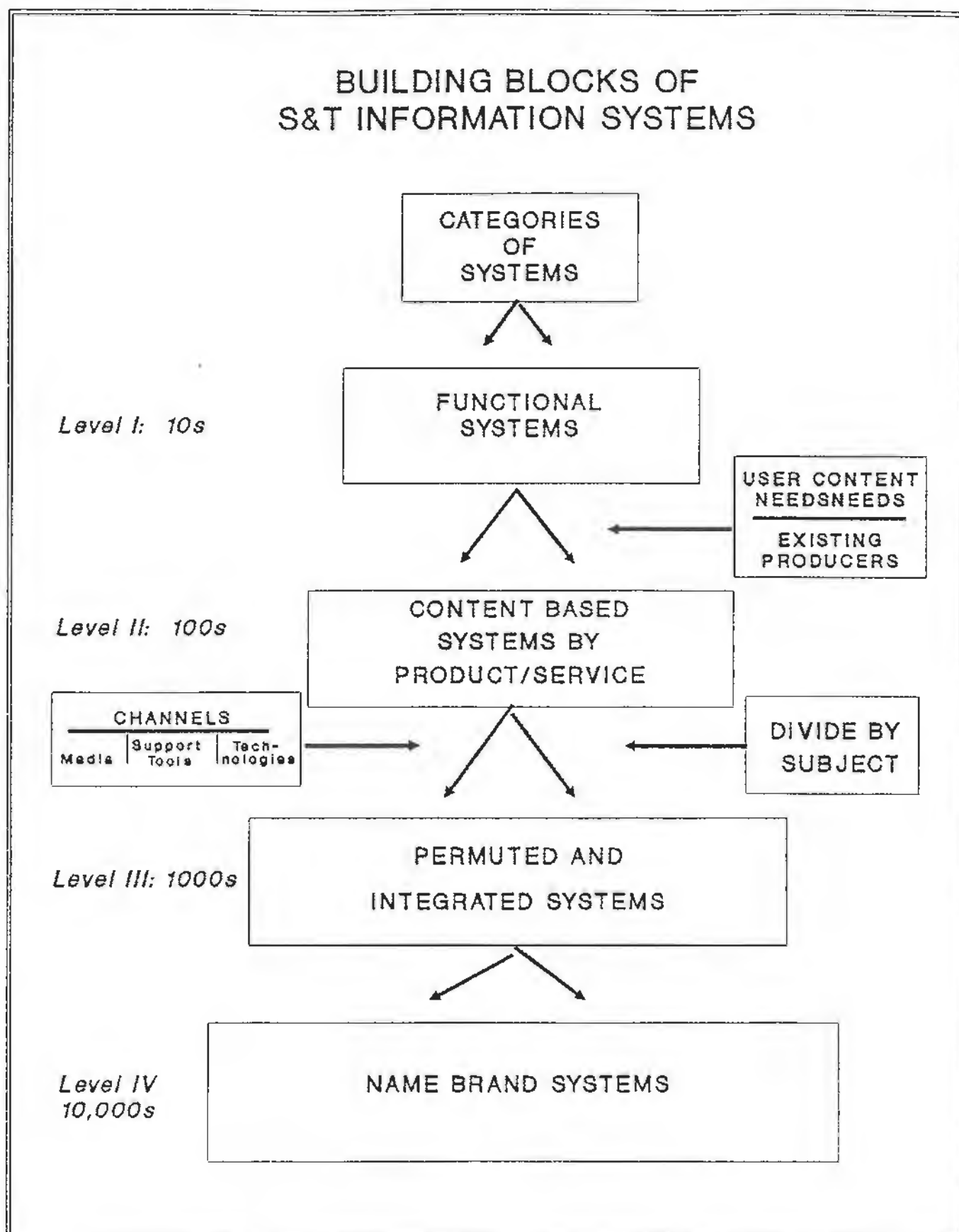
traditionally been described as: rapid publication; variable formats; no public peer review; no commercial source of general availability; usually limited distribution at the discretion of the author/sponsor; raw data often included (as opposed to journal articles which are more limited in size and tend not to include background data); used generally by the applied science and technology communities; and, generally, the responsibility of federal government agencies for bibliographic control and distribution. Today, at least in the U. S., the preponderance of government funded scientific and technical reports is well controlled and systematically available through the National Technical Information Service. In fact, in 1992 the American Technology Preeminence Act became law and made the fact of deposit a legal requirement for all agency funded work. Because this material is well controlled bibliographically through agency mission as well as NTIS databases, and is easily ordered through NTIS, it no longer is "grey literature." Again because information specialists and documentalists have been oriented toward information products, (i.e. information in packages), the term literature has been appropriate to their activities. However, other forms of information, such as numeric data which has not necessarily been packaged as "literature" also play an important part in satisfying information needs. One can say that access to numeric data has always been hazy, if not grey. In fact, in a recent NSF study⁶, findings showed that scientists spend significant amounts of time using numeric databases, most of which are not dealt with through the information community. Scientists that use this material often do so with significant facility whereas finding this information from an outsider's point of view would be very difficult. In a project funded by the Library of Congress⁷ to develop a topology of science and technology information systems, the findings pointed to a very broad spectrum of types of information used by people seeking STI, much of which would be considered "grey" by generally accepted definitions. Figure 1 shows the model of the types of information and systems that were identified. The model shows that there are hundreds of content based systems, only a very few of which are controlled or commercially published and generally available through standard channels. These content based systems are then differentiated by technology, media, subject, and function and are called "permuted or integrated systems". There are thousands of such types of STI available. Finally, these permuted and integrated systems are further differentiated by brand names where there are tens of thousands of systems. All of these factors make systematic access difficult.

Table 2 is a list of some of the types of STI that are actively used today. It is interesting to review them and determine whether these forms would be considered grey. At the bottom line, one can conclude that "grey" is to a large extent in the eyes of the beholder. This was, in fact, an idea that was presented at the recent U.S. meeting on grey literature which will be reported on in more detail at this conference.

3.0 CHANGING COMMUNICATIONS PATTERNS

As we stated in the beginning of the paper, in order to understand the grey literature of the future, one has to understand how communications and resulting documentation are

FIGURE 1



taking place. To this end, it is useful to review some trends in scientific and technical communication. The NSF study noted previously⁸ found that there are changing patterns in traditional forms of technical communication. The amount of formal documentation and reading (books and journals) is decreasing on a per capita basis. Traditional print publishing is changing, if not in major difficulty, as evidenced by rapidly increasing prices and decreasing demand. There is evidence that scientists and engineers read fewer journals and spend less overall time in reading. They read less, have less time for reading, are reevaluating print buying decisions based on cost of acquisitions, and are increasingly using other routes to information that are available such as electronic media. Electronic communications are changing communication patterns in two ways. Oral and postal interpersonal communication are being replaced by electronic mail. Formal documentation may also be replaced through electronic transfer of files. Although the data for these last two points were not available at the time of the NSF study three years ago, more recent statistics on these two activities support this trend.

TABLE 2.

DEFINING THE GREY SCALE: HOW GREY ARE THE FOLLOWING?

-
- Technical video tapes
 - Multi-media productions
 - Scientific visualizations
 - Satellite data
 - Technical reports
 - Environmental monitoring data
 - Environmental Safety and Health Regulations
 - Non-U.S.
 - Standards
 - Non-U.S.
 - Vendor catalogs
 - Policy white papers
 - Patents
 - Newsgroups
 - LISTSERV
 - FTP
 - WAIS
 - Electronic Bulletin Boards
 - Digital Libraries
-

4.0 IMPACT OF TECHNOLOGY

So let us turn to the technology environment that is driving the changes in the means of scientific and technical communication. The three main drivers are the reduction of costs for hardware and the increasing power of desk top computing; the enormous advances in telecommunications and the political recognition of the importance of capitalizing on these channels for economic growth; and the enormous increase in the volume of data capture and data manipulation enabled by these two technologies. Regarding, the development of hardware, a rather lyrical, but rather revealing quote captures the essence of the change that has taken place:

"Five years ago, right after the start of the personal computer revolution, industry experts observed that if the automobile business had developed like the computer business, a Rolls Royce would cost \$2.75 and go 3 million miles on a gallon of gasoline."⁹

In just 10 years since the introduction of laptop computers, the growth in sales of these devices has gone from \$16 million to \$4.1 billion. In 1993 we have even gone to "palmtop" computing, also known as personal information managers (PIMs), with sales in the marketplace growing from \$50 million in the first year of sales (1991) to an expected increase to \$219 million in 1993 and a projected increase to \$387 million in 1997.¹⁰ Technologists are working on handwriting and voice recognition systems and when these technologies begin to be adopted in the market place, we will see even more dramatic changes to information packaging and information transfer.

If we turn to the developments in networking, we must look at the Internet as an infrastructure that is changing the way many of us communicate and access STI. In 1969 the ARPANET was the first large-scale packet switching network. In 1987 seven major supercomputer centers were connected together through NSFNet which evolved into the backbone of the Internet. By 1993, only six years later there are estimates of over 12,000 networks connected through the Internet, with 1.5 million computers linked, and over 10 million users in 100 countries. In 1987 200 million packets per month were shipped over the network. By 1992 a peak of 1 billion packets a day was hit. In 1993, 25 billion packets a month is the average traffic over the network. It has been estimated that the growth in Europe of the use of the Internet is increasing by a factor of 4 while worldwide annual growth is a factor of two.

Finally, the enabling technologies have led to an enormous growth of the sheer volume of information. The head of high performance computing at the U.S. National Oceanographic and Atmospheric Administration (NOAA) estimated that they have the equivalent of 15 libraries of Congress worth of data. Their growth rate is estimated at two Library of Congresses per year. As early as 1982, in an article in *Science* magazine, Ithiel de Sola Poole constructed growth trends in 17 major communications media to show quantitatively the growth in information. He concluded that there has been extraordinary

rates of growth in transmission of electronic communications, but much lower rates of growth in the material that people actually can consume and absorb, representing the phenomenon of "information overload".¹¹

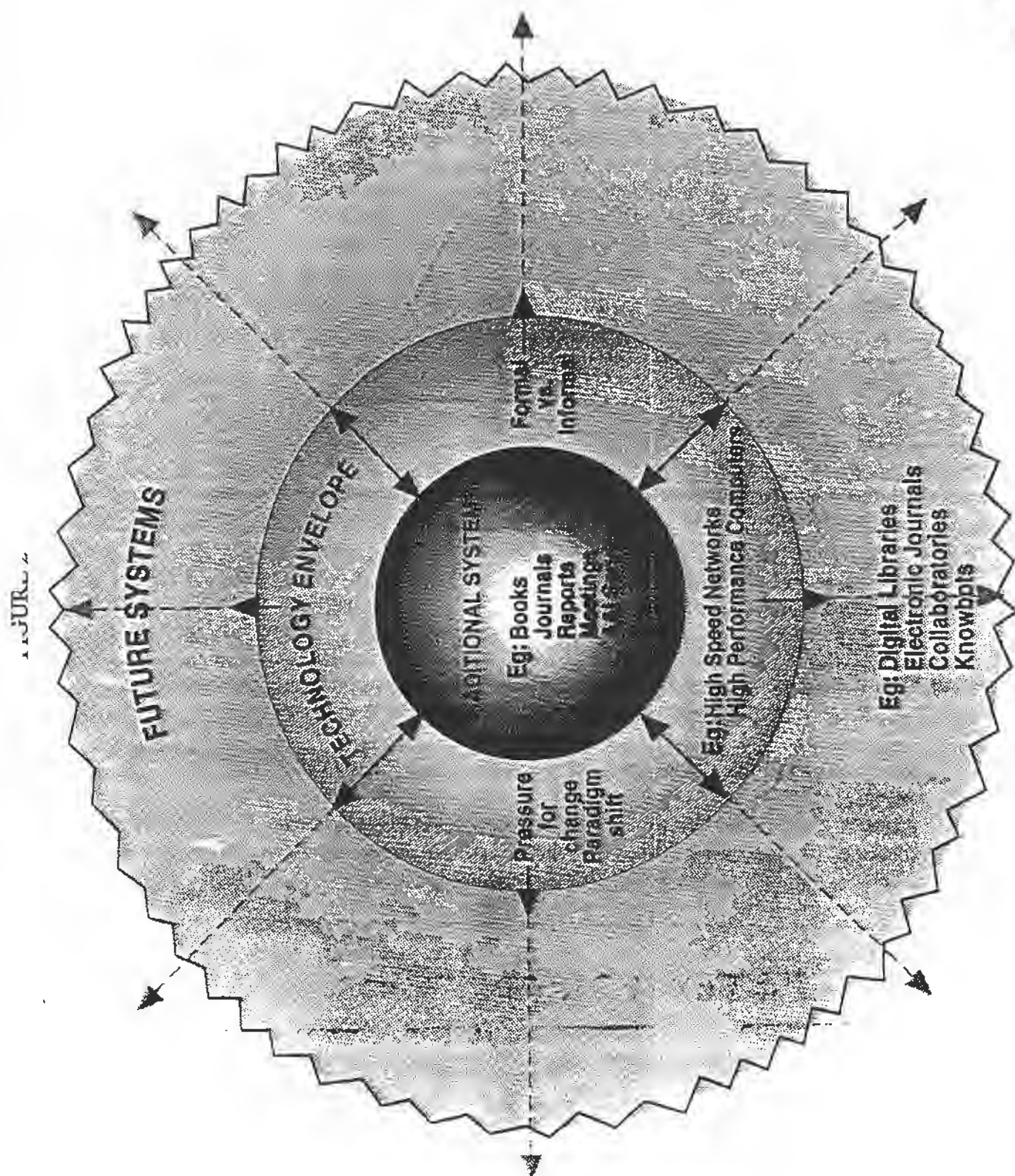
The total of these impacts was well summarized by a focus group session that was held as part of the Library of Congress study discussed previously. At this meeting it was noted that the pressure on traditional systems from the technology explosion has led to a shifting paradigm in scientific and technical communication. This idea is expressed graphically in Figure 2. The implications for the information professional is significant since he/she will now need to know software and data transfer mechanisms in addition to knowing about the structure, indexing, and content of information sources. A National Academy of Sciences Panel discussed this impact in a 1989 report called "Information Technology and the Conduct of Research: A User's View"¹². As a result of this Panel effort, the Panel Chairman, Dr. Donald Langenberg, concluded that a new breed of information professional was needed that combined the skills of the librarian, computer scientist and technical analyst. This person would work in a new institutional model which combined the characteristics of libraries, computer centers and coffee rooms.¹³

To give an example from the information professional's point of view, in a recent paper by Huston and Kreitz¹⁴ in one paragraph, they cover just a few of the interesting notions associated with some of these changes:

"...'information resource' will be defined as a 'complex of databases and application software that render these databases accessible to a large community of end-users.'¹⁵ 'Documents' do not have to exist as files; they can be 'virtual' documents generated by a server in response to a query or document name.'¹⁶ . . . 'Now, in addition to knowing the structure, indexing, and focus of a variety of print reference tools, they must also have expertise in software packages and data transfer between these packages to help their users access needed information.'¹⁷

5.0 NEW FORMS OF GREY LITERATURE

The relationship of these developments and the changing nature of grey literature is closely coupled. New forms of communication, if grey literature refers generally to material which is not systematically published or readily available, result in a lot more information that falls into that category. Much of this information is being packaged in evolving formats and systems. There are many conferences and task forces addressing the issues of how to manage or find material in the new networked world. Commercial publishers are actively trying to understand their future in view of these changing conditions. Non-technical issues, copyright being one of the most critical ones, are being hotly debated. As noted in a recent article by T. W. Howard, "One of the Major problems associated with electronic publishing on Internet has been the lack of a centralized distribution mechanism. Until recently, trying to find a particular file at an FTP site has been a bit like looking for a particular book in the Library of Congress without the benefit of a card catalog."¹⁸



Model for Developing Future Strategies in STI Management

If we look at the kinds of new forms and formats of information being created and communicated over the Internet and with high performance computers, we see such phenomenon as the development of WAIS (Wide-area Information Servers) databases and WAIS servers. In the Spring of 1992 WAIS was a new information retrieval system based on the NISO Z39.50 protocol using relevance feedback retrieval and client-server functionality. It was developed by Thinking Machines, Inc. of Boston, Massachusetts. The source code for the open protocol, information servers, and for several interfaces was made freely available over the Internet. In addition, Thinking Machines established and maintained a directory of information servers which WAIS users could search to find out about available information sources. Today the experiment has resulted in the creation of new interfaces. By February of 1993, the availability over the Internet of more than 350 servers in 12 countries serving over 15,000 users in 28 countries. In the first six months alone, about 400 users from 20 countries tried the system. They had no training other than documentation.¹⁹ In 1992 WAIS, Inc. was formed as a commercial company to develop a commercial version. However, the freeware versions are being extensively propagated, tested and used world-wide.

In the area of electronic bulletin boards, there is also a rapid rate of growth. Fedworld, the gateway to U.S. Federal Bulletin Boards now provides access to over 120 formal and stable systems. LISTSERVs, which function like a variation of a bulletin board are spreading in every direction and are increasingly documenting activities of technical working groups. The extent of the impact of such communication and "documentation" tools can be illustrated by the extreme position of one physicist. In a recent issue of *Science*, a physicist was quoted as "The only thing I use journals for is looking back for papers that came out before bulletin boards existed."²⁰

Digital libraries are being discussed throughout the technical community. However, digital libraries are ill defined, not under bibliographic control, and certainly grey in terms of bibliographic control and systematic access. To illustrate, in a recent Internet course given at the University of Tennessee, the students were admonished to "grab" any important material that they find because on-line sources often evaporate temporarily or permanently on the Net. Or as another example, a research librarian searching through gophers using Veronica for information on networks, found something called mil/country codes compiled by Oliver M.J. Crepin-Leblond. She telneted to the system and found descriptions of Internet connections in various countries. She also found the note from the "author" stating,

"The situation changes from day to day. The growth in international networking is such that the information contained in this document may be out of date by the time it reaches you."

Newsgroups is another growing form of communication. It is estimated that "depending on how you count (there are) between 2,500 and 6,000 newsgroups worldwide."²¹

It is ironic that the evolution of enabling technologies, where potentially much greater information is freely available, has resulted in a situation where more information can now be considered grey or difficult to find and not easily accessible through normal channels. The irony of the information age is not a problem of scarcity, but of overload.

Grey information or grey literature of the 1990s is a phenomenon of sifting through the masses of data to find the right information at the right time, especially when it's all out there available. The challenge of identification and cataloging of technical reports in the 1960s is now reincarnated as a challenge of navigating through LISTSERVs, bulletin boards, FTP sites, and with Knowbots, Government Information Locators (GILS), Gopher Servers, Archie, World-Wide Web, Veronica, Jughead or MOSAIC. These last few creatures are new forms of location or identification tools, a new approach to "Bibliographic control" of the new grey literature. The question of grey literature here is whether traditional definitions still hold or do we need to rethink our approach to difficult to access material in a networked world. At a minimum it is clear that we have added an interesting time dimension to the world of grey literature. This is something that always existed in databases that were updated. However, because of the Internet, the new kind of communication it enables, as well as real time publishing and distribution that is taking place today, this problem is greatly exacerbated and the volume and diversity of grey information needs is greatly increased.

6.0 THE CHALLENGE

It is clear that the reason we see this proliferation as a problem in the extreme is because we are in transition -- or in a shifting paradigm. As the NII matures we will see information sources becoming more stable and the grey problem will become more tractable. In coping with this challenge it is useful to look at lessons from the past. It is interesting to begin with the vantage point of the post World War period that culminated in the Weinberg Report. New forms of scientific communication, and especially the technical report have become sought after media of technical communication. Because change is so rapid today at a minimum we must recognize and pay attention to the world of information that technology is enabling. Perhaps the challenge and the end point of this paper can best be expressed by the internet question of the month: "In what month will the number of bytes run through the internet exceed the number of atoms in the universe?"

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AEROSPACE AND OTHER GREY LITERATURE FROM NATO

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Abstract

This paper first describes briefly the history, mission and present structure of AGARD (NATO's Advisory Group for Aerospace Research and Development), and then lists the types of publications it produces, with examples, and describes how to find out about them and obtain them. Finally, it mentions very briefly other NATO bodies that produce 'grey' literature.

1. INTRODUCTION

The aim of this paper is to describe some of the unclassified grey literature available from NATO (the North Atlantic Treaty Organisation). As most people know, the Headquarters of NATO is in Brussels, but there are many branches, agencies, research centres, schools, and military headquarters, in other countries, throughout Europe and in North America. Many of these bodies produce grey literature, but much of it is classified (in the defence sense), and a large proportion of the unclassified material is strictly limited in its availability. Moreover, most librarians and information scientists know well the problems of finding out about the existence of NATO literature and then obtaining it. It is hoped that this paper will clarify the position a little.

One of these bodies, the Advisory Group for Aerospace Research and Development (more commonly known as AGARD), does produce a large amount of freely available 'grey' literature (in many colours, in fact!), and the paper concentrates on these publications. Although AGARD is well known within the aerospace R and D field, it is less well known outside (even by information specialists or librarians). So that you may know what I am talking about, this paper first describes briefly the functions and structure of AGARD. Then it describes AGARD's publications and how to obtain them, giving examples of a few major or unusual ones. Finally, it gives a brief description of the other major NATO bodies that produce grey literature available to the general public.

2. THE ORIGIN OF AGARD.

AGARD was set up in 1952 as a result of the vision of one man. Dr Theodore von Kármán (1881 - 1963), Fig 1, the son of a philosopher, was a Hungarian by birth who had become Professor of Aeronautics at Aachen University in Germany, and had then moved to the USA during the 1930s and become a US citizen. He was a polymath, but his main interest was in aerodynamic research, and later propulsion. In 1952, he was the Chairman of the Scientific Advisory Board of the US Air Force. Watching politicians arguing, and the start of the Cold War, he had had the inspiration that nations could get

on better together at the working scientific level than at the political level. As he put it in his book, 'The Wind and Beyond' (Little, Brown and Co. (Inc.), Boston, MA, 1967):

After observing many international squabbles over the years, I still think my original conclusion is correct, that the differences which exist among nations are due largely to politicians who feel impelled to argue from national positions rather than from the rights or wrongs of a specific issue. It is remarkable, in contrast, how easy it is for one nationality to get along with another if you deal only with individuals at the 'working level'. The individuals interested in the product, and in the technological and scientific problems of creating it, understand one another very well; even though they do not speak the same language, they will make themselves understood through their common scientific backgrounds.

He also believed that:

Progress in technology is so swift that only a pool of nations can properly utilise scientific advances for mutual protection.



Fig. 1 Theodore von Kármán,
the Founder of AGARD

He wanted to try out these theories, and when he heard of the formation of the North Atlantic Treaty Organisation (NATO) in 1950, he thought that it would be a golden opportunity to do so. In 1951 he chaired a conference of NATO Aeronautical Research Directors held in Washington DC. At this meeting, it was unanimously agreed to form an organisation to be called the Advisory Group for Aeronautical Research and Development. An inaugural meeting was held in 1952 in Paris, and was attended by 11 NATO nations. That meeting agreed to the establishment of AGARD and set up its first four Panels to cover a wide range of activities:

Fundamental research

- a Combustion Panel;

Applied research

- an Aerospace Medical Panel, and

- a Flight Test and Instrumentation Panel;

Coordination of means of research

- a Wind Tunnel and Model-Testing Panel.

These four Panels, with international membership from the NATO nations, had started work by the Fall of 1952. In December of that year, a Documentation Committee was set up to advise AGARD on information problems.

For two years, the new organisation was supported by the United States Air Force, but in 1954 the NATO nations agreed that it should become an Agency of NATO and be supported by NATO funds. The name was changed to include space in 1965.

AGARD's mission, as defined in its Charter, is given in Fig 2. Essentially, however, it can be summarised as a mission to interchange information about aerospace Research and Development between the NATO nations, so that all may benefit from advances made by any of them.

According to its Charter, the mission of AGARD is to bring together the leading personalities of the NATO nations in the fields of science and technology relating to aerospace for the following purposes:

- Recommending effective ways for the member nations to use their research and development capabilities for the common benefit of the NATO community;
- Providing scientific and technical advice and assistance to the Military Committee in the field of aerospace research and development (with particular regard to its military application);
- Continuously stimulating advances in the aerospace sciences relevant to strengthening the common defence posture;
- Improving the co-operation among member nations in aerospace research and development;
- Exchange of scientific and technical information;
- Providing assistance to member nations for the purpose of increasing their scientific and technical potential;
- Rendering scientific and technical assistance, as requested, to other NATO bodies and to member nations in connection with research and development problems in the aerospace field.

Fig. 2 The Mission of AGARD

3. THE STRUCTURE OF AGARD

AGARD is governed by a Board of National Delegates, who are leading personalities (civilian or military) in the field of aerospace research and development in the NATO nations. The Board meets twice yearly to approve the technical programme (in the Spring) and to hear reports on current work. Once they have approved the programme, it has to be passed to the NATO Military Committee and the Military Budget Committee which approve the technical and fiscal aspects, respectively.

The principal means of carrying out AGARD's mission is the Technical Panels. There is also an Aerospace Applications Studies Committee whose job is to advise the Military Committee of NATO on aerospace-related technology issues, mainly by carrying out studies on military systems technology issues associated with aerospace. The original four Panels (three of which have seen a widening of their areas of interest and a consequent change of name) have been joined by four others; and the Documentation Committee has become a Panel. Thus at present (Fall 1993) there are nine:

Aerospace Medical Panel - AMP
Avionics - AVP
Electromagnetic Wave Propagation - EPP
Flight Mechanics Panel - FMP
Fluid Dynamics Panel - FDP
Guidance and Control - GCP
Propulsion and Energetics Panel - PEP
Structures and Materials - SMP
Technical Information - TIP

However, the National Delegates Board has just decided that TIP should no longer be called a Panel. Instead it will revert to being a Committee, possibly with much the same functions that it had as the Documentation Committee in the early days of AGARD. Basically this means that it will no longer hold symposia. The Delegates have also decided that aerospace technology has changed so much since AGARD was formed that the present structure is unsatisfactory and that AVP, EPP, FMP and GCP, whose areas of interest overlap to a considerable extent, should be merged into three new Panels. The names and detailed functions of these new Panels will not be agreed until Spring 1994, so I am unable to give you any precise details of the new organisation. However, the new Panels will recognise that today's technology is more often system-driven than component-driven.

Each of the Panels has one Executive, a military or civilian specialist in the field concerned, who has been seconded by a NATO nation for two or three years. However, many enjoy living in Paris so much that they manage to extend their stay, up to ten years in one case. Each is assisted by a secretary. My own post is different from those of the other Executives, since as well as being the Executive of the Technical Information Panel, I am also responsible for AGARD's publications. In addition to the nine Executives, there are a number of other scientists or engineers, a Translator, and of course the usual financial, secretarial, clerical and other support staff. All told, AGARD has 50 staff.

4. AGARD's OPERATIONS

Each Panel holds two symposia or specialists' meetings a year (except TIP, which has always held one), each generally attended by 150-250 people. The papers submitted, and in some cases the discussions resulting and/or a Technical Evaluation Report (TER) of the meeting, are always published in a Conference Proceedings. Occasionally, meetings are classified; in most such cases, two separate publications result, a freely available one, containing the unclassified papers, and a classified supplement. In general we publish some 20 freely available conference proceedings a year. We aim to publish within four months of the meeting but, alas, authors, who are unpaid, are not always good at submitting their papers on time.

The Panels also sponsor other activities such as Lecture Series, up to 6 a year for the whole of AGARD, given by a team of about 6 experts in up to three NATO countries, Special and Short Courses, which are similar but are usually given by a smaller team and on a more specific topic, Working Groups, which usually meet four times in two years, and the exchange of experts between NATO nations, a large proportion of which is intended to provide help to Greece, Portugal and Turkey through a special Support Programme designed to benefit those nations. Finally, there are Military Committee studies, carried out at the direct request of the NATO Military Committee. The results of these are always defence classified.

5. AGARD's PUBLICATIONS

Many of these activities result in publications. As stated above, conference proceedings always result from the symposia or specialists' meetings held by the Panels. In a few instances, such a large proportion of the papers are classified that we decide not to produce an unclassified volume, but this does not happen often. Lecture Series notes are always produced to accompany the lectures, and publications called AGARD Reports arise from Panel Workshops and as an accompaniment to Special Courses. Working Groups

The numbers of copies distributed to the nations are decided by the nations themselves. The total is about 850, depending on the Panel, and a further 300 or so microfiche copies are also supplied. Most, if not all, Distribution Centres have standard lists of addresses to which they send our publications. However, they may have a few copies left over to meet individual requests in their nations, *except in the United States*, but sometimes these are available only to military or defence organisations.

7. IDENTIFYING AGARD PUBLICATIONS

There are a number of ways of identifying AGARD publications, either by number, title or subject matter.

All except possibly a few very early publications are indexed on the US National Technical Information Service's database, which is available on-line or on CD-ROM; and they are announced in Government Reports Announcements and Index (GRA & I). Similarly, they are indexed on NASA's database and announced in Scientific and Technical Aerospace Reports (STAR). The latter includes not only the complete documents, but also the constituent papers of Conference Proceedings, Lecture Series notes, etc. Not having on-line access to these databases, I do not know how easy it is to identify AGARD papers from them. I believe that you have to be ready to use AGARD, A.G.A.R.D. and even Advisory Group . . . , but perhaps someone can tell me that I am wrong. I hope so.

AGARD issues indexes every three years, and these are available from the same Distribution Centres as the publications themselves. The last was issued in 1992 and covered the period 1989-1991. These indexes are compiled by NASA from the entries in STAR and include a comprehensive listing of publications and constituent papers, classified by NASA's standard subject categories. Then follow subject, personal author, corporate source, report number and NASA accession number indexes. The report number index allows you to search by AGARD publication number, NTIS AD number and ISBN number. Incidentally, all our publications have an ISBN number starting 92-835- (and 836 - 839 are reserved for AGARD also). The last two issues of the index (publications from 1986) have also contained a Panel index. But this was not available for earlier publications.

A database of the same material is also available on CD-ROM. This disc contains full details of AGARD's publications up to the end of 1991, again including their constituent papers, a total of 17,666 items representing 3414 publications. Moreover, it also contains details of the books issued by the NATO Scientific Affairs Division, which are published by Kluwer, Plenum and Springer-Verlag, according to the subject-matter. The text of a leaflet about this disc is at Fig 5. Please note that the disc is available only from the address given in that figure, and not from AGARD. If you do buy one, however, please mention AGARD and this paper when ordering.

The 64-dollar question is whether this disc will be updated next year. I wish I could answer that, but with the increasing pressure on NATO's budget it is difficult to prophesy the future at all.

8. OBTAINING AGARD PUBLICATIONS

As mentioned above, you can sometimes obtain copies of AGARD publications from the Distribution Centres shown in Fig 4. Failing this, photocopies or microfiches can be

"Easy access to advanced knowledge and technical information on COMPACT DISK"

The new "NATO DISK"

The NATO-PCO DATABASE and the AGARD AEROSPACE DATABASE on CD-ROM

*2 important databases of interest to scientists and engineers
working in universities, research institutes and industry*

We are pleased to announce that the enhanced version of the "NATO DISK", i.e. the computer-readable COMPACT DISK (CD-ROM) has just become available. It contains the first major update of the NATO-PCO DATABASE with its 40.000 bibliographical records referring to non-military scientific/technical literature generated with the sponsorship of the NATO Science Committee, and - for the first time - a special version of the AGARD AEROSPACE DATABASE providing access to the aerospace literature resulting from the programmes of NATO's Advisory Group for Aerospace Research and Development.

With the easy-to-follow menu options of the retrieval software, access to data is simple and fast! The data is well-structured and the presentation is pleasant while functional. The software CD-ANSWER - (c) Copyright DATAWARE Technologies Inc. - which comes with the CD-ROM, received the prize for "The Best CD-ROM Retrieval Software of 1990". It functions in ENGLISH, FRENCH and GERMAN. *There is no need to learn a complex search language.*

The CD-ROM can be used with standard Personal Computer equipment (PC XT/AT or 100% compatible, minimum 512 KByte RAM and with MS-DOS/PC-DOS version 3.0 and above) including a CD-ROM drive.

The NATO-PCO DATABASE

The NATO-PCO DATABASE - (c) Copyright WTV GmbH, Germany - is a reference database. It covers more than 20 years of non-military scientific/technical meetings and publications in the NATO ASI SERIES, sponsored by the NATO Science Committee. The NATO ASI SERIES - which is the official vehicle for publication of the results of NATO Advanced Study Institutes, NATO Advanced Research Workshops and other high-level scientific/technical meetings - is published by KLUWER ACADEMIC PUBLISHERS (The Netherlands), PLENUM PUBLISHING Corporation (USA) and SPRINGER-VERLAG (Germany).

The NATO-PCO DATABASE contains full references (with keywords and/or abstracts) to more than 40.000 contributions from international scientists of high repute.

The database covers a broad spectrum of scientific disciplines: LIFE SCIENCES, ECOLOGY, MEDICINE, CHEMISTRY, GEOSCIENCES, ASTRONOMY, MATHEMATICAL AND PHYSICAL SCIENCES, BEHAVIOURAL SCIENCES, MATERIALS SCIENCES, ENGINEERING, SYSTEMS and COMPUTER SCIENCES.

The AGARD AEROSPACE DATABASE

This bibliographic database generated by PCO in co-operation with NASA (USA) and AGARD (France) provides information on thousands of AGARD-sponsored publications - conference proceedings, AGARDographs (major works of long-lasting interest), lecture series, reports and advisory reports - published from about 1960 to 1991. As is the case for the NATO-PCO DATABASE, the AGARD AEROSPACE DATABASE includes details not only of the complete publications but also of the papers contained in them (up to 40 or more in a conference proceedings).

AGARD (The Advisory Group for Aerospace Research and Development) is an agency of NATO based in Paris. Its mission is essentially to interchange information about R&D in aerospace within and between the NATO nations.

AGARD's areas of activity cover:

AEROSPACE MEDICINE, AVIONICS, FLIGHT MECHANICS, ELECTROMAGNETIC WAVE PROPAGATION, FLUID DYNAMICS, GUIDANCE AND CONTROL, PROPULSION AND ENERGETICS, STRUCTURES AND MATERIALS, and TECHNICAL INFORMATION.

The price for the CD-ROM containing both databases is DM 1.140.- or USD 790.00 (excluding tax). Updates are planned to appear on a yearly basis.

The "NATO DISK" is available from:

NATO ASI SERIES Publication Coordination Office (PCO),
(Information Office of WTV GmbH, Germany)
Elcerlyclaan 2, B-3090 Overijse / BELGIUM

Tel. +32-2-687.66.36 Fax. +32-2-687.98.82

Fig. 5 The NATO Disc

bought from three Sales Agencies, in the United States, Britain, and France - see Fig 6. Photocopies and microfiches, of course, reproduce coloured illustrations only in black and white. This is not a major problem, because we use colour rarely, but it has occasionally been included as an aid to understanding such illustrations as fluid flow or temperature diagrams, graphs with many curves, photographs of corrosion, etc. We have even produced colour microfiches for one publication which had a large number of fluid flow diagrams.

NASA Center for
Aerospace Information (CAST)
800 Elkridge Landing Road
Linthicum Heights, MD 21090-2934
United States

The British Library
Document Supply Centre
Boston Spa, Wetherby
West Yorkshire LS23 7BQ
United Kingdom

ESA/Information Retrieval Service
European Space Agency
10, rue Mario Nikis
75015 Paris
France

Fig. 6 AGARD's Sales Agencies

If you are a member of a NATO nation, and wish to receive a copy of all future AGARD publications, or possibly just those relating to one or more specific Panels, you should write to your Distribution Centre and ask them to put you on their distribution list. I can not guarantee that they will do so, however, because each country is autonomous in this regard, so it is up to you to make a convincing case.

If you are not a member of a NATO nation, or if your Distribution Centre is unable or unwilling to supply a copy of all publications, we may be able to help. We have recently concluded our first deal for the supply of a complete year's publications, so this is a very new area for us and I can not give you any further details at present. If you are interested, please write to me at AGARD HQ, or send a fax - but no 'phone calls, please!

AGARD has also recently taken the decision to make available for sale from AGARD HQ limited numbers of copies. However, we do not have spares of all, particularly older publications, so we may not be able to satisfy all your requests. We accept payment in US dollars, pound Sterling or French francs.

9. EXAMPLES OF AGARD PUBLICATIONS

I should now like to give you a few examples, selected almost at random from the wealth of available material, of notable publications that have been produced by AGARD, both in the past and recently.

The Multilingual Aeronautical Dictionary is perhaps the best-known. Two editions have been produced, in 1960 and 1980. Regrettably, both these are out of print now, but we would willingly let any reputable publisher re-print one of them, or produce a computer-readable version, provided there was no cost to AGARD. Any offers? Fig 7 shows one main entry in the second edition, with cross-references to it in Greek and German (all enlarged). This edition has definitions in English, and translations of the terms in Dutch, French, German, Greek, Italian, Portuguese, Russian, Spanish and Turkish.

Flight Test Instrumentation and Flight Test Techniques are two series of publications sponsored by the Flight Mechanics Panel. They have the numbers AG 160, vols 1 -19 and AG 300, vols 1 - 10, respectively. These are renowned throughout the aerospace world, and further volumes of the second series are in preparation. Figs 8a and 8b give a complete list of the titles of these series, as at the end of 1993.

14261	mid-course guidance	Guidance applied to a missile between the termination of the initial guidance, or of the gathering phase, and the start of terminal guidance.			
DE	1. Zwischenphasenlenkung (<i>f</i>)	←	14261	Zwischenphasenlenkung (<i>f</i>)	
	2. Marschphasenlenkung (<i>f</i>)		13685	Zwischenring (<i>m</i>)	
ES	guiado (<i>m</i>) de la trayectoria intermedia		10673	Zwischenstufenumwandeln (<i>n</i>)	
FR	1. guidage (<i>m</i>) à mi-parcours		10673	Zwischenstufenvergüten (<i>n</i>)	
	2. guidage (<i>m</i>) en cours de vol		12034	Zwischenwand (<i>f</i>)	
HE	κατεύθυνσις (<i>f</i>) μεσοτροχιᾶς		11885	Zyanhärten (<i>n</i>)	
IT	guida (<i>f</i>) di media corsa	←	11885	Zyanieren (<i>n</i>)	
NE	1. middenbaangeleiding				
	2. midkoersgeleiding				
PO	guiamento (<i>m</i>) a médio curso				
RU	наведение (<i>n</i>) на маршевом участке траектории		11502	κατεύθυνσις (<i>f</i>) δι' ἐντολῶν	
TU	orta güdümlü		11504	κατεύθυνσις (<i>f</i>) δι' ἐντολῶν βάσει ὀπτικής γραμμῆς	
			12670	κατεύθυνσις (<i>f</i>) ἐντὸς πεδίου	
			14261	κατεύθυνσις (<i>f</i>) μεσοτροχιᾶς	
			13518	κατεύθυνσις (<i>f</i>) μεσοτροχιᾶς	
			14285	κατεύθυνσις (<i>f</i>) (διόρθωσις) μὴ ἐπιτευχθείσης προσγειώσεως	
			13360	κατεύθυνσις (<i>f</i>) παλιννοστήσεως	
			13210	κατευθυντήρια (<i>n, pl</i>) πτερύγια	
			16578	κατευθυντήριος (<i>m</i>)	
			13899	κατευθυντήριος ὁδός (<i>f</i>)	
			12071	κατευθυντικός ραδιοφάρος (<i>m</i>)	
			10247	κατηγορία (<i>f</i>) ἀεροσκάφους	

Fig. 7 Extracts from the Multilingual Aeronautical Dictionary (2nd Edition, 1980)

The Manual on Aeroelasticity in Axial-Flow Turbomachines (AG-298) is a two volume manual published in 1987 and 1988. The volumes relate respectively to Unsteady Turbomachinery Aerodynamics, and Structural Dynamics and Elasticity and have a high reputation.

Design and Testing of High-Performance Parachutes (AG-319) is a major review, and was written by two very eminent researchers in this field. It also has some very beautiful colour photographs.

Aircraft Fire Safety (CP-467) is an example of one of our conference proceedings on an important and topical subject. It has 40 papers in sessions on: a review of fire-related aircraft accidents, fire safety standards and research programmes, aircraft internal fires, aircraft external fires, fire safety of military weapon systems, fire hardening, passenger behaviour, and passenger protective equipment.

The Manual on the Evaluation of Information Centers and Services (AG-310) is one publication that should be of great interest to the participants at this conference. This manual arose out of an AGARD Lecture Series, "Evaluating the Effectiveness of Information Centres and Services", (LS-160, published September 1988) and was written by José-Marie Griffiths of the University of Tennessee and Donald King of King Research Inc, two well-known practitioners in the art of evaluating libraries and information services. Part of its appeal lies in the fact that it is relatively slim (118 pages of text) and is therefore quick to read. Despite this, it is full of good advice on the subject; and there

<i>Volume Number</i>	<i>Title</i>	<i>Publication Date</i>
1.	Basic Principles of Flight Test Instrumentation Engineering by A.Pool and D.Bosman (under revision)	1974
2.	In-Flight Temperature Measurements by F.Trenkle and M.Reinhardt	1973
3.	The Measurement of Fuel Flow by J.T.France	1972
4.	The Measurement of Engine Rotation Speed by M.Vedrunes	1973
5.	Magnetic Recording of Flight Test Data by G.E.Bennett	1974
6.	Open and Closed Loop Accelerometers by I.Mclaren	1974
7.	Strain Gauge Measurements on Aircraft by E.Kottkamp, H.Wilhelm and D.Kohl	1976
8.	Linear and Angular Position Measurement of Aircraft Components by J.C. van der Linden and H.A.Mensink	1977
9.	Aeroelastic Flight Test Techniques and Instrumentation by J.W.G. van Nunen and G.Piazzoli	1979
10.	Helicopter Flight Test Instrumentation by K.R.Ferrell	1980
11.	Pressure and Flow Measurement by W.Wuest	1980
12.	Aircraft Flight Test Data Processing — A Review of the State of the Art by L.J.Smith and N.O.Matthews	1980
13.	Practical Aspects of Instrumentation System Installation by R.W.Borek	1981
14.	The Analysis of Random Data by D.A.Williams	1981
15.	Gyroscopic Instruments and their Application to Flight Testing by B.Stieler and H.Winter	1982
16.	Trajectory Measurements for Take-off and Landing Test and Other Short-Range Applications by P.de Benque d'Agut, H.Riebeek and A.Pool	1985
17.	Analogue Signal Conditioning for Flight Test Instrumentation by D.W.Veatch and R.K.Bogue	1986
18.	Microprocessor Applications in Airborne Flight Test Instrumentation by M.J.Prickett	1987
19.	Digital Signal Conditioning for Flight Test by G.A.Bever	1991

Fig. 8a The Flight Test Instrumentation Series (AG-160, vols 1 -)

<i>Number</i>	<i>Title</i>	<i>Publication Date</i>
AG237	Guide to In-Flight Thrust Measurement of Turbojets and Fan Engines by the MIDAP Study Group (UK)	1979

The remaining volumes are published as a sequence of Volume Numbers of AGARDograph 300.

<i>Volume Number</i>	<i>Title</i>	<i>Publication Date</i>
1.	Calibration of Air-Data Systems and Flow Direction Sensors by J.A.Lawford and K.R.Nippres	1983
2.	Identification of Dynamic Systems by R.E.Maine and K.W.Iliff	1985
3.	Identification of Dynamic Systems — Applications to Aircraft Part 1: The Output Error Approach by R.E.Maine and K.W.Iliff	1986
4.	Determination of Antenna Patterns and Radar Reflection Characteristics of Aircraft by H.Bothe and D.McDonald	1986
5.	Store Separation Flight Testing by R.J.Arnold and C.S.Epstein	1986
6.	Developmental Airdrop Testing Techniques and Devices by H.J.Hunter	1987
7.	Air-to-Air Radar Flight Testing by R.E.Scott	1988
8.	Flight Testing under Extreme Environmental Conditions by C.L.Henrickson	1988
9.	Aircraft Exterior Noise Measurement and Analysis Techniques by H.Heller	1991
10.	Weapon Delivery Analysis and Ballistic Flight Testing by R.J.Arnold and J.B.Knight	1992
11.	The Testing of Fixed Wing Tanker & Receiver Aircraft to Establish their Air-to-Air Refuelling Capabilities by J.Bradley and K.Emerson	1992

At the time of publication of the present volume the following volumes were in preparation:

Identification of Dynamic Systems. Applications to Aircraft.
Part 2: Nonlinear Model Analysis and Manoeuvre Design
by J.A.Mulder and J.H.Breeman

Flight Testing of Terrain Following Systems
by C.Dallimore and M.K.Foster

Reliability and Maintainability
by J.Howell

Testing of Flight Critical Control Systems on Helicopters
by J.D.L.Gregory

Introduction to Flight Test Engineering
Edited by E.Stoliker

Space System Testing
by A.Wisdom

Flight Testing of Radio Navigation Systems
by H.Bothe and H.J.Hotop

Fig. 8b The Flight Test Techniques Series (AG-237 and AG-300, vols 1 -)

are very few such books around. Whilst copies may be available from Distribution Centres or the Sales Agencies, AGARD has made a special arrangement with the American Institute of Aeronautics and Astronautics (AIAA), and they have copies for sale (for \$25, I believe) from:

AIAA Technical Information Service
555 West 57th Street, Suite 1200
New York, NY 10019, USA
fax: 1 (212) 582 4861

The Engineering Data Compendium, published in 1988, is a more unusual publication. It was prepared by the Human Engineering Division of the US Wright-Patterson Air Force Base and was sponsored jointly by AGARD, NASA, and 8 US defense research laboratories or institutes. It contains over 2500 pages of detailed engineering information in three large volumes, organised in handy pull-out sections, to help designers appreciate the implications in human terms of their design decisions. It is accompanied by a 140-page user's guide.

This publication is not available from AGARD, although copies in a rather less convenient form may be available from the Sales Agencies. It is still possible to buy originals (all 2500 pages, plus a users' guide) for \$295 from:

Crew System Ergonomics Information Analysis Center
(CSERLAC)
Human Engineering Division
Wright-Patterson Air Force Base
OH 45433-6573, USA
fax: 1 (513) 255 7596

CASHE (Computer Aided Systems Human Engineering) is a new venture following from this, and also sponsored partly by AGARD. This will be a CD-ROM with an interactive, data-driven, prototyping system, allowing access to and simulation of the information contained in the Compendium and in MIL-STD-1472D, with hyperlinks between these two reference documents. It will have two main tools. The *Perception and Performance Prototyper* will provide experiential understanding of human perception and performance phenomena, for instance the effect of noise on the understanding of a message, or the effect of different colour combinations on symbol recognition. The second tool will be a *Data Viewer* for manipulating quantitative relations contained in the information base. The aim of the Data Viewer is also to promote recognition and understanding, but through an intellectual channel instead of an experiential one. Fig 9 shows diagrammatically how these aspects will inter-relate. This CD-ROM is expected to be available with a user manual about the middle of next year (1994), at a cost below \$300. Further information can be obtained from the address in the previous paragraph.

10. OTHER NATO AGENCIES

I have already mentioned the Scientific Affairs Division of NATO, which produces books that are published by commercial publishers. However, at least three other NATO agencies produce grey literature.

The SHAPE Technical Centre (STC), located in The Hague, provides scientific and technical advice to NATO's Supreme Allied Commander Europe. It produces a number

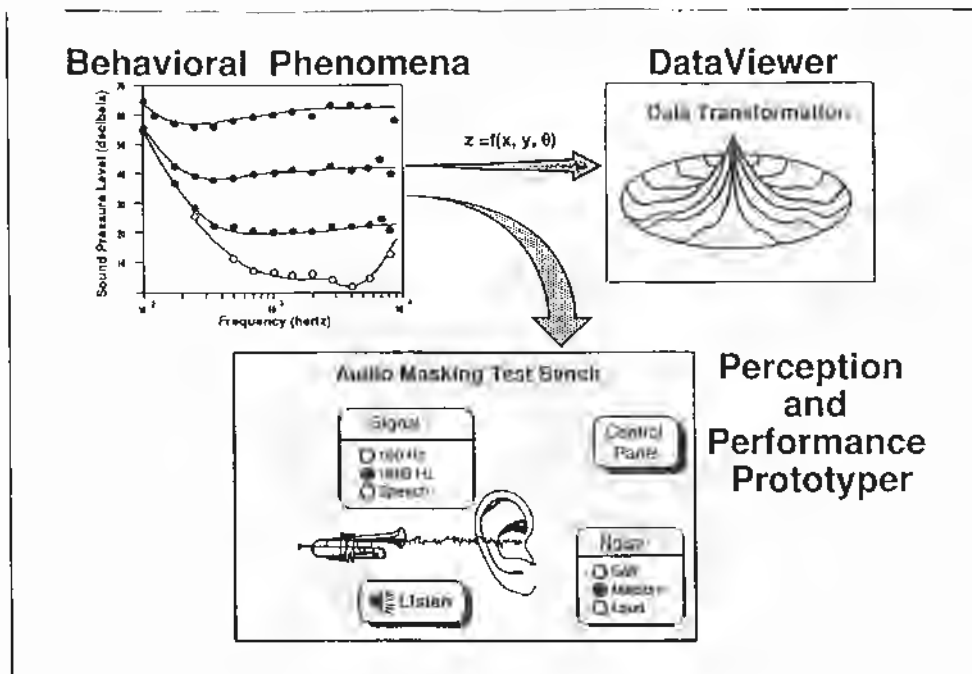


Fig. 9 CASHE (Computer Aided Systems Human Engineering)

of Technical Reports (TR) and Technical Memoranda (TM). Many of these are classified but some are NATO UNCLASSIFIED, which means that they may be available to non-government organisations and private individuals in the NATO nations, provided they have a "need-to-know" - yes, even for unclassified documents. Further information may be obtained from the Head of the Services Group, SHAPE Technical Centre, PO Box 174, 2501 CD, The Hague, The Netherlands.

SACLANT Undersea Research Centre (Saclantcen) is a research centre located in La Spezia, northern Italy, which serves SACLANT (NATO's Supreme Allied Commander, Atlantic). It too produces a number of technical reports, in three series, Saclantcen Reports (SR), Saclantcen Memoranda (SM) and Conference Proceedings (CP). As with STC, many of these are classified, but some are NATO UNCLASSIFIED, and occasionally permission may be given for a non-governmental organisation in a NATO country, with an appropriate "need-to-know", to receive a copy of one of the latter. Further information may be obtained from the Head, Scientific and Technical Information Department, SACLANT Undersea Research Centre, Viale San Bartolomeo 400, I-19138 La Spezia, Italy.

The Defence Research Group (DRG) is one of a number of groups reporting to NATO's Conference of National Armaments Directors (CNAD). It has a panel structure similar to AGARD's, but with the main work being performed by subsidiary bodies called Research Study Groups (RSGs). DRG produces a number of technical publications, as follows: Technical Reports (TR) - final reports from RSGs and other subsidiary bodies; Technical Notices (TN) - primarily supporting documents, such as copies of national reports, viewgraph presentations, etc; and Technical Proceedings (TP) - proceedings of conferences held by the DRG and its subordinate bodies. Again, many of these are classified, but some are NATO UNCLASSIFIED, and may be available to non-government organisations with an appropriate "need-to-know". Further information can be obtained from the Head of the Defence Research Section, NATO HQ, B-1110 Brussels, Belgium.

(6) Journals and research reports published by universities:

Basic studies which are mostly selected by easier referee systems are included.

(7) Technical reports published by private companies:

Results of R&D in the laboratories of private companies are not commercially available.

(8) Conference papers and pre-prints:

They are distributed only to those who attend the conference.

(9) Dissertation:

In many cases, there is no distribution system for these documents, and are mostly filed at universities.

1. What is "Grey literature" ?

"Grey literature" is a term born in Europe, and is also referred to as "non-conventional literature", "difficult-to-obtain literature" and "hard-to-get literature".

This term has been used in Japan since 1980's, and is particularly well known in the scientific and technical communities.

"Grey literature" attracted world wide attention when U.S. strongly asked Japan to facilitate distribution of such literature overseas during the negotiation of the "Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology" in 1988.

2. Definition of grey literature

Grey literature is defined as follows:

- (1) Documents are not confidential
- (2) Documents are not available through ordinary distribution channels

Its features are as follows:

- (1) Published for a specific audience
- (2) Distribution is restricted to a specific audience
- (3) A very small circulation area
- (4) Not for sale
- (5) Bibliographic elements are incomplete

In many cases, grey literature contains valuable information such as recent high technology, big-project, policy and the trends in science and technology, which is not available from journal articles and papers.

3. Many kinds of documents in grey literature in Japan

There are a variety of documents in grey literature, as explained below. It is not always difficult to obtain these documents. In some cases, it is easy for public institutions to get them.

- (1) Reports, proposal papers and reports of contracted research by diversified sets of councils and committees of administrative organ, excluding white papers and industrial statistics which are made public:

These are grouped into two:

- 1) reports containing results examined by councils and committees within organizations
- 2) papers submitted by the contracted think tanks

These documents have comprehensive and macro-scopic information, such as long-term prospects, policies and important measures.

- (2) Research reports, technical reports and annual reports published by research institutions and laboratories of administrative organs:

These documents focus on fundamental research, research with a long-term prospect and regional research.

- (3) Bulletins, research reports and annual reports published by foundations, incorporated associations and societies:

Specific topics for their members are contained as well as the reports of their activities. They are not distributed to non-members.

- (4) Research reports submitted by think tanks:

Results of the contracted research and independent research are compiled. Macro-scopic study and analysis in sociology, economics, industry and enterprises are included. Very few of these documents are circulated.

- (5) Bulletins, journals and annual reports published by hospitals:

Research results in the clinical field are included.

- (6) Bulletins, research reports and annual reports published by universities and colleges:

Results in the documents are mainly of basic and fundamental studies. In many cases, they are selected under easier referee systems than papers from academic society. The subsequent documents vary a great deal in quality.

- (7) Technical reports and annual reports published by private companies:

Though the purpose of these reports is to make their own R&D results public, they are not available through ordinary channels.

Technical reports of private companies in Japan are much different from the ones in the U. S., which come from PB (Publication Board), AD (Accession Document), NASA (National Aeronautics and Space Administration) and DOE (Department of Energy).

The real technical reports, while similar to the aforementioned documents, are very few. Only JAERI (Japan Atomic Energy Research Institute) Report and NAL-TR (National Aeronautic Laboratory) are popular.

- (8) Conference proceedings and pre-prints published by academic societies:

These are handed only to participants and members of the society.

- (9) Dissertations:

These cover doctoral theses and master's theses. Professors and students have easy access to them.

UMI (Universal Microfilm International) in the U.S. and BL (British Library) in the UK are making efforts to put them on ordinal distribution channels.

- (10) Translations:

These are not fully or partially translated journal, but individual papers translated by private companies or translators. In many cases they are privately stored.

In some cases, the following are included in "grey literature" as well.

- (11) Pamphlets and catalogues published and distributed by private companies:

- (12) Industrial standards and specifications:

However, it is unreasonable to include them in grey literature, because the primary purpose of these documents is to make them public.

4. How to access grey literature

Japan has some organizations which collect grey literature and provide information on accessing such documents through online and secondary materials.

- (1) The Japan Information Center of Science and Technology (JICST)

- (a) Database

-- Japan National Bibliography

This comprehensively covers and catalogues both monographs and serials produced in Japan. Computerized data are also available through Japan-MARC(M), and offered by CD-ROM as J-BISC.

-- National Diet Library Catalogue of Japanese Serials

This is the periodical catalogue of journals, university bulletins, newspapers, newsletters, yearbooks, annual reports and so on. The data is also available through Japan-MARC(S).

-- Japanese Periodicals Index

It is a quarterly index to articles appearing in major Japanese journals and has two separate parts: Humanities and Social Sciences; and Science and Technology.

(4) Institute for Dissemination and Research of Government Data (IDRGD)

This institution collects white papers, minutes, publicity documents, committee documents, experimental reports which are not for sale.

The institute publishes "Monthly Government Abstracts" and "Biyearly Summary of Government Document" as tools for locating these documents.

(5) NIRA (National Institute for Research Advancement)

NIRA, one of the major think tanks in Japan and a kind of foundation which subsidizes research of think tanks, collect approximately 3,000 titles and abstracts of research submitted by 200 think tanks in Japan, and publish "Annual Report of Think Tanks".

This is a valuable report for researchers, because it is difficult to access these results and findings. However, there are two problems in the report, as follows:

- 1) Not all the results are covered
- 2) Many of the collected documents are confidential

(5) Nomura Research Institute (NRI)

NRI, one of the biggest private think tanks and a system integrator in Japan, publishes the monthly journal "Nomura Search", which lists approximately 400 research results of think tanks by fields.

This journal covers research results of the social sciences as well as science and technology. It contains 400 titles in this field, some of which also have abstracts.

5. Problems of smooth distribution of grey literature

These problems should be overcome in cooperation with an administrative organ and information institution (information collector and information provider).

(1) Promoting distribution by administrative organ

Grey literature has been taken up as one of the important topics in discussions of the Japanese and U.S. Governments.

Administrative organs should recognize the importance of promoting the distribution of grey literature as policy. They should consequently promote vigorously the distribution of their respective grey literature.

(2) Increase distribution and establish access points

Institutions are required to make continuous efforts to increase distribution of the documents they produce.

Documents should systematically be controlled and access points established.

(3) Assignment of bibliographic elements

Improving and assigning bibliographic elements are necessary for cataloguing and computerizing grey literature.

In order to facilitate this process, SIST (Standard for Information of Science and Technology) must become more visible and popular.

5.3

Considerations on the organizational approach and treatment of grey literature in Italy

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Abstract

A general view of the organizational approach and treatment of grey literature (GL) in Italy is given on the basis of literature data (from 1987 to 1992) and personal experience. The study points out the generally widespread interest for GL; the existence of different types of producers and different ways of treating this material. From this general outlook, the necessity emerges to reach a common standard for the treatment and management of this precious material, that is a cooperative effort at the national level to coordinate all the existing initiatives, among which special attention is given to the creation of an *ad hoc* database for grey literature within the Italian national library service (SBN), which will contribute to the growth of the Italian input to SIGLE.

1. Introduction

The literature that appeared in Italy in these last years on the theoretical and practical aspects of the "grey" documentation is mainly represented in two volumes [1-2], containing papers of various authors who describe their experience on the matter and offer their considerations and suggestions to improve the access to information and availability of the grey documents. These papers give an idea of the different realities existing today as regards the producers and their products. On the basis of this literature, an analysis was carried on to gather data and information in order to understand the size of the problem and to reflect on the organizational approaches and treatment of this material.

The Italian documentary output which results from the survey points out the generally widespread interest for GL, that is more concerned with communication of ideas or results than with immediate profits. Most of the production, therefore, is found in the scientific and technological fields, but, as it will be shown, the central and local government bodies, municipal enterprises, socio-economical bodies, cultural institutes and even libraries of small towns produce a lot of valuable documents, which deserve a wider audience.

2. Administration

Much of the documentary output of the Italian central or local government authorities, government agencies and public administration, belongs to the typology of GL. Though some bodies, particularly those operating in the fields where information is necessary for

decision making, have organized their output and input, recording the items in details, the identification and localization at national level of such a valuable and useful material remain a huge problem.

The grey products of the Italian Parliament (Chamber of deputies and Senate) have increased in these last times because the request for documentation by parliamentarians, special interest groups and citizens has increased. The various services and the libraries of the two branches of Parliament prepare dossiers, reports, bibliographical notes, etc., bound to the topics and acts to be discussed in committees and assemblies, and pamphlets, leaflets, periodicals and other literature providing information and advice to the general public [3].

The Chamber of deputies and Senate have the legal deposit (Law No. 432 of 1910) of all the publications issued by government agencies.

The library of the Chamber of deputies has taken the initiative to create a database for GL which is produced by or enters the Chamber. The database should represent a local library in the system DOBIS/LIBIS used for all the library materials. The entries are treated according to the same cataloguing rules and indexing terms, based on a thesaurus created for parliamentary documents [4].

The Observatory on the Public Administration, created in 1990 by the Italian National Research Council (Consiglio Nazionale delle Ricerche - CNR) and the Italian Central Institute of Statistics (Istituto Centrale di Statistica - ISTAT) in the framework of the finalized project on the management of public administration, is a structure which aims at collecting all the information sources produced by the central government agencies (government departments, public companies, national public boards, etc.) concerning their own organizational patterns. For this purpose the Observatory has established a documentation service and a study centre with the objective of providing researchers, scholars and students with information and documents necessary to their studies. Grey literature of administrative nature, mostly of archival character, has a great share of the input, having the official publications the first place. The main tool used to locate and retrieve grey literature in this field is represented by a network of collaborators inside the government departments and public bodies, giving rise to direct contacts and information feedback with the producers of these documents [5].

This structure may be considered an interesting experiment of collaboration between researchers and librarians/documentalists.

The library of the State Audit Office, which is specialized in administrative-judicial and economical-financial matters, collects all the materials issued by the public administrations on the basis of the criteria of utility-congruence. The experience of this structure, which treats the grey materials in the same way as the conventional ones, makes evident that the informal studies carried out in the government departments are much more numerous than people may think, they are often known a long time after their elaboration, being consulted with great interest despite the time passing. This interest grows up proportionally with the years [6].

Everywhere in the world, GL is growing up with the increase of the administrations' tasks and with the multiplicity of the places where administrative activities are carried out. Until 1970 in Italy the Regions as political and administrative bodies did not exist and in the last forty years the number of ministries has increased by one third, and new administrations (from the "independent" to the "mission-oriented" ones) were developed.

or circumstances exhausting the information in a certain period of time: they are preserved for 1-3 years; "scientific content" as the working or seminar papers of the most important foreign universities: they enter a permanent archive.

The results of the economics researches carried out by the Bank are spread through a series of publications of GL devoted to arguments of discussion, statistical and economical data, often also in English versions [11].

An important role in collecting and processing local information is performed by the System of the Italian Chambers of commerce (95 chambers, 19 regional unions and Unioncamere - the national union), which is one of the major producer of surveys on territorial economics.

The Cerved, the informatics society of the Italian Chambers of commerce, treats, from the half of '70, all the data coming from each chamber, having created a number of on line data banks in real time.

Publications of GL issued by the chambers refer essentially to three fields of activity: administration, promotion and economic research. A project, presented by the Unioncamere for a database to be consulted through the Cerved network, aims at solving the problem of the access to the documents produced and held in the libraries of the Chambers of commerce [12].

4. Education

Many reports and unpublished documents deal with educational management, current developments and policy matters, having some of them a local value, while others represent valuable studies from cooperative programmes and projects.

Though a great deal of information on education is published directly by national and local government bodies, two different sized libraries in Italy are collecting the grey material in the field at national level and are trying to inform about it by means of printed bibliographies and on line databases, and to make it available.

The Florence Library of Pedagogical Documentation (Biblioteca di Documentazione Pedagogica - BDP) is the Italian national agency of the European Documentation and Information System for Education (EUDISED), which is produced by the Council of Europe. In the framework of this system, BDP collects, evaluates and makes available the documents produced on the territory, which are treated according to the EUDISED standards. Also the ERIC database may be interrogated on line at BDP.

A national network was created by BDP in collaboration with the Italian regional institutes of educational research and training (Istituti Regionali di Ricerca, Sperimentazione e Aggiornamenti Educativi - IRRSAE), which informs on what is produced in Italy (open and grey literature) since 1985.

The selection, analysis and treatment of the documents are made by the partners of the network (universities and institutes working in the educational field). The bibliographic descriptions of the records are made according to the Italian rules for cataloguing library

material and the ISO standards, and the indexing language used is based on the Italian version of the EUDISED multilingual thesaurus. The Videotel Service permits the access to the on line archives which are managed by BDP [13-14].

An initiative, carried out by the Library "Gianni Rodari", supported by the Tuscany Region and the Municipality of Campi Bisenzio (Florence) where the library is located, takes a particular meaning in this survey [15]. It clearly proves that the production of grey literature now covers every branch of knowledge.

The Library produces a quarterly periodical of bibliographic information (*Li.B.e.R*) on all the books for children and school children, distributed in Italy, and is an observatory on this editorial production and on the relative phenomena. One of these is a strong presence of GL materials produced mainly by institutions and devoted to the educational operators. From 1990 the periodical contains a section, called "Materia grigia" (Grey substance), which informs teachers, librarians, parents and the same school children about the documents produced by the Italian institutions of the field. The library collects all the documents and created a "Grigia data base" (CDS/ISIS software).

The collection contains at present some hundreds of documents produced by the local government bodies and public libraries (45%), by the Provinces and library systems (22%), by private institutions (11%), by schools and school libraries (7%) and museums (6%).

The rules for description are based on ISBD(M) and AACR2 (third level); the choice and form of the main and secondary entries follow the Italian cataloguing rules. Each item is classified according to the Dewey decimal classification and indexed on the basis of a list of descriptors (at present in a testing stage), and synthesized in an abstract (about 75 words).

5. Humanities

The presence of GL in the Italian cultural institutes is relevant as it is shown in a sample survey [16].

The cultural institutes are foundations, corporations and private institutes (about 200 bodies) to which a law (No. 123 of 1980) acknowledges their importance at national level as producers and keepers of culture. Their purposes aim at the diffusion of information and the development and improvement of scientific research within the specialty for which they were created. Their disciplinary sphere is, in general, limited to human sciences, being the social and political ones the most represented.

The documents produced by these institutes are the main sources which permit, in addition to printed materials, to rebuild the history of the Italian culture. They do not become old and do not lose their value after a certain number of months or years, but their information value increases with the passing of time.

These documents are differently managed according to the context, subject and source, as sometimes they belong to the library and sometimes to the archives of the institute so that identical typologies of materials are treated in different ways.

The collections of GL are not differentiated in the libraries and their storage follows the peculiarities of each library.

d) *The necessity for a national database.* Given this situation, on the basis of the York Seminar and the international program of Universal Availability of Publications, it was decided to create a national database integrated in the Italian National Library Service, known as SBN, and at the same time to support the growth of the Italian input to SIGLE contributing to the development of the Italian national reference centre.

A brief outlook of the main initiatives leading to the creation of this base is required to better understand it [21].

In 1988 a special grant was given by the Italian Minister of University and Scientific Research to support and improve the research infrastructures. The importance of easy access and availability of all the grey documents produced in Italy was pointed out and a special project for GL was approved. The Central Institute for the Union Catalogue of the Italian Libraries (Istituto Centrale per il Catalogo Unico delle Biblioteche Italiane e per le Informazioni Bibliografiche - ICCU), which is responsible for SBN, has the primary responsibility for the creation and development of the database.

The base will be initially tested with the production of the Italian National Health Institute (one of the partners of the above grant) and then the necessary procedures will be set so that other producers of GL may collaborate to the input of the base.

This action does not affect the agreement that Italy signed with EAGLE (European Association for Grey Literature Exploitation) for the input of SIGLE, but certainly will improve the Italian participation to the European system.

In fact, the Italian database for GL is in accordance with the SIGLE format, also if some additions, particularly for the literary indicators and for the presence of abstracts, have been introduced for our own purposes. Each producer enters its own bibliographic records for which is responsible, and libraries, documentation centres, etc., which are connected with SBN and have these documents, may indicate their availability regarding interlibrary loans or reproductions.

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The initiatives of a library association for the promotion of grey literature

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Abstract

The main initiatives taken in Italy by the Italian Library Association (AIB) for the development and promotion of grey literature (GL) are presented, i. e.: survey of the main Italian producers of GL, standardization activities, collaboration to the support of SIGLE, creation of information tools for GL, evaluation of the use of GL through citation analysis; training activities, etc. The projects are described in detail and the results of the researches carried on are given.

1. The background

The Seminar of York (1978), as everybody knows, is one of the most representative events for the promotion of grey literature (GL) in Europe [1]. The recommendations which were drawn as a product of the seminar represent the first initiatives taken at the community level to promote this kind of literature. Among other things, they required that each country participating at the meeting should take the appropriate steps within the national borders so as to permit the development of further collective actions at international level.

The first stage of the promotion plan required that the different approaches to the production and management of GL should be pointed out in order to develop a common strategy. These actions would then lead to the creation of the SIGLE database and EAGLE, as well known to all the participants to this Conference.

The Italian National Research Council (Consiglio Nazionale delle Ricerche - CNR), through its Central Library, was then considered to be the most appropriate body to act as the reference authority for Italy. In effect, the first sample survey of the Italian producers (based on 425 questionnaires mainly directed to the research institutes of CNR itself, some scientific institutes of the University of Rome and other governmental and private research institutes) was carried on in 1979 by the Institute for studies on research and scientific documentation (Istituto di Studi sulla Ricerca e Documentazione Scientifica - ISRDS) of CNR [2]. The results of the survey gave a general idea of the confusion existing among the producers themselves, which generated greatest difficulties among those responsible for the processing, treatment and availability of GL.

But, parallel to the commitment of CNR as the Italian national authority for the development of SIGLE, we wish to point out in this paper the relevant role played by the Italian Library Association (AIB) for the promotion of GL in the country.

Before introducing the many initiatives of this association, it is important to reflect on the fact that the different impact of York recommendations in Europe depended upon the different local situations. If it was so positive in Italy, it was mainly because a particular

sensitivity to the problem of GL had already been developed in the country, mainly in the scientific research sector. In the scientific community, in fact, the importance of this primary communication channel was felt much more than in other sectors due to the necessity of researchers in the different fields to immediately communicate their research results to colleagues and experts of the same sectors, mainly through informal media. In effect, some attempts to improve the circulation of GL, above all technical reports, could already be evidenced in the scientific world also before the Seminar of York.

Here follows a brief outlook of the main initiatives taken by AIB which represent a good example of cooperation between professional and governmental organizations for the realization of a common goal: to improve the access and availability of grey literature.

S. 4

2. The role of the Italian Library Association

In general, the importance of GL was deeply felt by the Italian librarians and documentalists gathered in the national professional associations and since the beginning of the eighties on many occasions (meetings, national conferences, etc.) they had opportunities to express a deep concern about the disomogeneous management (if any!) of documents such as technical reports, theses, communications presented or to be presented to conferences, etc. in the Italian libraries and documentation centres. Of course, the value of the information contained in most of the material concerned was never disregarded, but librarians were often unable to treat these documents properly mainly for the lack of adequate regulations, funds, personnel, space, and time.

A study group for the analysis of all relevant issues concerning grey literature was formally established within the Italian Library Association in 1985 with the following objectives:

- survey the main Italian producers;
- survey the Italian libraries and documentation centres collecting technical report series, both Italian and not;
- improve the formal presentation of GL through the application of national and international standards;
- support the promotion of SIGLE;
- facilitate to the Italian librarians, documentalists and producers the comprehension of important foreign documents relating to this kind of material (articles, cataloguing rules, standards, etc.), by translating them into Italian;
- evaluate the use of GL through the analysis of citations appearing in journal articles;
- disseminate information on GL through courses, seminars, conferences, journal articles, newsletters, and other publications.

These objectives, which initially started with a limited task force, were developed in the following years and also people and resources involved further increased in time thus permitting to achieve a number of satisfactory results. Let us consider them in particular.

3. The surveys

The survey of the Italian producers of GL was the first project carried on in this field by AIB. It was developed in different stages and periods with the intent to make a map of the main Italian organizations producing GL and the main series they produced.

The ambitious program of the survey initially (1987) intended also to point out the main libraries and documentation centres collecting technical report series, but after an attempt made by the National Central Library of Florence and by the Italian State Audit Office, given the complexity of the goal, this part of the project was put aside in view of more immediate realizations.

The increasing number of people involved in the survey, who spontaneously offered to work for the association projects, showed the great professional interest existing in Italy for this kind of material which, in many sectors, was also supported and developed by the increasing users' demands for GL documents.

After a sample testing of a first questionnaire prepared for all scientific research sectors, the surveys were carried on separately in the different sectors where the necessary collaborations were found to guarantee their realizations.

In the biomedical-health sector, an agreement was established with the Istituto Superiore di Sanità - ISS (the technical scientific body of the Italian national health service); among the others, a survey was carried on to evaluate the production of the Italian hospitals with tasks of scientific research (Istituti di ricovero e cura a carattere scientifico).

Other collaborations were found with CNR itself for the production of its research institutes, with ENEA (the Italian national body for energy and environment) for the energy sector, with INEA (the Italian institute of agricultural economy) for its own production, with the Fondazione Ugo Bordoni in the field of post, telegraph and telecommunication, etc.

The results achieved during the above surveys were informally published in the newsletter of the AIB group [3].

4. Standardization activities

In consideration of the necessity to improve the formal presentation of the documents of GL, which is the first step towards a bibliographic control of GL itself, the Association has promoted the application of the existing national and international standards. In particular, the standard ISO 5966/82 "Presentation of scientific and technical reports" was translated into Italian and was accepted by the Italian standardization body (UNI) [4]. Its use and diffusion was then highly recommended and promoted by the members of the AIB group on every possible occasion (personal contacts with people/bodies concerned in the production of technical reports, seminars, workshops, training courses, etc.).

Furthermore, an AIB *ad hoc* group also participated in the works for the creation of a new ISO standard for grey literature: the "ISRN", the International Standard technical Report Number. Such alphanumeric code should permit to identify the single bibliographic

unit (technical report), as ISBN does it for books and ISSN for serial publications; in the future ISRN should even replace the latter two codes. When the ISO standard is published, the AIB group will translate it into Italian possibly to arrive at a national standard.

Last but not least, another important translation that is in progress on behalf of UNI is that concerning theses (ISO 7144 - Presentation of theses and similar works); it will surely contribute to get a certain level of standardization in the presentation of these important documents.

5. AIB collaboration to the support of SIGLE

AIB, as a professional association which promotes the organization and development of libraries and library services, has recognized the value of SIGLE since the Italian adhesion to the system (formally in 1985). It has promoted it through different channels: courses, seminars, professional literature, etc. In particular, an important document issued by the Association itself is worth mentioning: the Italian translation of *SIGLE Manual Part 1: SIGLE cataloguing rules* and Part 4: *Guidelines for the standardization of corporate entries* [5]. This work, carried on after a formal translation agreement with EAGLE, was specifically intended to support the Italian national authority in the diffusion of this database. The approach to SIGLE, in fact, is much easier with an instrument in the users' language. The knowledge of English, of course, remains a pre-requisite for the librarians collaborating to the input of the SIGLE database since the worksheet and subject categories are in English, but the approach is much improved with a working tool in Italian. A possible translation of the other parts of the SIGLE manual was not deemed appropriate since Part 2: *SIGLE subject categories* required a large effort in terms of time and commitment, and Part 3: *Magnetic tape rules* was to be used only by the central authority.

6. AIB information tools for grey literature

The spread of information is one of the basic activities of any association in any field, thus permitting to up-date its members for the sake of the entire community. The Italian Library Association has produced a number of relevant tools as a product of its research activities. First among them, a monographic volume of the Association bulletin entirely devoted to grey literature [6]. This volume contains a basic introduction to GL, a discussion on theoretical and methodological aspects, some initiatives of the European community, international information systems and different experiences of management of GL in Italy as to 1987. The picture has acquired different tones in the years as shown by the proceedings of the following two important meetings. First, the Workshop of the national AIB Commission for Information and Documentation [7] and second, only in time but not in importance, the First national conference on grey literature [8], organized by ISS in collaboration with AIB. This latter conference was supported by ISS which was directly involved in the creation of an *ad hoc* national database for GL and by AIB as promoter of so many initiatives for the

development of GL in Italy. The discussion on the different themes proposed in each session (new projects; SIGLE; experiences in research sectors; initiatives of governmental bodies; initiatives of the national libraries; theses) proves the widespread interest for this material in every field together with the necessity of cooperation at national and international levels for the realization of the on-going initiatives.

For the diffusion of the activities on the AIB study group on GL, an *ad hoc* newsletter (*LG Informazioni*) was created to spread detailed information on the projects and containing also a selected bibliography. Furthermore, also the Association newsletter (*AIB Notizie*) that is addressed to all members, and not only to *ad hoc* study groups, contains more general information on the activities in progress.

7. On-going projects

After this brief outlook of the activities carried on up to now by the Association, the initial open question still remains on what is included in this once bizarre, but now widely accepted, collective term. Given the difficulty to get to a clear definition of grey literature that should not just be limited to the "negative" statement of what it does not include (what is not distributed through regular bookselling channels), a new study should start to reach a "positive" definition of this material.

Another interesting project proposed by the Association in 1990 and supported by grants of CNR, refers to the evaluation of the use of grey literature [9]. The evaluation method is based on the analysis of citations appearing in core periodicals in specific sectors. The method was tested for a limited number of periodicals in the field of health sciences [10]. The study was further developed [11] and then applied in the field of library and information sciences. Some results are given in this conference.

Among the future programs, also standardization activities are included, such as for example the already mentioned translation works which will be carried on in the nearest future.

8. Conclusions

The experience of the Italian Library Association for the promotion of GL confirms the importance of the involvement of any professional association for the realization of relevant projects at national and international levels.

The role of the associations, in fact, is not only limited to update and train their members according to the most recent developments in their fields thus providing an appropriate forum for discussion and further improvement, but also to extend their actions to guide basic choices in the information policy of the country. This may be realized by the creation of relevant tools which have the functions of capturing the different interests of the leading parties and of sensibilising both the technical and political bodies operating in the sector.

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Grey literature in information science: production, circulation and use

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Abstract

The hypothesis of the work was to evaluate the use of grey literature in information sciences on the basis of citation analysis. After a selection of a number of relevant journals in this field, the citations contained in scientific articles were analysed to evaluate the types of GL references (technical reports, proceedings, standards, theses, etc.), the languages used, the main producers (countries and international organizations), and the years of GL references. The results of the analysis are given with comments and reflections on the main producers and circulation channels.

1. Introduction

Grey literature (GL) belongs to the primary sources of information, and it has a very important role in the information transfer process in any field. This study is based on the consideration that one of the parameters which permits to assess the value of a document is given by the users' reference to that document in literature.

The main objective of the research is to evaluate the actual use of grey literature in the field of documentation, information science and librarianship, as defined by SIGLE category Ø5B [1]. This goal is realized through the analysis of citations appearing in the journal literature of the field which permits also to identify the originating countries and international organizations producing GL and its circulation channels.

2. Methodology

The method of analysis was already tested by the authors in a previous sample survey carried on in health sciences [2] and later discussed with colleagues during conferences [3-4] and informal meetings.

In synthesis, the stages of the research can be summarized in the following steps:

- 1) selection of primary journals to be analysed;
- 2) definition of the types of publications (research articles, review articles, editorials, technical notes, etc.) to be considered within the selected journals; (only strictly scientific works were taken into account; interviews, letters to the editor, presentations not containing scientific reflections were excluded);

3) definition of the types of grey literature within the above types of publications: reports, papers presented at conferences, proceedings not commercially distributed, theses, standards, publications by professional organizations (that may be considered as half-conventional documents), etc.;

4) analysis of GL citations according to dates of publication, language, originating countries or international organizations.

Without going deep into the details of the methodology which is widely explained in the above mentioned works, we wish to point out some considerations which guided the selection of the journals.

The first criterion was to consider both journals devoted to all aspects of librarianship and information science and journals regarding only one particular aspect of the field.

The second criterion leading to the above selection was the authors' knowledge of the language in which the periodicals are written and therefore only journals basically written in Italian, English, French and Spanish were included.

The geographical origin of the journals was also considered in the selection. Three journals edited by international organizations were included because such journals contain contributions from all countries, thus permitting to have a wider geographical coverage.

All this considered, the following journals (where the editors are also indicated) were selected to carry on the study:

<i>Bollettino d'Informazioni AIB</i>	Associazione Italiana Biblioteche - AIB (Italy)
<i>Bulletin of the Medical Library Association</i>	Medical Library Association - MLA (USA)
<i>Documentaliste</i>	Association Française des Documentalistes et des Bibliothécaires Spécialisés - ADBS (France)
<i>IFLA Journal</i>	International Federation of Library Associations and Institutions - IFLA (Netherlands)
<i>L'Indicizzazione</i>	Centro di informazione e Documentazione Automatizzata in Trieste - CIDAT (Italy)
<i>Information Technologies and Libraries</i>	Library and Information Technology Association - A Division of ALA (USA)
<i>Inspel</i>	IFLA Division of Special Libraries (Germany)
<i>Interlending and Document Supply</i>	British Library Document Supply Centre - BLDSC (UK)
<i>International Classification</i>	International Society for Knowledge Organization - ISKO (Germany)
<i>Program</i>	The Association for Information Management - ASLIB (UK)

Once operated the selection of journals, and once defined the years in which to perform the study (1990-1991), each single issue was separately analysed to see how many articles it contained, and how many articles had references. This proved that, considering all journals together (containing 537 articles as a whole), the percentage of all the articles with references was 76.9% (413), while those without references were 23.0% (124).

Within the articles containing references (413), those with GL references accounted for 77.0% (318), while those containing only references to open literature were 23.0% (95).

Table 1 shows the more detailed data resulting from the general analysis of the above selected periodicals.

The following step was the study of the references of the above articles to see how many of them were related to GL documents. Citation counting always presents methodological problems. Many articles cite the same sources more than once, and it was decided to count all the citations. The result was that 77.9% (4,852) of the entire amount of references considered (6,229) were related to documents of open literature, 22.1% (1,377) were of GL (Fig. 1).

Table 1. - General data of the journals considered 1990-1991

Titles	No. of articles	Articles with references	Articles with GL references	No. of references	GL references
<i>Boll Inf AIB</i>	25	20	17	677	115
<i>Bull Med Libr Assoc</i>	103	100	69	1518	240
<i>Documentaliste</i>	68	45	38	547	128
<i>IFLA J</i>	75	49	42	655	268
<i>Indicizzazione</i>	23	18	16	236	54
<i>Inf Technol Libr</i>	62	43	31	552	102
<i>Inspel</i>	49	25	22	252	93
<i>Interlend and Doc Supply</i>	40	34	30	866	195
<i>Int Classif</i>	37	34	26	532	113
<i>Program</i>	55	45	27	394	69
Total	537	413	318	6,229	1,377

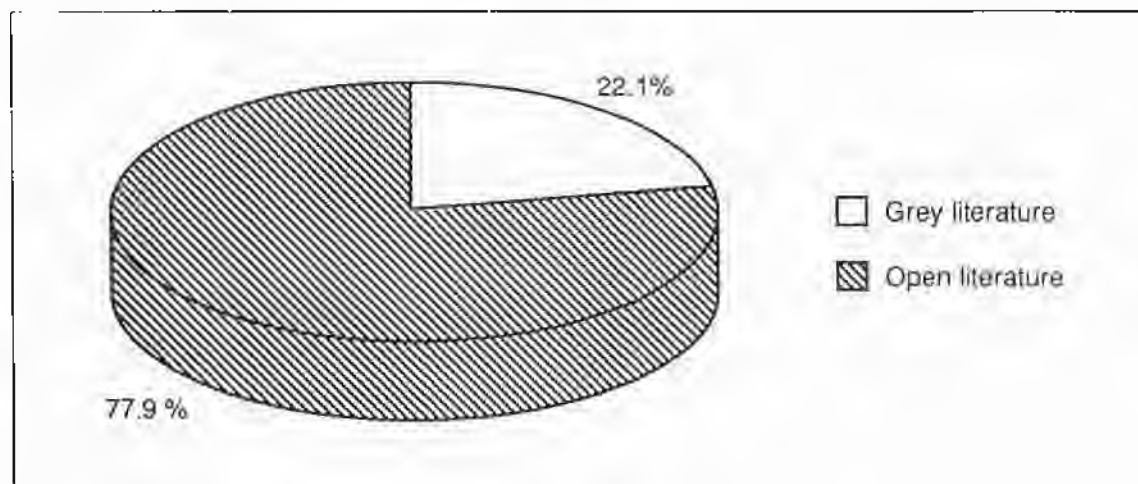


Fig. 1. - Grey literature references (1, 377) and references to open literature (4,852) over the total number of references (6,229)

3. Results and discussion

The analysis was then performed on the GL citations to divide them according to the type, and this proved, as expected, that reports prevail over the other types of GL (56.6%), followed by proceedings (32.3%, including also personal communications), standards (3.5%), theses (1.7%) (Fig.2). The item "other" types (5.9%) includes some translations, official documents, articles in house journals, and all the other documents which are comprised under the term grey literature according to the definition given in the *SIGLE Manual* [5].

The results of the study are synthetically given in Fig. 2, while Table 2 shows the more detailed data from each journal.

As data show, reports and proceedings always prevail over the other types of GL and their number greatly exceeds the other types in the journals dealing with more technical aspects of the field and/or with particular branches of librarianship (*Bull Med Libr Assoc*). They are followed by standards and theses which account for a very limited percentage over the total.

Some reflections should be made on the category of standards which are included in GL, but are not indeed so "grey" in so much as they are distributed by the standard organizations once they are published.

We wish also to point out that theses proved to be more cited by authors from countries having well organized bibliographic control for this material.

Fig. 3 and 4 show data on languages and originating countries as taken from the references. English (76.0%) prevails over the other languages, as expected, although a detailed study on the authors' native language should be carried on to get to a more realistic view. Also the originating country, as reported in Fig. 4, refers to the citation and not to the author. A new research should be carried on to compare data referring to the author and to the citations. By the moment we can state that, according to the criteria followed in this

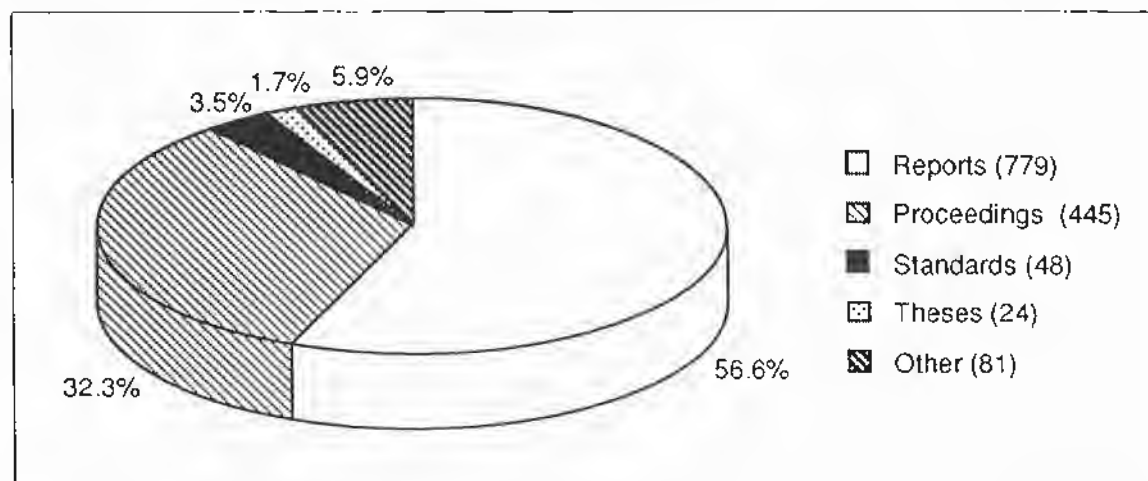


Fig. 2. - Total numbers (in brackets) and percentages of GL references according to the types of documents

Table 2. - *Types of GL in the references of articles of selected periodicals (1990-1991)*

Titles	GL references	Reports	%	Proceedings	%	Standards	%	Theses	%	Others	%
<i>Boll Inf AIB</i>	115	57	49.6	33	28.7	6	5.2	-	-	19	16.5
<i>Bull Med Libr Assoc</i>	240	148	61.7	71	29.6	-	-	1	0.4	20	8.3
<i>Documentaliste</i>	128	73	57.0	46	35.9	4	3.1	4	3.1	1	0.8
<i>IFLA J</i>	268	125	46.6	107	39.9	13	4.9	8	3.0	15	5.6
<i>Indicizzazione</i>	54	17	31.4	17	31.5	4	7.4	-	-	16	29.6
<i>Inf Technol Libr</i>	102	64	62.7	26	25.5	7	6.9	1	1.0	4	3.9
<i>Inspel</i>	93	66	71.0	20	21.5	1	1.1	2	2.2	4	4.3
<i>Interlend and Doc Supply</i>	195	124	63.6	66	33.9	2	1.0	1	0.5	2	1.0
<i>Int Classif</i>	113	61	54.0	39	34.5	9	8.0	4	3.5	-	-
<i>Program</i>	69	44	63.8	20	29.9	2	2.9	3	4.4	-	-
Total	1,377	779	56.6	445	32.3	48	3.5	24	1.7	81	5.9

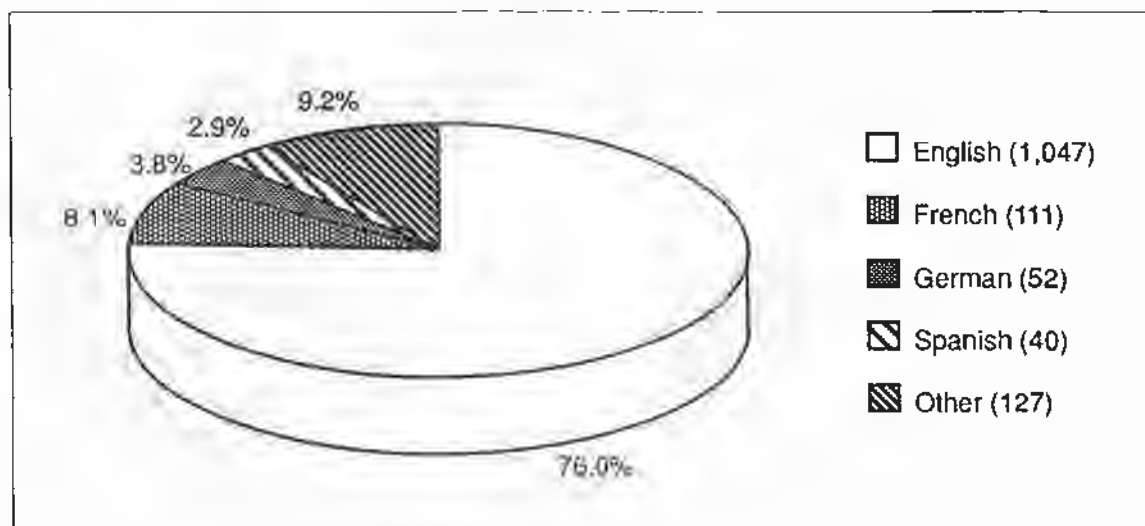


Fig. 3. - Total numbers (in brackets) and percentages of languages used in GL references

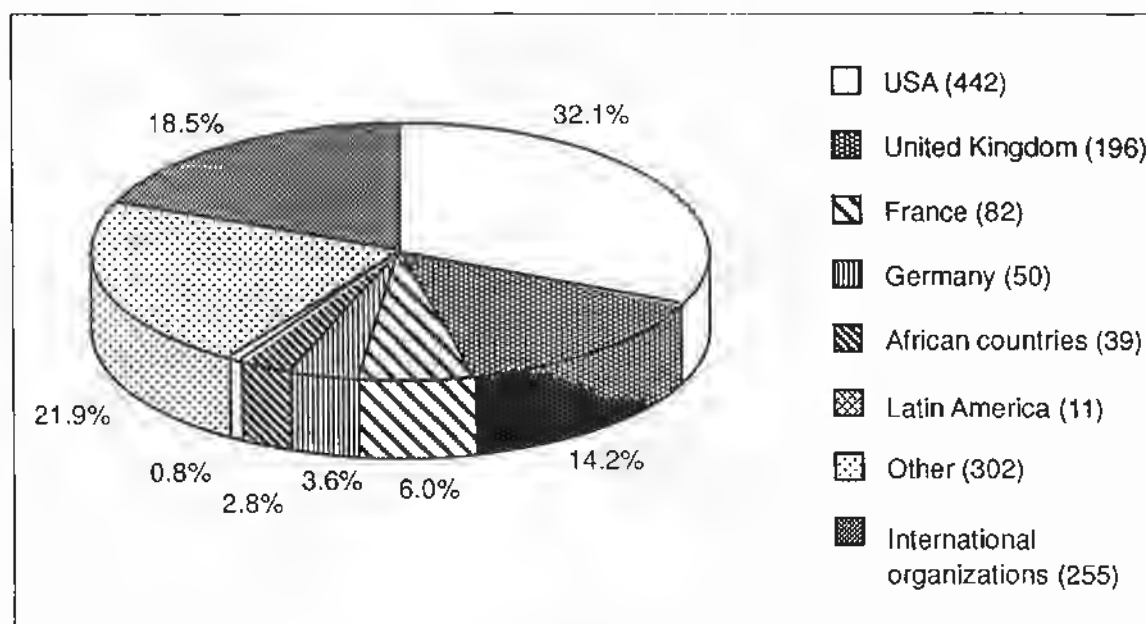


Fig. 4. - Total numbers (in brackets) and percentages of originating countries/international organizations in GL references

research, as English prevails as a language so the USA and the United Kingdom prevail as originating countries, but the percentage of GL produced by the USA and the United Kingdom together (64.8%) does not match the total of GL written in English (76.0%). This means, as data confirm, that most documents are written in English although they are not produced by the USA, the United Kingdom or other English speaking countries. We refer mainly to international organizations, some African and some Latin American countries.

**The evaluation of GL impact in Physical sciences using bibliometric indicators.
Preliminary results.**

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ABSTRACT

In this paper the results of a survey on GL use in the bibliographic references of the Physical literature are described.

The definition of GL is briefly discussed. Three categories (Dark-grey, Medium-grey and Light-grey) are introduced in order to account for different *tones* of Grey GL documents. Moreover, some bibliometric indicators are proposed to evaluate the impact and examines the characteristics of GL documents cited. Data used for this analysis were obtained from a sample of Journals indexed by Science Citation Index, in the category of "Physics".

1. INTRODUCTION

Given the increasing relevance of Grey Literature (GL) in the information and documentation field, we have undertaken an analysis using bibliometric indicators similar to the ones widely used for conventional literature. The main objective of the study was to investigate whether the citations of GL in the bibliographic references represent an efficient tool for exploring both the frequency and modalities of GL use in conventional literature.

Examining the bibliographic references we attempted to evaluate both the role and purpose of GL in scientific communication and to get useful information in order to improve bibliographical control, which is the "weak point" of this kind of literature (1-5).

Most citation studies have widely recognised that different disciplines have different rates and different patterns of citation, but its motivation is not yet sufficiently understood (6-11).

The debate on citation analysis is up till now open and there are "good theoretical reasons for supposing that such analyses are not necessarily adequate to enable conclusions of general validity to be drawn". Nevertheless, it

remains an important tool for measuring and comparing scientific and technical literature.

The aims of this study were (1) to measure the impact of GL on physical sciences using bibliometric indicators and, (2) to describe the characteristics of GL documents cited from a sample of selected periodicals. In this paper we present the results of a survey on a sample of journals and we propose some bibliometric indicators to be used for GL analysis.

2. MATERIALS AND METHODS

2.1. Journals sampled

We analysed a sample of reviews indexed by the Science Citation Index. Eight Journals, with different impact factors, (Table 1) were selected from the Journals listed in the 1991 SCI in the category of "Physics". An additional Journal was selected from the category "Nuclear physics" of the same SCI to evaluate the use of GL in a physical subfield. All of them are published monthly except Review of Modern Physics, which is quarterly.

The Journals were selected irrespective of the country of publication, this said, in the future it would be interesting to analyse this aspect, too.

All selected Journals were available from the collection of the Central Library of the National Research Council (Consiglio Nazionale delle Ricerche - CNR).

Table 1

Sampled journals

Journal (Country)	Impact factor
1. Review of Modern Physics (USA)	16.800
2. Reports on Progress in Physics (UK)	4.732
3. Physics Today (USA)	3.327
4. Physical Review C: nuclear physics (USA)	1.876
5. Physica D. Non linear phenomena (NH)	1.805
6. Proceedings of the Royal Society of London. Series A: Mathematical and Physical Sciences (UK)	1.552
7. Progress of Theoretical Physics (JPN)	1.134
Nuovo Cimento D: Condensed matter, Atomic molecular and chemical physics, fluids, plasmas, biophys. (IT)	0.509
9. Chinese Physics Letters (China)	0.232

Data was collected directly from primary sources, that is the bibliographies of the articles in the selected Journals. For each Journal we counted the following: the number of "articles" including "brief reports" and "rapid communications" and, for each article, the number of references (including GL references).

2.2. Definitions and indicators

We defined GL according to the recommendations issued at the York workshop of 1978: grey literature is that which is not readily available through normal bookselling channels, and is therefore difficult to identify and obtain".

For each GL reference we collected the following information:

- Type of material cited (meeting paper, private communication, report, "submitted-to manuscript", thesis, "to-be-published manuscript", unpublished material);
- Date: year of publication of the GL document;
- Self-citing: yes /no, depending on whether one of the authors of the GL document cited was also an author of the article examined.

Since we felt that the different types of GL document are not of the same "tone" (12) of grey, we decided to categorise them on the basis of their ideal distance from the "white" literature. Accordingly, we classified GL documents in three categories: "dark grey", "medium grey" and "light grey" documents.

The category of "dark-grey" documents is composed of GL documents that might disappear without leaving any traces, and, in our sample, includes the following three types of GL document: private communication, unpublished material and "submitted-to manuscript". The last ones have been included because most of the manuscripts submitted to Conferences and Journals not only are rejected but also pass away, as pointed out by Cronin (13).

The other GL documents are usually recorded in an information system of some scientific organisation. We divided them in two additional categories. The category of "medium-grey" documents is composed of documents (report, thesis) that, even if available from specialised information systems, might be unnoticed by the scientific community. The third category is composed of "light-grey" documents, that is GL documents of which the scientific community has been officially informed or is about to be so; this category includes two types of documents: meeting paper, and "to-be-published" manuscript.

To measure the impact of GL on the conventional literature we used the following indicators:

- the frequency of GL use (i.e. the proportion of articles with GL citations, out of all the articles examined);
- the frequency of GL citing (i.e. the proportion of GL references out of all the references examined);
- the intensity of GL citing (i.e. the frequency of GL citing divided by the frequency of GL use); this is an indicator of the average frequency of GL references per article with GL.

3. RESULTS

3.1. GL articles and references: general results

The selected Journals contained 1,480 articles for a total of 39,000 references. We found 2,335 GL references (6%) (Tables 2 and 3). In "brief reports" and "rapid communications" the average number of GL references was higher than in the articles.

Table 2

Frequency of GL use in our sample

Journal	Total number of articles	Frequency of GL use (%)
Review of Modern Physics	23	100.0
Reports on Progress in Physics	26	96.1
Physics Today	46	46.6
Physical Review C: nuclear physics	482	74.9
Physica D. Non linear phenomena	247	66.4
Proc. of the Royal Society of London. A.	140	45.7
Progress of Theoretical Physics	211	48.8
Nuovo Cimento D	135	34.8
Chinese Physics Letters	170	25.9
Total	1,480	57.6

Table 6 (continue)

Distribution of GL documents cited by category

Journal	GL documents cited	Proportion (%) of		
		DGL*	MGL*	LGL*
Physics Today	33	24.2	33.3	27.3
Physical Review C:nuclear physics	1,033	38.6	50.1	8.1
Physica D. Non linear phenomena	412	19.0	51.4	18.7
Proc. of the Royal Society of London. A.	144	9.0	68.7	11.1
Progress of Theoretical Physics	181	13.2	74.6	4.4
Nuovo Cimento D	73	17.8	54.8	24.6
Chinese Physics Letters	63	23.8	25.4	44.4
Total	2,335	25.9	54.6	14.2

* DGL: Dark-Grey Literature; MGL: Medium-grey Literature; LGL: Light-Grey Literature

Table 7

Distribution of Medium-Grey Literature (MGL) documents by Journal and type

Journal	Number of MGL documents	Proportion (%) of	
		Reports	Theses
Review of Modern Physics	105	80.9	19.1
Reports on Progress in Physics	139	72.7	27.3
Physics Today	11	90.0	9.1
Physical Review C:nuclear physics	518	62.6	37.4
Physica D. Non linear phenomena	212	75.5	24.5
Proc. of the Royal Society of London. A.	99	63.7	36.3
Progress of Theoretical Physics	135	87.4	12.6
Nuovo Cimento D	40	67.5	32.5
Chinese Physics Letters	16	75.0	25.0

DGL and LGL documents are unevenly distributed by type and no dominant type can be identified (Tables 8 and 9). Nevertheless, the physical subfield (Physical Review C: nuclear physics) accounts for 66% of the DGL documents (compared to 41% of MGL and 25% of LGL) and most of the DGL documents for this subfield are private communications and unpublished materials.

Table 8

Distribution of Dark-Grey Literature (DGL) documents by Journal and type

Journal	Number of DGL documents	Proportion (%) of		
		Private communic.	Unpubl. mater.	Submitt. -to manuscript
Review of Modern Physics	19	31.6	52.6	15.8
Reports on Progress in Physics	35	60.0	25.7	14.3
Physics Today	8	12.5	25.0	62.5
Physical Review C:nuclear physics	399	44.9	50.9	4.2
Physica D. Non linear phenomena	78	34.6	29.5	35.9
Proc. of the Royal Society of London. A.	13	15.4	0	84.6
Progress of Theoretical Physics	24	70.9	8.3	20.8
Nuovo Cimento D	13	46.2	23.0	30.8
Chinese Physics Letters	15	13.3	33.3	53.4

Table 9

Distribution of Light-Grey Literature (LGL) documents by Journal and type

Journal	Number of LGL documents	Proportion (%) of	
		Meeting papers	To-be- published
Review of Modern Physics	25	40.0	60.0
Reports on Progress in Physics	67	23.9	76.1
Physics Today	9	11.1	88.9
Physical Review C:nuclear physics	84	56.0	44.0
Physica D.	77	10.0	90.0
Proc. of the Royal Society of London. A.	16	100.0	0
Progress of Theoretical Physics	8	0	100.0
Nuovo Cimento D	18	66.7	33.3
Chinese Physics Letters	28	25.0	75.0

b) Date of publication

Overall, in 57,2% of the GL documents the date of publication was missing. It is interesting to note that as the impact factor decreases, the number of undated references increases (Table 10).

Table 11 (continue)

GL document cited by date

1981	19	84.1
1971-1980	110	95.1
1961-1970	29	98.0
1951-1960	13	99.3
1941-1950	2	99.5
1930-1940	4	100.0

c) Self-citing

The proportion of self-citations (16%) observed lies in the "theoretical" range of 10-30% (14). Most Journals in our sample appear only marginally affected by the phenomenon of self-citing but, in Physical Review C:nuclear physics (the only specialised Journal examined) the proportion of self-citations almost reaches 50%. Table 12 shows the results for the Journals of our sample.

Table 12

Self-citations in our sample

Journal	total of GL references	Number of self-citation %
Review of Modern Physics	151	3.2
Reports on Progress in Physics	245	2.6
Physics Today	33	0.5
Physical Rev. C: Nuclear Physics	1,033	48.7
Physica D	412	18.4
Proc. of the Royal Society of London, A	144	6.4
Progress of Theoretical Physics	181	9.0
Nuovo Cimento D	73	6.1
Chinese Physics Letters	63	5.1
Total	2,335	16.1

4. CONCLUSIONS

GL has received increasing attention in the last decade; nevertheless, a number of methodological issues remain unsolved making any survey of GL use difficult.

A widespread agreement of GL definition exists, but it did not lead to a standardisation of the bibliographical references for GL documents, except for reports which represent the traditional type of GL and therefore the criteria for their presentation have been much more accurately standardised (15,16). Moreover, no agreement exists concerning the type of indicators to be used for quantifying GL use: we chose three types of indicators that seemed to be useful for measuring GL use in the field. Their application for routine monitoring should be evaluated in the future.

Our results confirm that the Grey Literature is an important source of information, even if a great variability in its use has been observed among different journals. It is interesting to note, for example, that in Nuclear physics GL is more widely used and the types of document cited are different from the ones cited in other types of journals. Moreover, GL use changed according to the impact factor of the journal: in high impact factor Journals GL is used regularly but with a pinch of salt, whereas in low impact factor Journals GL is used sporadically, but in plenty. This points out that the impact factor and the specialisation of the journal could be two important variables in explaining the GL use.

The determinants of the variability observed in GL use in our study should be further investigated: other variables such as affiliation, language, country of the GL document's authors might allow one to gain a deeper insight into the diffusion and availability of GL and therefore into the GL use.

In order to understand the nature and the relevance of Grey Literature compared to conventional literature, more efforts should be focused on quantifying its pattern of use and understanding its principal determinants, using standardised and widely agreed measures.

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Current Research Information Services (CRIS) and Grey Literature.
Drs. Auke van Dijk

In the next 20 minutes I have the opportunity to report about the results of the International Conference 'Current Research Information in Europe', that took place in Amsterdam between 2 and 4 december 1993.

This conference on Current Research (1), organized by the Netherlands Current Research Agency (NBOI) was the second one; the first took place in Bergen, Norway, in february 1991. The proceedings of it are still available (2). This Bergen Seminar, an initiative of the Norwegian Computing Centre for the Humanities, was in fact the consequence of activities of the Working Group of the European Commission in the years 1988 - 1990. This Working Group, together with the Rectors' Conference and co-workers from the DG XII-bureau, succeeded in preparing the Common European Research Information Format (CERIF). This format can be used to harmonize R&D information (also of Ongoing Research), in order to facilitate exchange of this information in and between the member states. In fact, the CERIF became part of the European legislation in 1991.

It is interesting to note that the title of the Bergen Seminar is quite different from the one of the Amsterdam conference. The proceedings of the Bergen Seminar speaks of Current Research 'Documentation' and the contributions are full of the term 'availability'. The central questions were about how specific information can be obtained, what kind of systems can be used to handle this information and how national and local database producers have build en develop their information systems. The title of the Amsterdam conference 'Current Research Information in Europe' reflects, I think, the wishes and needs of enhanced co-operation in this field within and between the member states. Furthermore, the subtitle suggests a different approach then the seminar two years ago: 'A conference on user needs and the relation to other science information sources'. This, to my opinion, is the change for the better that apparently has taken place in the field of Current Research Information Services (CRIS). Notice that this term 'Services' has only recently entered the vocabulary of librarians, documentalists and database producers and that they are more and more concerned with what users really need. Furthermore it is relatively new that they are searching for ways to establish relationships between Current Research Information and other science information sources.

Let me first give a definition of Current Research Information and explain the relation to Grey Literature programmes. Current Research Information refers to: " a standardized set of scientific, technical, and administrative data which describes research projects about to be initiated, actually in progress, or recently completed". The relation between Grey Literature - also the result of Ongoing Research - and Current Research

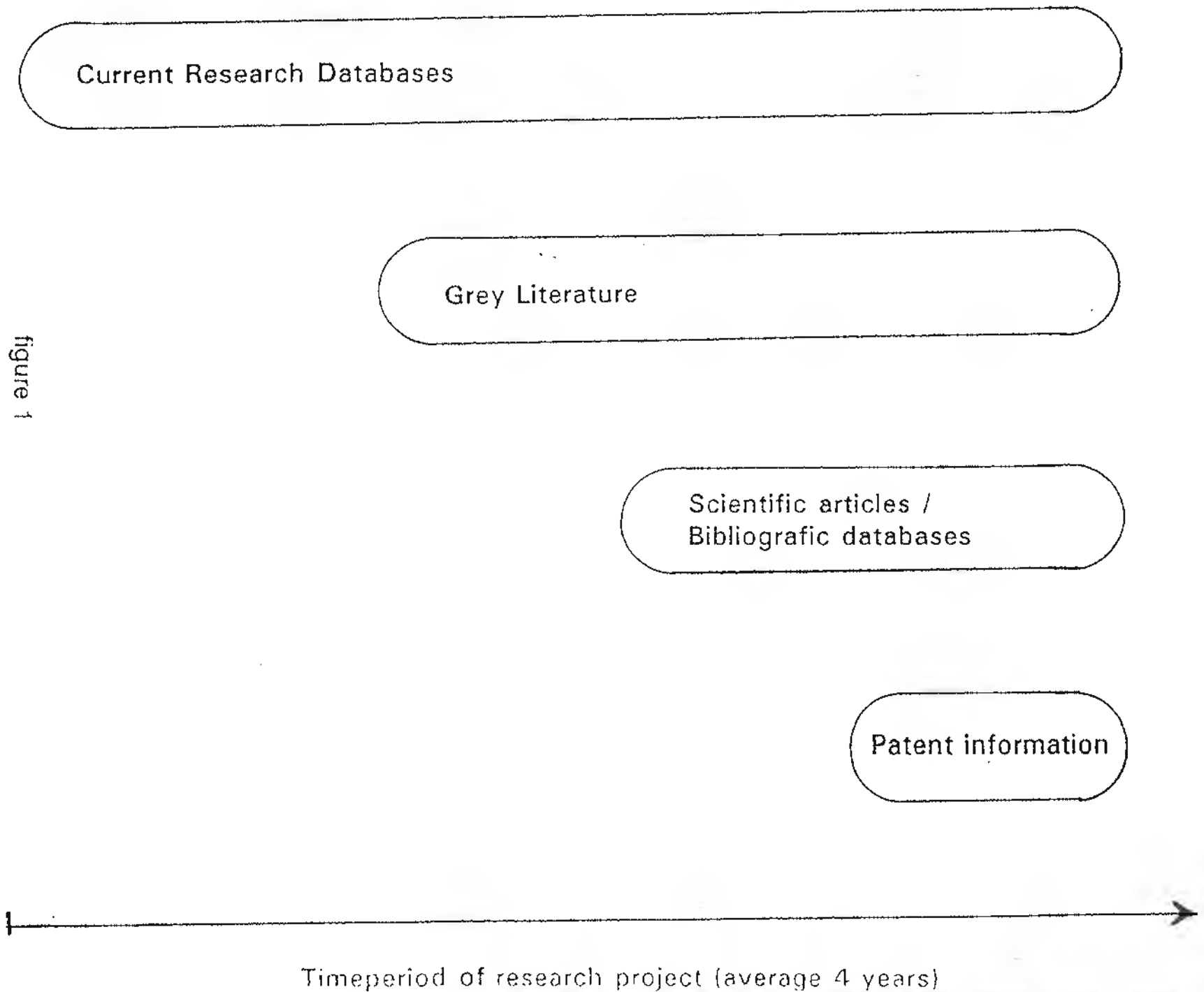


figure 1

THE RESEARCH PROCESS

- Genesis of a project
- Application phase
- Funding phase
- Start-up phase
- Execution phase
- Pre-publication phase
- Final result documentation and publication phase.

figure 2

The Research Information Wheel



figure 3

The Incidence of Grey Literature in On-line Data Bases: a Quantitative Analysis

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Abstract

This study aims to examine the diffusion and distribution of Grey Literature (GL) documents in commercially available on-line data bases. It has been undertaken in response to the growing importance of GL, on the one hand, and the increasing supply of on-line data bases, on the other.

The work focuses on the on-line data bases distributed by DIALOG Information Retrieval Service. The first part supplies the results of a quantitative analysis of data bases containing GL documents. In order to check the incidence of GL documents, data bases containing both conventional and non conventional literature have been analysed in the second part of the study.

The results also illustrate the difficulty of identifying GL documents in an unambiguous way, and the need for greater standardisation in organising access and in using normalised terminology to define them.

Introduction

There have been many studies, both recent and less so - among which the Weinberg report must be cited - which attempt to quantify the Grey Literature (henceforth GL) produced in a specific field and/or by a particular organisation.

Alongside such studies there exist others [1] which discuss possibilities of acquisition, indicating specialised bibliographies, issuing agencies or announcement services from which information on non conventional literature may be obtained. Others still, in response to York's recommendations [2], aim to identify, through the use of questionnaires [3-4], centres which produce and store GL.

From this intentionally simplified picture emerges the continuing problems of identification and availability posed by GL: it is difficult to define, to treat and, as a consequence, to access.

This is in contrast with the general increase in the diffusion of information due in part to the development of new tools and channels of communication. Of these, commercially available on-line data bases are clearly significant. They allow the retrieval of a great quantity of information taken from a wide range of sources of information in all fields of knowledge.

The present study consequently aims to explore the impact which increase in sources of information has had on the availability and distribution of GL. In particular, it intends to verify whether, and in what extent, on-line data bases constitute an instrument of diffusion and access to GL, as well as a medium of document delivery.

Clearly, the availability and diffusion of GL depends on a number of factors, first among these being the willingness on the part of producers to circulate such

documents outside a limited circle of users. The other fundamental point concerns the ways in which documents and/or bibliographic information are acquired by producers and distributors of secondary on-line services. This aspect would be worth studying separately in order to identify the main obstacles which can be encountered, from the production of GL to the diffusion of the information it contains.

To this should be added what can be defined as the *visibility* of GL. Once the GL has been indexed in the data bases, particularly when they contain both conventional and non conventional literature, the primary documents should necessarily be defined unambiguously and the bibliographic description should contain a standardised form of definition leading to the immediate identification of the document. The problem of standardisation is obviously not unique to GL, as the ICSTI (International Council for Scientific and Technical Information) Group on Interdisciplinary Searching [5] has made clear. In the case of GL, however, it is even more important to distinguish it from conventional literature and above all to facilitate the exchange and diffusion of bibliographic information without losing the characteristics peculiar to it.

Object of the study

The present study has been structured in two parts. The first aims to provide:

- a quantitative analysis of data bases which contain GL, highlighting in particular:
 - a) type of information contained in data bases
 - b) subject coverage

The second part examines:

- 1) the incidence of GL in data bases which contain both GL and conventional literature with particular reference to whether this incidence depends on:
 - a) subject area
 - b) size of the data base
 - c) types of GL document
- 2) trend of incidence over the last five years in relation to:
 - a) conventional literature published from 1988 to 1992
 - b) GL documents issued before 1988

The survey has been based on the data bases distributed by DIALOG Information Retrieval Service [6] since it is also one of the most widely used host in Europe. Moreover, DIALOG makes a great number of data bases available on a wide range of disciplines and offers detailed documentation both on-line and on paper.

The first part of the study will indicate the number of DIALOG data bases which index GL and compare them with those containing information on conventional literature. This analysis aims to highlight the interest shown by the on-line information market to distribute this type of information. To this end both data bases devoted specifically to GL, as well as those providing information on both conventional and non conventional literature have been examined.

The latter are analysed in more detail in the second part of the study, in order to determine the real availability of GL documents in on-line data bases. The GL has not been quantified, however, since this would involve taking the overlap of information in the various data bases into account. On the other hand, an analysis of incidence of GL could provide a key to an understanding of the GL information supply and demand, considering that the on-line information market clearly exploits information resources also in economics terms.

Methodology

As indicated above, the survey was conducted using the data bases distributed by DIALOG Information Retrieval Service. The service mark *DIALOG Bluesheets* was chosen from the documentation provided by DIALOG. Here, each data base is described and information on the producer, subject, time span and geographic coverage is provided, together with sources of information taken into consideration.

The greatest difficulties in the retrieval of data were encountered in the identification GL documents. Each data base organises information in its own way (e.g. subfiles) and gives its own definition and content of specific data element and fields. Of particular importance to this study is the information recorded in the field *document type* which has been used for the selection of data relating to types of GL documents.

A *top down* analysis has been carried out in this study. It can be summed up as follows:

- a) identification of data bases containing GL from the field *document type* in *DIALOG Bluesheets*;
- b) analysis of the *document type* in each single data base in order to check the results from point a), and to obtain a first set of data bases to analyse;
- c) analysis of a sample of records of each document type cited in these data bases (point b) and selection of GL documents published from 1988 to 1992 to be compared with conventional literature published in the same period.

As mentioned above, the search strategy involved the retrieval of information specifically from the field *document type*. Alternative strategies such as search in free text in the abstract or within key words were excluded in order to obtain results in a standardised form which would make comparison easier. Moreover this approach made it possible to check the descriptions of various types of GL documents indexed.

As a first step only data bases containing "*annual reports*", "*reports*" and "*theses and dissertations*" were selected from *DIALOG Bluesheets*.

As it is clear from this selection, a narrow interpretation of GL was applied, excluding for example standards, patents and translations. Items which did not unequivocally indicate non-published documents such as "conference, symposia and meetings", were also left out. This was done in order to focus on apparently similar GL documents, i.e. reports literature and theses, as well as to achieve comparable results.

significant number of data bases, all of which are of an economic-financial nature, specialise exclusively in GL.

In Science & Technology there is more of a balance between data bases containing GL and those containing conventional literature: GL documents can be found in 47.6% of DIALOG data bases. This confirms the presence of GL in a field where it has always been an important vehicle of information.

The proportion is smaller in Life Sciences, where 29.2% of data bases include GL documents. In this field there are no data bases specialising exclusively in GL. This is not surprising, given that in biomedicine in particular, conventional channels are generally used to spread information [9]. It should nevertheless be noted that well known data bases such as *NTIS* and *Energy Science & Technology*, include medical and biomedical information within their major headings.

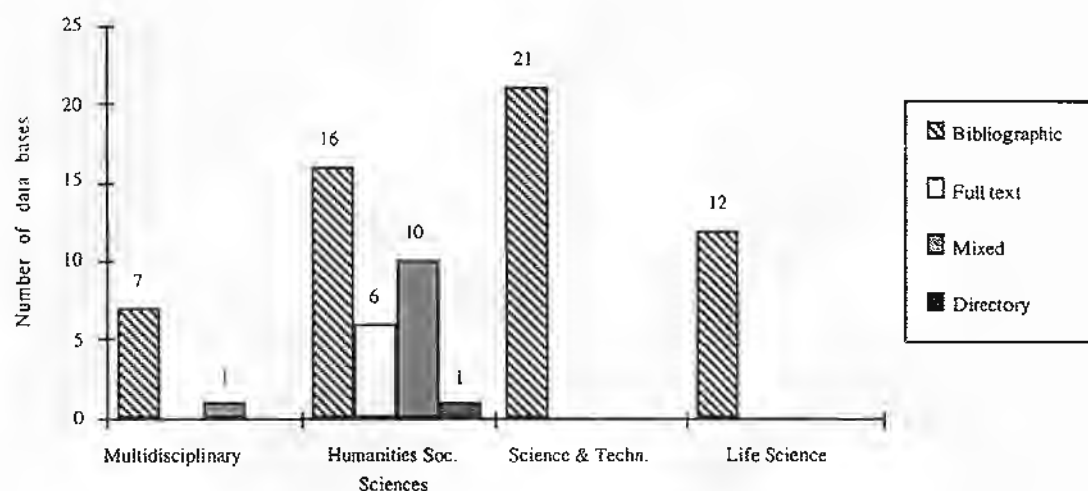


Fig. 2 - Distribution of data bases containing GL by type of information

Figure 2 shows the types of information contained in data bases which index GL document. In all the subject areas taken into consideration, there is clear evidence of bibliographic data bases. Only in Humanities & Social Sciences do both full text and mixed data bases appear. The latter includes in most cases (6 out of 8) both information in full text and numerical data.

It is worth noting the prevalence of bibliographic data bases in all of these areas, while the general tendency of the on-line information market is to increase the supply of primary information in full text or factual data [11]. The exception represented by Humanities & Social Sciences can be explained once again by economic-financial data bases. In fact, analyses of specific markets, and data on industries and companies are subject to rapid changes, they can become obsolete in a short space of time and must, therefore, be updated frequently. For these reasons, full text and/or numerical data on-line data bases constitute one of the most suitable channels for the retrieval of primary information in real time.

The GL produced in this field nevertheless merits a closer analysis, the relevant points being: its relatively recent and expanding development, the

characteristics and function of the information, and the way in which it is produced and distributed.

Even a brief look at some of the inherent characteristics of GL in this sector invites a comparison with the GL produced in the technical-scientific field. The latter has developed mainly within public research agencies as a channel of communication between a select group of users with the aim of distributing reserved information quickly. The GL distributed by on-line data bases in the field of economics and finance, on the other hand, is produced by economic research organisations and companies which are mainly private (Arthur D. Little, ICC Stockbroker Research LTD, Predicast, etc.). With the exception of those cases in which such research is commissioned by an individual user and therefore reserved, the economic interest of producers is served by distributing their results to the widest possible group of users. As is well known, the on-line information market makes most of its profit from financial and economic data bases, where the cost of information is also among the highest. Such data bases very frequently include an indication of the ordering price of the original document.

Another characteristic of the GL produced in this field is its specific types of documents: *annual reports*, *market research reports*, *company reports*, *stockbroker reports*. This clear distinction between different types of documents has the advantage of rendering both the GL as such and the type of information it contains, easier to recognise. This is important to the user, who is thus better able to identify and retrieve the required information.

Bibliographic data bases

In this part only those bibliographic data bases which contain both GL and conventional literature are considered. 43 data bases have been examined, selected according to the criteria explained above. Moreover, data bases in which it was not possible to limit search to years of publication have been left out, as have those with access limited to a particular type of user and/or country [12].

Whilst the data in the preceding paragraph highlights quite a number of data bases containing GL information, the results on GL documents really available is not particularly encouraging.

Restricted criteria were also applied in this part. In fact, these categories of documents in which some ambiguity in the use of the term *report* was evident from the bibliographic description have been left out.

Table 1
Incidence of GL in bibliographic data bases

CLASSES OF INCIDENCE %	HUMANITIES & SOC.SCIENCES		SCIENCE & TECHNOLOGY		LIFE SCIENCES	
	Abs . Val.	%	Abs . Val.	%	Abs . Val.	%
< 1	5	31.25	3	18.75	6	54.55
1-3	2	12.50	8	50.00	4	36.36
4-6	1	6.25	3	18.75	-	-
7-9	1	6.25	-	-	-	-
10-12	1	6.25	1	6.25	-	-
13-15	4	25.00	-	-	-	-
16-18	1	6.25	1	6.25	1	9.09
>18	1	6.25	-	-	-	-
TOTAL	16	100.00	16	100.00	11	100.00

Table 1 displays results of incidence obtained on the basis of the comparison between GL documents published in the years 1988-92 and conventional literature published within the same period.

The majority of the data bases fall within a low class of incidence (0-3%). This is particularly evident in Life Sciences, where 90.9% of the data bases are in this class. The only exception is *Agris International*, where GL has an incidence of 18.3%.

In Humanities & Social Sciences 43.7% of data bases appear within the class of incidence 0-3%, while the remaining 56.2% are distributed among successive classes. It should also be noted that 48% of the data bases are to be found in the classes from 10-18%. Four of them, indeed, are to be found in the 13-15% range of incidence (*Ageline*, 12.15%; *Historical Abstracts*, 13.78%; *Linguistics and Language Behaviour*, 14.17%; *America: History and Life*, 14.95%). Of all the data bases considered in all subject areas, only *NCJRS* falls within the highest class of incidence.

87.5% of data bases in Science & Technology appear within the classes of incidence 0-6%. Only two data bases are found in the higher classes (*Georef*, 10.4%; *Energy Science & Technology*, 17.08%).

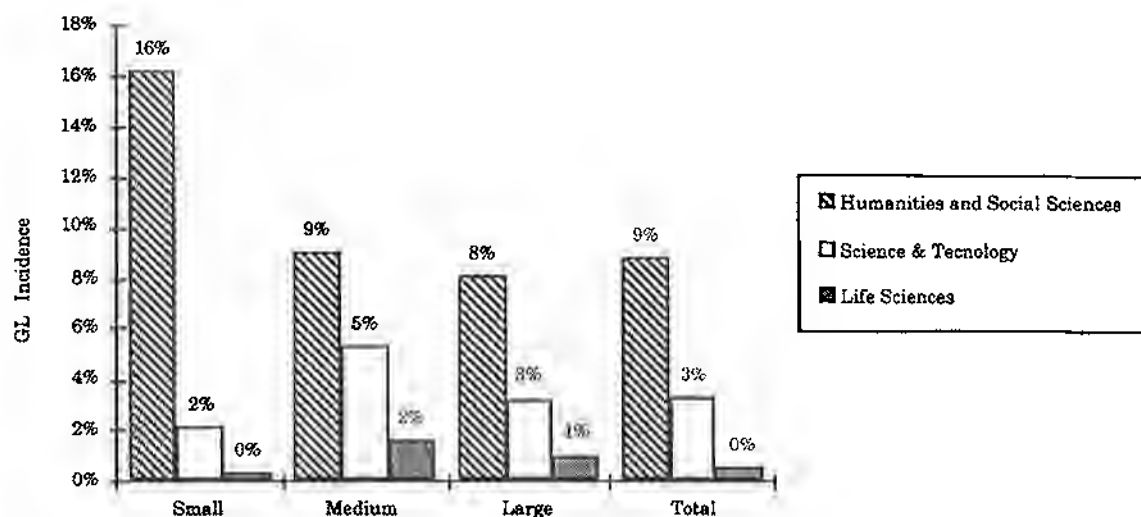


Fig. 3 - Incidence of GL by size (number of documents) of data base

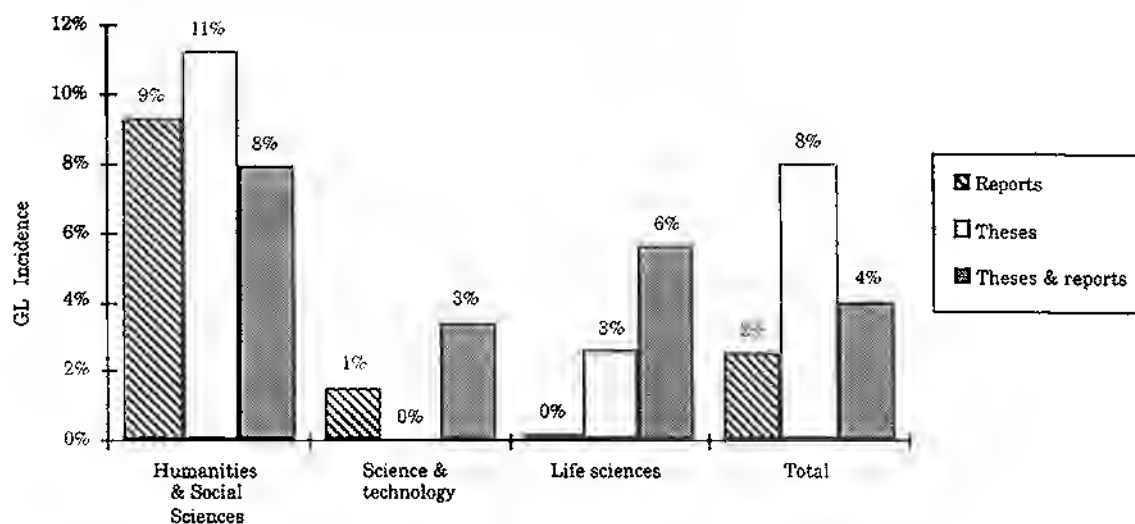


Fig. 4 - Incidence of GL by type of document indexed in data bases.

The total number of documents published from 1988 to 1992 has been taken into account in order to classify the data bases into similar sized groups (i.e. small, medium and large) containing a equal number of data bases (Fig. 3).

In comparison with other subject area, the highest incidence in all classes appears in Humanities & Social Sciences. It should be noted, however, that the result concerning small data bases is affected by the *NCJRS* data base, in which the percentage of GL reaches 44.98%.

If this figure is not taken into account, the incidence of GL in small data bases decreases to 3.43%: little more than the incidence of the same sized class in Science & Technology and Life Sciences.

The results obtained in Science & Technology and Life Sciences are comparable. In both cases the percentages are affected by size: there is a greater

incidence of GL in the medium sized group (5.25%, 1.59%). In the larger sized group, the incidence is greater (3.19% and 1.02%) than it is in the small sized group (2.13% and 0.39%).

An analysis of incidence based on document type (Fig. 4) reveals once again differences according to subjects areas. Data bases containing only theses, for example, are for the most part concentrated in Humanities & Social Sciences, where they make up the highest percentage (11.23%). It is interesting to note that these data bases cover humanities in particular (*America: History and Life, British Educational Index, Historical Abstracts, Linguistics and Language Behaviour Abstracts*).

In Science & Technology, on the contrary, theses are never entered as a single document type; they are always listed together with reports literature. Indeed, it is sometimes difficult to differentiate theses from reports, given that they often appear with their own title and report number.

The incidence of GL in Science & Technology (3.4%) and Life Sciences (5.6%) is higher when a wider variety of GL document types are indexed, while the incidence in data bases which only contain reports is only significant in Humanities & Social Sciences (9.33%). It is of little significance in Science & Technology (1.49%), and almost none in Life Sciences (0.1%).

The overall total obtained without considering separate subject areas, shows the highest incidence where only theses are indexed. This may indicate greater availability of document or at least of their bibliographic references. In fact, many data bases quote information taken from *Dissertation Abstracts Online* in their bibliographic record. It would be useful to further analyse this type of document in order to ascertain to what extent specialised data bases contribute to the diffusion of this type of information, and at the same time, to determine the extent of information overlap.

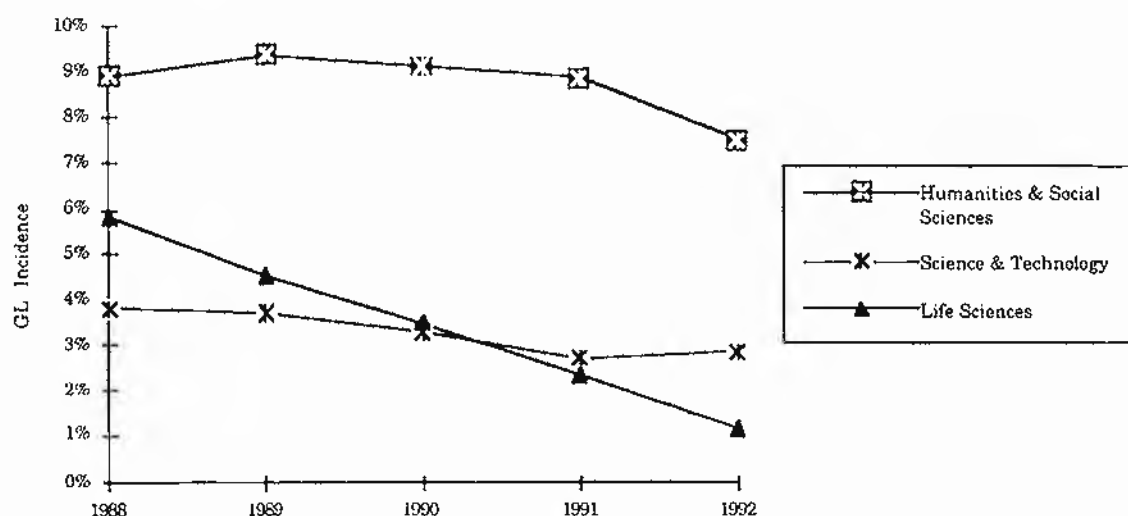


Fig. 5 - Trend in GL (1988 to 1992)

Figure 5 illustrates the incidence of GL from 1988 to 1992. There is not much variation in Humanities & Social Sciences (from 8.94% in 1988 to 8.89% in 1992) and in Science & Technology (from 3.81% in 1988 to 2.74% in 1992), although a

slight decrease can be noticed towards the end of the period. In Life Sciences, on the other hand, there is a very clear decrease (from 5.8% in 1988 to 2.36% in 1992).

Table 2

Comparison of GL published from 1988 to 1992 with GL issued before 1988
- Humanities & Social Sciences

DATA BASES COVERING HUMANITIES & SOCIAL SCIENCES	GL 1988-92	TOTAL GL IN THE DATA BASE	% GL 1988-92 ON TOTAL GL	TIME CHANGE INDICATOR
ACCOUNT. & TAX DB	4109	4272	96.18	85.71
AGELINE	1461	7242	20.17	0.51
AMERICA: HISTORY LIFE	12588	33433	37.64	2.90
ART LITERAT.INTER.	0	1870	0.00	0.00
ARTBIBLIOGR. MODERN	11	1361	0.81	0.02
BRITISH EDUCAT IND.	454	11707	3.88	0.31
CHEM. BUS. NEWSBASE	11173	18763	59.55	1.18
DELPHES	394	468	84.19	8.52
ERIC	22192	238108	9.32	0.45
HISTORICAL ABSTRACTS	10600	18846	56.25	3.86
LINGU. LANGUAGE BEHAV.	6033	7897	76.40	9.06
MATERIALS BUSINESS FILE	81	146	55.48	0.75
MENTAL HEALTH ABSTR	0	600	0.00	0.00
NCJRS	11262	46935	23.99	1.01
PSYCHINFO	33847	160882	21.04	1.12
SOCIOLOGICAL ABST	5375	7637	70.38	11.88

In tables 2, 3, 4, figures relating to GL documents published from 1988 to 1992 are compared with those published previously. An indicator which measures changes in time has been applied. It was worked out by comparing the average yearly number of GL documents published from 1988 to 1992 with the average yearly number of GL documents published before 1988. The indicator obviously takes the date bases' period of coverage into account. If the indicator is greater than one, there has been an increase in GL documents, if it is less than one, a decrease is indicated.

In Humanities & Social Sciences (Table 2), the indicators for nine out of sixteen data bases show an increase from 1.01 up to 85.71. Of these nine data bases, seven in fact display a variation which goes from 55.48% to 91.18% of GL documents published in the last five years. Three data bases have an indicator which reveals a notable decrease in GL documents (*Art Literature International*, *Artbibliographies Modern*, *Mental Health Abstracts*), while the rest show a more contained decrease.

Table 3

Comparison of GL published from 1988 to 1992 with GL issued before 1988 - Science & Technology

DATA BASES COVERING SCIENCE & TECHNOLOGY	GL 1988-92	TOTAL GL IN THE DATA BASE	% GL 1988- 92 ON TOTAL GL	TIME CHANGE INDICATOR
ALUMINIUM IND. ABSTR.	781	3283	23.79	1.25
APILIT	1605	14894	10.78	0.58
CA SEARCH	47493	76461	62.11	6.89
CHEMENG. BIOTEC ABS	72	252	28.57	1.36
CHEMICAL SAF. NEWSB.	134	393	34.10	0.72
COMPEDEX PLUS	140	317	44.16	2.85
ENERGY SCIENCE & TECH.	133703	590054	22.66	0.82
ENGINEER. MATER. ABSTR	3105	5721	54.27	0.47
GEOARCHIVE	177	5163	3.43	0.10
GEOREF	25763	156464	16.47	0.12
INSPEC	7142	47230	15.12	0.68
MATHSCI	14867	49140	30.25	4.16
METADEx	6476	18038	35.90	2.46
PASCAL	29488	161559	18.25	0.67
PIRA	812	2442	33.25	1.30
RAPRA	6332	28443	22.26	0.92

Table 4

Comparison of GL published from 1988 to 1992 with GL issued before 1988 - Life Sciences

DATA BASES COVERING LIFE SCIENCES	GL 1988-92	TOTAL GL IN THE DATA BASE	% GL 1988- 92 ON TOTAL GL	TIME CHANGE INDICATOR
AGRI5 INTERN.	58110	335391	17.33	0.54
AIDSLINE	105	121	86.78	10.50
ANALYTICAL ABSTR.	586	2607	22.48	0.46
AQUATIC SC.FISH.ABSTR	21	26896	0.08	0.00
CANCERLIT	4406	11901	37.02	2.94
CURR. BIOTECHN. ABSTR.	55	196	28.06	0.39
HEALTH PLANNING. ADMI	49	8029	0.61	0.02
NURSING. ALLIED HEALTH	2191	2255	97.16	34.23
POLLUTION ABSTRACTS	0	508	0.00	0.00
SPORT	1812	11176	16.21	1.51
TOXLINE	13	289	4.50	0.12

In Science & Technology seven out of sixteen data bases display an indicator which shows variation in a smaller scale (from 1.25 to 6.89) than those in Humanities & Social Sciences. Also with regard to the percentage of documents

published from 1988 to 1992, a wide range of data bases (12) have values which vary from 10.78% to 35.90%. Important data bases such as *Ca Search* and *Compedex Plus* have both high percentage values of documents published in the last five years (62.11%; 44.16%) and an indicator of marked increase (6.89; 2.85). On the contrary, the data base *Engineered Materials Abstracts*, although it has 54.27% of documents published from 1988 to 1992, nevertheless reveals a decrease (0.47) with regard to documents published in the preceding period.

In Life Sciences (Table 4), only four data bases have a positive indicator, while the rest have values which show a clear decrease in the documents published in the last five years. This is also true for the percentage values.

Conclusion

There exist a substantial number of data bases which include reports literature and theses among primary sources of information (74 out of 234 data bases, i.e. 31.6%).

However, the incidence of GL does not appear to be so high as to render on-line data bases the only vehicle for the diffusion of GL as the majority of data bases fall within classes of incidence from 0 to 6%.

Incidence seems to be especially affected by subject areas. In Humanities & Socials Sciences GL incidence is higher than in the other subject areas and this is also confirmed when data bases are broken down by size and by type of documents indexed. In Science & Technology and Life Sciences the incidence of GL seems to be only partially affected by size of data bases and by type of documents. In fact incidence increases in medium sized data bases and in those data bases which index both reports and theses.

Beyond this general picture others considerations on scope and mission of data bases should be analysed in detail in order to obtain a more precise picture of trends in GL diffusion and distribution. In fact, the way in which producers and distributors of on-line data bases acquire GL remains a key question, as does the willingness on the part of producers to diffuse these documents through channels of communication which could be open to a wider range of users.

The comparison of GL published in the last five years with that published previously indicates a tendency towards a greater diffusion of such documents especially in Humanities & Social Sciences and to some extent in Science & Technology.

The way in which bibliographic elements are standardised, together with the way GL documents are defined, are clearly fundamental for document identification. Greater standardisation would in fact contribute to a greater visibility of GL, making it easier both to exchange bibliographic information and to make such information available outside a limited number of specialist users who are already aware of the information value of GL documents.

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Italian grey literature in SIGLE in the scientific and technical fields

Armida Pagamonci

CNR Central Library - National SIGLE Centre

Abstract

The central role of the Italian National Research Council (CNR) in national scientific and technological research policy is pointed out. Particular reference is made to the increasing scope of CNR activities at the European and international levels. In this framework, the CNR Central Library has acquired an increasingly important role in the relationship between research activities and scientific information. This explains why CNR was selected in 1985 as the most qualified body at the national level to adhere to EAGLE/SIGLE, and become the national reference authority within the system. A brief outline of the organization of the Italian national authority is given with details on its cooperation and management policies, aiming at the promotion of a system for the collection, processing and supply of documents produced by the main Italian scientific bodies.

1. Historical Background

The National Research Council (CNR) and its Central Library of Sciences have played an active role since the 20s in the dissemination of the information, data, reports and projects which the Italian technical and scientific research centres exchanged for their mutual benefit, as was common practice in the scientific communities of all countries.

The fact that the CNR Central Library had the legal deposit for every technical and scientific publication, as well as the prestige of this institution and its role in promoting and supporting research were among the factors that led to the inflow of unpublished documents produced by universities and other public and private research centres, including naturally the CNR's own research bodies.

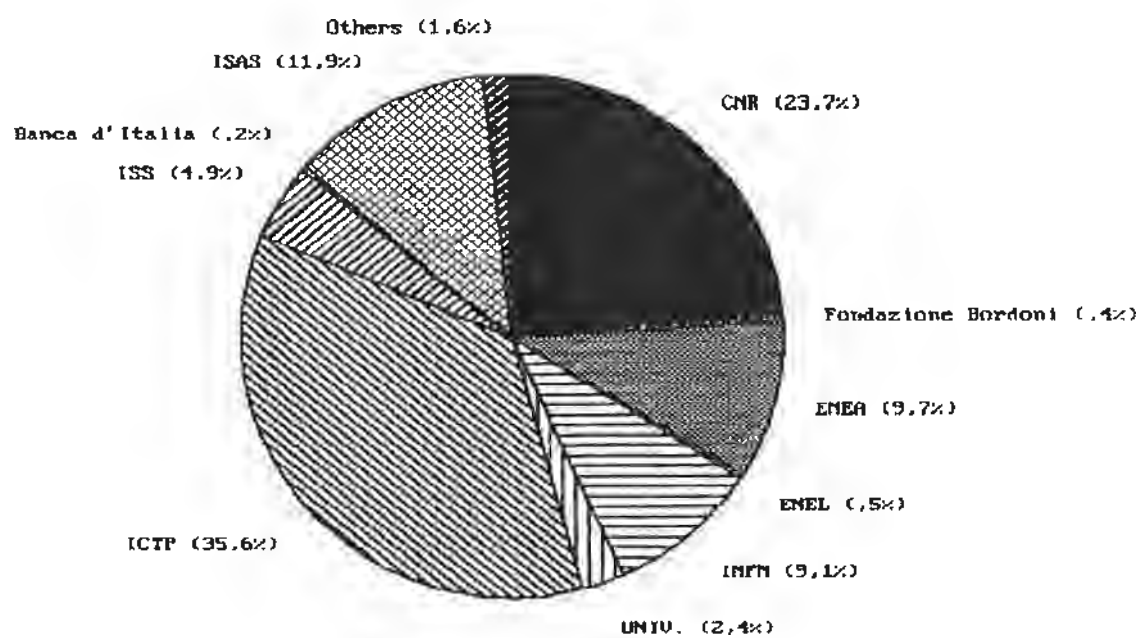
The CNR Central Library has always been aware of the importance of this type of non-conventional literature and this interest is substantiated by the important collections of grey literature (NACA, NASA, U.S. ORNL, NATO/AGARD and others) which were initiated after the war.

The CNR set up a special division to collect and disseminate non-conventional literature which was otherwise difficult to identify and to access. This important and specific function was well known to the scientific community and widely utilized.

From the 70s onward, the production and communication of technical research reports and other types of grey literature has greatly increased. There has also been a growing awareness of the importance of the circuits for the acquisition and dissemination of these documents that are crucial for scientific research beyond national borders, as well as the need to identify specific and homogeneous processing and control criteria at an international level. For these reasons, the CNR welcomed the invitation to adhere to the System for Information on Grey

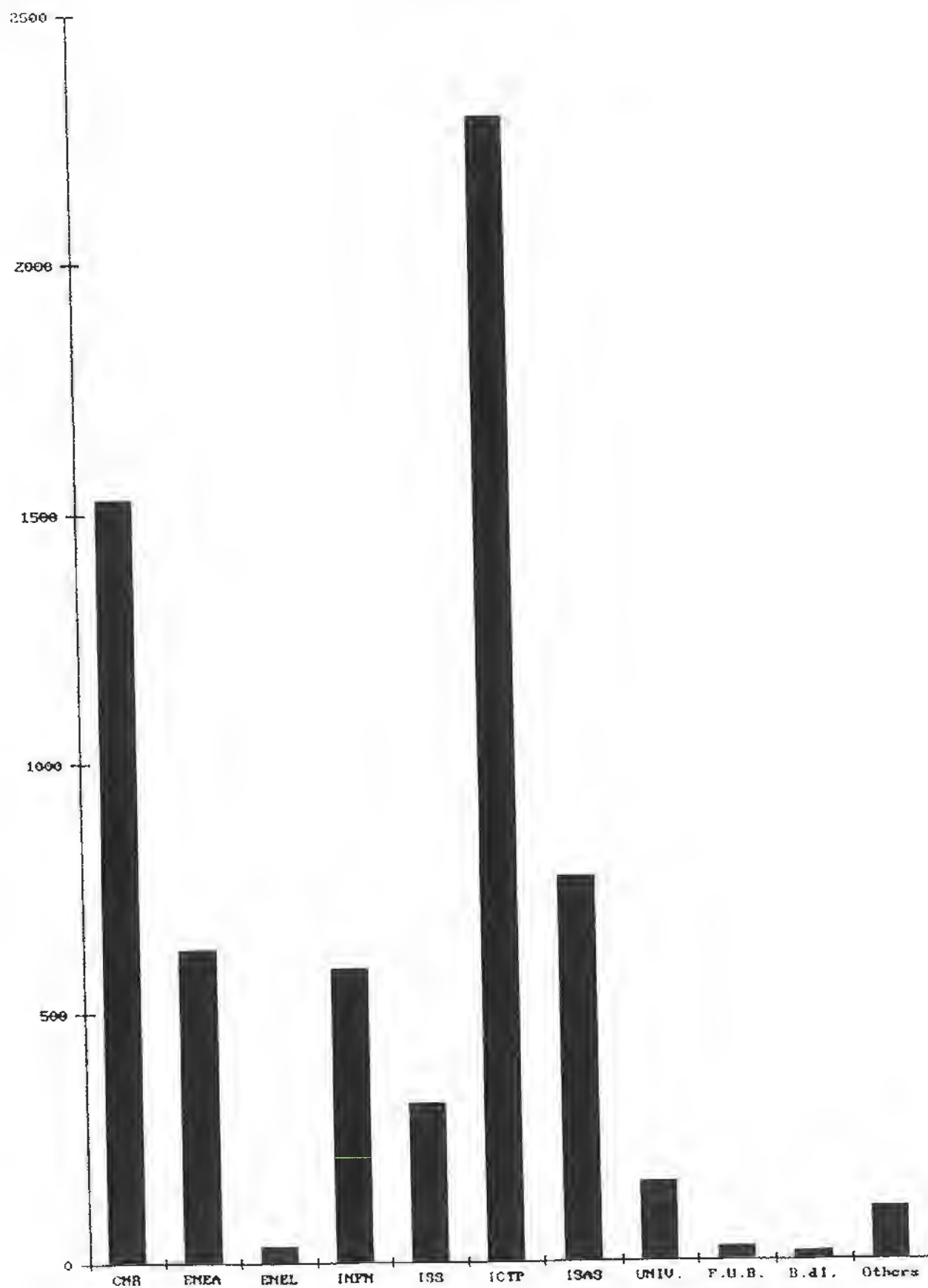
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CNR (National Research Council):

"A state agency that promotes and oversees research for the scientific and technological development of the country".

The entire scientific community is represented by 15 National Committees which provide consultancy, or focus on scientific disciplines or single issues.

Scientific activity is carried out by research bodies (institutes, study centres and research groups) which report to their respective Consultancy Committees.

Scientific research of special interest to the nation is carried out within the framework of Oriented Projects and Strategic Projects.

Other research projects are funded through contracts and grants.

ENEA (National Agency for New Technologies, Energy and the Environment):

The main research areas include the following: renewable energy sources, energy saving, nuclear fusion, the environment, innovative technologies, control of the peaceful uses of nuclear energy, information technology, and transfer of research results to the industrial sector. ENEA provides technical reports (RT) in the following areas identified by the RT reference series:

- Energy area	RT-ENERG
- Nuclear area	RT-NUCL
- Energy environment and health area	RT-AMB
- Energy and innovation area	RT-INN
- Area DISP (education)	RT-STUDI
- Other units	RT-GEN

Grey literature accounts for a substantial part - roughly 80 per cent - of this body's overall scientific production.

ENEL (National Agency for Electric Power):

ENEL carries out research and development activities in technologically advanced sectors including the following: automatization research (Cra), electrical power research (Crel), hydraulic and structural research (Cris), thermal and nuclear research (Crtn).

INFN (National Institute for Nuclear Physics):

Its research activities are focused in the following fields: sub-nuclear and basic nuclear physics, interdisciplinary technological research.

Annual estimated production: 150 reports.

The INFN has an important role in Italian universities, as it integrates its facilities with those of the Departments of Physics, through 19 sections and 6 integrated groups.

Its organizational model is considered unique.

INFN performs an important role not only in the production but also in the dissemination of know-how in the field of physics and related experimental technology.

In its four large Italian laboratories (Frascati, Gran Sasso, Catania, Legnaro), INFN makes available accelerators and highly sophisticated research instruments to the national and international scientific community.

INFN has traditionally pursued an international cooperation

policy and also supports a highly qualified participation of scientists in the most important laboratories in the world, besides Italy.

ISS (Superior Health Institute):

The ISS is the main Italian institute for technical and scientific research in public health, and it provides control and consultancy.

Since 1978, the ISS has been the technical and scientific agency of the Italian National Health Service.

Its role is to promote public health through scientific research, surveys, trials and analytical tests in the different fields of health sciences: infectious and non-infectious pathology, the environment, food and drugs.

The institute has WHO Collaborating Centres active in many fields.

Annual production estimate: 50 reports.

ICTP (International Centre for Theoretical Physics)

The broad range of ICTP programs reflects the Centre's aim to deal with contemporary problems of science and society in a multi-disciplinary approach.

- Fundamental Physics including Astro Particle Physics
- Physics of Condensed Matter
- Mathematics
- Physics and Energy
- Physics of the Environment
- Physics of the Living State
- Applied Physics
- Physics of the Space
- Physics and Mathematics Teaching

The estimated annual production of reports and grey literature amounts to an average of 420 units.

ICTP, as it operates in Italy and is funded by the Italian government, comes under the responsibility of the SIGLE National Centre for grey literature input.

The ICTP collaborates with the main Italian scientific institutions such as INFN, CNR, ENEA and ISAS.

ICTP is also very important for developing countries and is a model of international cooperation in the scientific sector.

"It is the embodiment of the scientific quest for knowledge, the first attempt under the aegis of the United Nations, to create a research institute in basic science, with a special focus on the needs of developing countries".

ISAS (International School for Advanced Studies)

The activity of ISAS is organized into sectors, for the various disciplines, and also in the Interdisciplinary Laboratory for Advanced Studies.

Currently, the research sectors include the following:

- Functional Analysis and Applications
- Astrophysics
- Biophysics
- Mathematical Physics
- Elementary Particles
- Condensed Matter Theory.

Estimated annual production: 200-250 reports.

In the ISAS framework, the Interdisciplinary Laboratory for Advanced Studies, founded in 1986, is organized into sectors based on the various research activities and has the aim of investigating new fields of research in natural science and the humanities, as well as the links between different branches of science.

Ugo Bordoni Foundation

This foundation is the Italian research body which carries out the most advanced research programs in the field of telecommunications.

The technical documents produced by the foundation are in the form of reports, of which about 20 per cent are published, while the bulk is to be considered grey literature.

Such literature is disseminated following a documentary control process which guarantees the pertinence and terminological accuracy of the abstracts and selected key words.

The scientific and technical terminology pertains to highly advanced sectors in telecommunications research, and 50 per cent of the technical terms are not included in commercially available technical dictionaries.

The above considerations on the bodies producing documents highlight the prevailing disciplines and issues, and the fact that the documents consist essentially of technical research reports.

The participation of the International Centre for Theoretical Physics in supplying the system and in its use is of special interest, as this Centre is an important channel for developing countries which are generally under-represented in databases and otherwise isolated.

3. SIGLE Centre

The SIGLE Centre Service was set up in compliance with the obligations undertaken through the adherence to the European initiative, and it offers a service which meets the needs of national, European, and international system users.

In order to promote the awareness and utilization of the SIGLE databases on a national scale, the Service has organized seminars, training courses for librarians and users of the Central Library and for representatives of the scientific community.

In compliance with the decisions adopted by EAGLE, the Service has carried out promotional activities for the CD-ROM product and - thanks to support received from the Ministry of the University and Scientific and Technological Research - it is preparing to disseminate the product online to universities and public and private research bodies.

A growing number of requests for searches in the area of human and social sciences is also to be noted.

The automatic SIGLE data acquisition procedure for the monthly delivery of the magnetic tape is provided by the CNR Electronic Centre. It was first set up in 1987, and has since been subject to continuous modifications and new applications, due both to the variations introduced in SIGLE standards and to gradual refining

of input and data compatibility and formality control techniques. The Centre also manages a file listing all of the Italian bodies which produce documents for the SIGLE database.

The SIGLE Centre, whose national activity is closely linked to European scale activity, would benefit from an expansion of the service organization, with the aim of better monitoring document producers and the collection and processing of documents and also performing a more broad-based coordination activity.

Also, in line with a need voiced by numerous research laboratories, the National SIGLE Centre would like to embrace the fields of humanities and social sciences and contribute to fostering a dialogue between these fields and basic and technological science.

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Translations, a darker shade of grey; their value and accessibility

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Abstract

"The limits of my language are the limits of my world"
(Ludwig Wittgenstein).

Ad hoc translations of scientific and technical documents, whether they be English translations of Japanese journal articles, Russian conference proceedings or German patents may not immediately be classified as grey literature although closer examination will firmly place them in this category. Foreign research findings are of immense value to the world's scientific and technical community. When such information is not made available through one of the many translations journals, it might be necessary for an individual or organization to commission a translation. Since translation costs are high, this is not always a practical option. For those without the resources to translate themselves, the answer would seem to lie in easy access to existing ad hoc translations.

Such access is already possible, however, the extent to which translations are available is dependent upon cooperation from the following groups worldwide: commercial and not-for-profit organizations with translating facilities; government science and research bodies; academic institutions; and to a certain extent libraries and publishing companies.

This paper will outline the value and accessibility of ad hoc translations, the resistance to cooperation that exists in some quarters (areas) and how this can be overcome.

The role played by the International Translations Centre (ITC), an International awareness Centre for scientific and technical Translations, and its database the World Translations Index in facilitating access to ad hoc translations will receive particular attention.

1. INTRODUCTION

The status of translations in the field of grey literature is not clearly defined. What is indisputable is the value of foreign (i.e. non-English) research findings and the importance of translations in making this information available to the world's research community. In this paper, I would like to discuss the role of translations as an important component of grey literature and outline the various ways in

which the International Translations Centre (ITC) ensures these documents are accessible to scientists and researchers worldwide.

Not all translations qualify as grey literature. A large number is readily available, for example, in translations journals. These publications contain either a full (i.e. cover-to-cover) or partial translation of an already published foreign language journal or a selection of translations from multiple sources. The translations are linked to the original articles through bibliographic data.

There are, however, many translations in existence around the world which for various reasons are not so easily available. These are ad hoc translations which, on the whole, have been commissioned by companies, academic institutions or even individuals for their own use. The fact that ad hoc translations are often translations of published foreign papers does not in any way diminish their standing as grey literature; the information contained in an article published in Russian is not accessible to a non-Russian reader unless it has been translated. Since the translations themselves are not published, they fall into the category of "unconventional" or "difficult to access" literature, although the fact that they are not published does not mean that they are unobtainable. The types of documents translated range from patents, standards, journal articles, monographs, conference proceedings, reports and even maps.

Table 1
DISTRIBUTION OF DOCUMENT TYPES IN WTI

Conference proc.	7541	2%
Monographs	13472	4%
Patents	29804	9%
Reports	3996	1%
Serials	262726	77%
Standards	21857	6%
Others	4261	1%

Total	343657	100%
=====		

Source: ESA/IRS WTI file 33

2. THE VALUE OF UNPUBLISHED TRANSLATIONS

In common with other forms of grey literature, ad hoc translations have advantages compared with material published in periodicals: they may be more rapidly available since there is always a certain delay before a translation is published in a translation journal; an ad hoc translation may also contain greater detail than its published counterpart which might omit

some background tables or appendices. The real value of a translation must however surely be that it provides information that would otherwise be unavailable.

Although the number of foreign language journals that are being translated cover-to-cover is steadily increasing, there are still a great many for which translation is not a commercially viable proposition. One notable exception is the range of Interperiodica publications (Interperiodica Publishing, Birmingham, Alabama, USA). These are translated into English and released at the same time as the Russian editions, reflecting the demand for immediate access to foreign research findings.

Translating a foreign scientific or technical document is a specialised, costly and time-consuming operation. It is therefore important that translations produced for in-house purposes are not just filed away after use to gather dust, or worse still disposed of, but made available to others who also have an interest in the document. By offering an ad hoc translation to others, an organization prevents the costly duplication of translating effort and is also able to recover some of the costs of translation by charging an appropriate fee for the provision of photocopies, should it so wish.

It has long been recognised that transfer of information is an inseparable part of research and development. The Weinberg Report 2000 published in 1963 summarized the situation well when it said "Science and technology can flourish only if each scientist interacts with his colleagues and his predecessors and only if every branch of science interacts with other branches of science; in this sense science must remain unified if it is to remain effective" (part 1, p.7). One could add here that this must be achieved in spite of the language barrier. Therefore, the essential role language plays in information exchange and communication was recognised with the foundation of the International Translations Centre (ITC) in 1961.

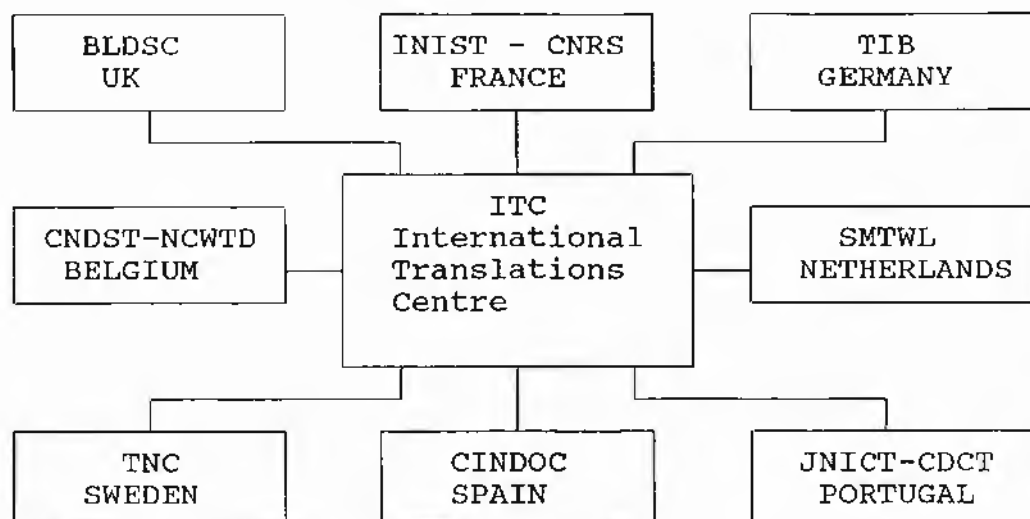
3. ITC: AN INTERNATIONAL AWARENESS CENTRE FOR SCIENTIFIC AND TECHNICAL TRANSLATIONS.

Translations are part of the information transfer chain. The ultimate aim is to connect the user to the translated paper, be it grey or white. "All the problems that beset domestic communication beset international communication, but with certain additional complication; most obvious is the diversity of languages" (p.22 Weinberg Report). Of course, there are other obstacles which also impede the transfer of information on an international level, for example politics and economic considerations.

Free access to translations held by organizations around the world is not practically possible without some central organizing body. ITC, through its international network of national participating centres, provides a framework for international cooperation in the field of translations.

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Fig. 1
I.T.C.'S INTERNATIONAL NETWORK



By collecting the bibliographic data of translations held worldwide, ITC acts as an awareness and information Centre for (mainly) sci-tech translations. ITC collects data on both published and unpublished translations.

The bibliographic data of each individual translation is processed and used to create a translation record which is entered into the World Translations Index (WTI) database which ITC co-produces with the Institut de l'Information Scientifique et Technique, Centre National de la Recherche Scientifique (INIST-CNRS) Nancy, France. WTI currently contains some 350.000 records of translations and covers the period 1979 to present. (Information on pre-database translations i.e. 1961-78 can be obtained from ITC's customer services).

The WTI covers translations from all source languages (Table 2) into Western language (Table 3) and every field of science and technology (Table 4).

Table 2
DISTRIBUTION OF SOURCE LANGUAGE IN WTI

Russian	144558	42%
German	67052	19%
Japanese	54035	16%
French	19567	6%
English	9991	3%
Czech	9242	3%
Chinese	8880	2%
Polish	7053	2%
Others	23279	7%

Total	343657	100%
=====		

Table 3
DISTRIBUTION OF TARGET LANGUAGE IN WTI

English	277259	80%
French	37399	11%
German	16431	5%
Spanish	9071	3%
Others	3497	1%

Total	343657	100%
=====		

Source: ESA/IRS WTI file 33

Table 4
DISTRIBUTION OF SUBJECT CATEGORIES IN WTI

Materials	71783	21%
Mechanical, industrial, civil and marine engineering	57790	17%
Biological and medical sciences	55487	16%
Chemistry	46684	14%
Earth Sciences and Oceanography	22068	7%
Physics	18543	5%
Agriculture	15141	4%
Others	56161	16%

Total	343657	100%
=====		

Source: ESA/IRS WTI file 33

Some 70% of the translation records in WTI represent unpublished translations.

A WTI record gives full details of both the translation and the original document from which it was derived. This enables anyone looking for a translation to locate it on the basis of very limited bibliographic data. The WTI database is available from the hosts DIALOG (file 295) and ESA/IRS (file 33). A printed index is also available on a subscription basis.

Recently ITC entered into a partnership with Engineering Information Inc. (Ei) in the USA to provide engineers and information specialists with an integrated research source that helps overcome language barriers. Ei has added some 30.000 records pertaining to translated articles in the fields of physical sciences, technology and engineering from the WTI database to its Ei Page One CD-ROM. Most of the translations are unpublished documents notified to the ITC network by the public or private organization that commissioned the translation. In this way, researchers are alerted to the

availability of existing translations making it possible for cost savings to be made on research.

Fig. 2

SEARCH SAMPLE AND DISPLAY OF A WTI RECORD

```
? SELECT PY=1992(C)LO=JAPANESE(C)AV=BLDSC
          5364 PY=1992
          53369 LO=JAPANESE
          20104 AV=BLDSC
S1          9 PY=1992(C)LO=JAPANESE(C)AV=BLDSC
```

1/2/3

00330020 WTI No.: 93-0002046
Translated Title: Explosion experiments on model underground magazines
Author: NAKAYAMA Y; MATSUNAGA T
Translation Year: 1992
Translating Organization (Availability): BLDSC -- The British Library
Document Supply Centre. Boston Spa, Wetherby, West Yorkshire LS23 7BQ,
U.K.; HSE -- Health and Safety Executive. Translation Services, Harpur
Hill, Buxton, Derbyshire SK17 9JN, U.K. (BLDSC 9022.381(HSE-Trans-14438)
HSE 14438)
Translation Language: English
Document Type: TV (Translation) ; Level: LM (Monographic)
Translation Country: United Kingdom

Translated from:

Source Journal: KAGAKU GIJUTSU KENKYUJO HOKOKU, v. 87 no. 3
Original Publication Year: 1992, p. 118
ISSN: 0388-3213 CODEN: KGKHEP
Original Language: Japanese
Document Type: XP (Serial) ; ZA (Analytic)
Country of Publication: Japan
Descriptors: Engineering; Physics; Medicine
Subject Classification: M16 Industrial explosives

Source: Dialog, WTI file 295

The translations themselves are, with the exception of a small collection, not held at ITC, rather each WTI record indicates where a copy of the translation can be obtained. In the case of published translations, this is usually a translations journal. For ad hoc translations the translation availability (name and address of the translating and/or holding organisation) is given. ITC will act as intermediary in cases where an organization is either reluctant to become involved in the administration of supplying copies of the translations to WTI users or because it does not wish its competitors to know that certain translations have originated from their organization. In such cases, ITC allocates the translations ITC order numbers and handles any requests for copies through its Customer Services. This service will also provide information on older "pre-database" (1961-78) translations.

Owing to the growing tendency towards the abstracting of foreign language documents, the increase in the number of

journals translated cover-to-cover and the recession, recent years have seen a steady decline in the number of translations commissioned on an ad hoc basis. In spite of this, there is still a strong requirement for this type of translation. Only a very small proportion of all scientific and technical journals published are translated cover-to-cover on a regular basis. Others are translated selectively, but a large proportion are never published in translated form. It might be argued that the major journals or those of specific interest internationally are translated, but this still leaves a lot of material untranslated.

Many researchers successfully locate translations they have been unable to obtain through conventional commercial channels, in the World Translations Index. Sometimes they are less successful and discover that the article or patent they are interested in has not been translated, or at least the bibliographic data have not been notified to ITC.

4. SUMMARY

Having outlined the value of translations as a type of grey literature and the role played by the International Translations Centre in providing access to these documents, I would like to conclude this presentation with a request. All bibliographic data on ad hoc translations sent to ITC is done so on a voluntary basis so that other researchers might also benefit from the information. ITC greatly values this cooperation from both the private and public sector and appeals to any organizations holding unpublished translations which have not been notified to ITC, to seriously consider offering the bibliographic data for entry into the WTI database. Let us aim to make translations a lighter rather than darker shade of grey.

LIST OF ACRONYM'S:

BLDSC	- British Library Document Supply Centre
INIST - CNRS	- Institut de l'Information Scientifique et Technique - Centre National de la Recherche Scientifique
TIB	- Technische Informationsbibliothek
CNDST-NCWTD	- Centre National de Documentation Scientifique et Technique - Nationaal Centrum voor Wetenschappelijke en Technische Documentatie
TNC	- Tekniska nomenklaturcentralen
CINDOC	- Centro de Información y Documentación Científica
JNICT-CDCT	- Junta Nacional de Investigaçao Científica e Tecnológica - Centro de Documentação Científica e Técnica
SMTWL	- Stichting voor Moeilijk Toegankelijke Wetenschappelijke Literatuur

ACCESS TO ADMINISTRATIVE GREY LITERATURE: THE FRENCH EXPERIENCE

P. Buffet, INSEE – CCDA

The CCDA (Commission de Coordination de la Documentation Administrative – Commission for Administrative Documentation Coordination), under the authority of the Prime Minister, was commissioned by the Prime Minister to set up a system for the collection, description and dissemination to the public of non-commercialized reports ("grey reports") produced by or for French government administrations.

Because of the number of problems involved in setting up such a system, it was thought best to first test the proposed set up in a few administrations who volunteered to participate in the experiment. The experiment was launched in early 1992 with the help of two documentation centers which produce data bases that already include grey literature.

The purpose of this paper is to present the general guidelines of the proposed system and the conditions under which they have been tested during the past 18 months.

1. THE PROPOSED SYSTEM

1.1. – The three major functions of the system are as follows:

- set up channels through which administrations transmit their reports to documentation centers able to do documentary processing.

- entrust these documentation centers with the processing and indexing of these documents for bibliographic data bases accessible in France and from

abroad, without having to create a new data base dedicated to that type of documents.

– make it possible for the public to access these documents either through the administrations that produced or commissioned them or through the documentation centers.

This system is not intended to replace the document retention or archival procedures already in place at the Bibliothèque de France and the Direction des Archives de France, respectively. It is designed to complement existing systems and provide the public with quicker and easier notification of and access to this type of documents.

1.2 – If such a system gives a key role to the documentation centers that will collect and process the reports given to them by administrations, it is because it is based on the documentary structures of these documentation centers.

This is already the case in a number of Ministries or Agencies like the departments of the Ministry of Equipment and the Environment, which have set up procedures for the internal itemization and processing of grey literature. However, such situations are exceptional. It is still frequently the case that, within an administration, there is a general unawareness from one department to the next of the type of reports either produced or commissioned. Of course, such departments will have to remedy this situation. The implementation of the system can and should be an incentive to do so while at the same time providing some assistance. But the general objective of the system goes beyond simply helping administrations with their own reports; it is to give the public access to all the reports.

This is precisely where the two selected documentation centers come in: INIST, the Institut de l'Information Scientifique et technique of the CNRS and

Documentation Française (DF). Each has recognized documentary expertise in its own field: scientific and technical for INIST, and administrative and public policies for Documentation Française. Both own data bases and have the necessary structures to communicate to the public the documents they hold.

Both these documentation centers can offer a range of services, such as putting on microfiche the reports sent to them or the creation of catalogs, which the producing administrations are often unable do themselves. All this could be an additional incentive for these administration to participate in the proposed system.

1.3 – The last but not least feature of the system is that it is to be as simple as possible. By providing the best conditions of clarity, efficiency and cost effectiveness, it must foster collaboration between administrations and the two selected documentation centers. This is what the current experiment is attempting to verify while at the same time flushing out unforeseen problems and proposing solutions.

2 – CONDITIONS OF THE EXPERIMENT

2.1 – Out of the various administrations who had volunteered to participate in the experiment, five ministries and one agency were selected for the experiment: Ministries of Agriculture, Environment, Equipment, Justice, Labor, and the Commissariat General du Plan. They were to constitute a representative sample of the various situations and problems the implementation of the proposed system could encounter. These six administrations differ from one another in many ways: size and organization, nature of their activities and nature of the reports they are called upon to produce or commission, documentary policies and structures and also level of commitment to the collection of and access to grey literature.

2.2 – Within each of these administrations, a document center was

designated to act as interface between its parent administration and the two documentation centers. As such, the center is in charge of the internal organization of the experiment and acts as coordinator between the departments' documentary units and the participating administrative sections. When the experiment was launched, a high level meeting was held, at the request of CCDA, with the major decision makers involved in each of the volunteering administrations. The purpose of the meeting was to clarify the operation's objectives and procedures and to stress a commitment at decision-making levels for each of the administrations involved. It was at that time that, generally on a volunteer basis, the document centers that were to be in charge and the participating departments and sections were designated.

INIST and DF for their part, each designated a project leader who was to work on the experiment on a part time basis. The CCDA team was to act as general coordinator.

2.3 – A steering committee, nominated by the Chairman of CCDA , meets about three times a year to regularly review the progress of the experiment. This review is done according to the experiment protocol defined by the steering committee and endorsed by CCDA. At this time, no budget has been slated for this operation.

3 – ORGANIZATION AND PROCEDURES TESTED

The practical experimental set up is as follows:

3.1 – Participating organizations send INIST and DF on a regular basis (depending on the volume of "grey reports" they either produce or commission) a list of the reports with their general bibliographic data. From this list, INIST and DF request the reports that appear to fall in their field of expertise for indexing in their data bases.

Administrations retain reports they consider confidential until such a time as their access is deemed no longer restricted. Such reports must bear a stamp with the date at which their restricted status end.

3.2 – The reports sent to the two documentation centers are put on microfiche by them and then returned, whenever necessary, to the parent administrations. The centers then process the reports and enter them into their own data bases (PASCAL and FRANCIS for INIST and LOGOS for DF) and eventually into SIGLE as far as INIST is concerned.

3.3 – The public can then access the contents of these reports by asking INIST or DF for paper or microfiche copies, or in the case of DF, by consulting them in the reading room. Of course, this is in addition to whatever access the various report producing or commissioning administrations can already provide.

4 – FIRST RESULTS

4.1 – An evaluation study of the experiment was instigated by the steering committee. It is currently being conducted with the participating administrations and the two documentation centers and its results should be available by the end of the year. However, we can already present some preliminary results.

4.2 – First we need to point out that the various participating administrations did not get into the experiment at the same rate. Overall, a minimum of six month to a year are needed from the official launching of the experiment for administrations to set up their in-house procedures. In some cases, it might be even longer. After that, things go much faster when it comes to organizing the relations with the documentation centers.

The first contributions were sent to the documentation centers at the end of 1992 and the beginning of 1993 by three participating administrations,

during Spring 1993 by two others and at the end of Summer 1993 by the last one.

These differences reflect for a large part the variations in complexity of the administrations' structures and the coordination and development level of their documentary organization and policies.

4.3 – The importance of the role played by the steering committee in this operation is twofold: on one hand it is the organization responsible for the follow-up and evaluation of the progress and on the other it acts as a forum where the heads of the documentation centers involved can exchange ideas, share information and experience.

As a result, certain interesting actions initiated by one or the other were taken up with success by others. This can only be positive for the smooth operation of the system and can enhance the role played by these centers within their own administration, where all too often documentation problems are met with a good deal of indifference.

4.4 – The current experiment make it possible to have a good idea on the actual number of "grey reports" produced or commissioned by administrations during one year. Quantities fall between a few dozens and several hundreds depending on the size and the activities of the administrations involved. Those with more technical or scientific responsibilities produce or commission a larger volume than those with more "administrative" responsibilities. We all know that so called "administrative" reports are usually more difficult to track down.

By extrapolation, we can evaluate at around 2 000 the annual number of "grey reports" issued by all departments of government agencies. This number may vary from one year to the other due to government budget allocations.

This estimation, however rough, is quite useful to evaluate the eventual work load and costs linked to the generalization of the current experiment which for the time being is operating on a volunteer and no charge basis.

4.5 – The system by which administrations forward to INIST and DF lists on which either center selects the reports of interest to them seems to be sound, cheap and easy to apply. The fact that both INIST and DF are able to put the requested reports on microfiche and return them to the producing administrations within 15 days, greatly relieves the latter from the burden of having to supply documents often issued in very limited numbers.

In order to facilitate the implementation of this system, all participating administrations now include in study contracts a clause requiring the persons responsible for the study to submit two additional copies of their reports.

Even more, they often make this submission of copies to the document center in charge of report collecting, a mandatory requirement for payment of the contract fees.

4.6 – The risk of records duplication incurred by having two documentation centers involved in the processing proved to be minimal. In fact duplicates can prove necessary and even beneficial since the purpose of these types of data bases is not the same.

A real problem is that some reports are not integrated in any INIST or DF databases because they do not fall within the selection criteria defined by these centers. We are trying to evaluate the magnitude of the problem and to find a solution so that the existence of such reports is not overlooked. However, we must remember that exhaustive cataloging description is already provided in SIGLE.

4.7 – Presently, INIST and DF do their own description of the reports they receive and enter the references in their data bases. Some administration facilitate this task by including with a report a form filled by the person submitting the report. To this day, there has been no attempt to provide for electronic transfer of bibliographic records from the data bases of the producing administration, when they exist, to INIST or DF data bases. In view of the variety of computer formats used and the number of reports involved, it was felt that it would be reasonable to re-enter those records. Eventually, it might prove to be more cost effective to write reformatting programs for those administrations liable to send a large number of records to the documentation centers concerned with the processing.

4.8 – Another real problem is finding reliable indicators to evaluate the use of such a system describing and providing access to those reports. On the one hand, short of creating a specific data base, the implementation of a consultation counter for reports in the data bases would be very costly. On the other hand, it is virtually impossible to measure the increase in consultation and communication of these reports linked to improved notification. Quite often, users who found out the existence of reports through searching these data bases will go directly to the documentation center of the department or administration concerned to request a copy or consult the reports.

Short of a permanent evaluation system, regular, limited surveys need to be conducted on a sample of document centers. Studies of real and potential users of the system need also be conducted. Such studies however can only be done after the system has been operating for several month. At this point in the experiment, the volume of reports catalogued and cited is not large enough to justify undertaking such studies or any type of information and promotion actions for potential users. This also raises the question of the best available means for such actions.

CONCLUSION

The conditions in which such an experiment was conducted obviously impose certain limitations. In particular, it cannot answer all questions it raises as long as it has not attained an amplitude such that the system tested can prove trustworthy and therefore can be promoted. However, we can say that, even if getting this experiment going was not always easy, first results are definitely encouraging and that we must forge ahead with it.

Numerous hurdles remain to be overcome linked to a certain degree of "overcautiousness" on the part of administrations, not to mention their limited resources for such a project. But there are a number of favorable factors for the development of the experiment launched by CCDA. Not the least of which is the conclusion of the negotiations for an ISRN or international standard report number and, in France, the AFNOR guidelines for a standardized presentation of reports, which should both facilitate identification and referencing of reports. It is also the initiative undertaken by the Ministry of Higher Education and Research together with CCDA, to promote the collection of and the access to scientific and technical grey literature. This action, backed by significant financial means, is somewhat different from that of CCDA. If it is maintained and conducted as is today the case in synergy with the CCDA project, it should contribute at the national level to promote a coherent and global policy for the collection and referencing of grey literature.

FIRST INTERNATIONAL CONFERENCE ON GREY LITERATURE
AMSTERDAM, NETHERLANDS
13 December 1993

"Academic Libraries and Collection Development Implications
for Grey Literature,"

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I commend the organizers of this conference and the parties involved in assembling such a diverse, experienced and internationally represented talent pool to discuss the role of grey literature. This conference takes place in a more global context than discipline specific discussions since it is neither subject nor format or source of publication oriented, yet it is a correlate to the myriad of activities and meetings on electronic publishing and products and evolution to fulltext document distribution explored in government, scholarly and commercial publishing sectors. I urge you to consider the new kinds of grey literature rather than only print sources for the purposes of my paper. My contention is that materials such as patents, American dissertations or other numbered technical reports do not qualify as grey literature - access is easy and reliable. Grey really refers to difficult to obtain materials from nontraditional sources.

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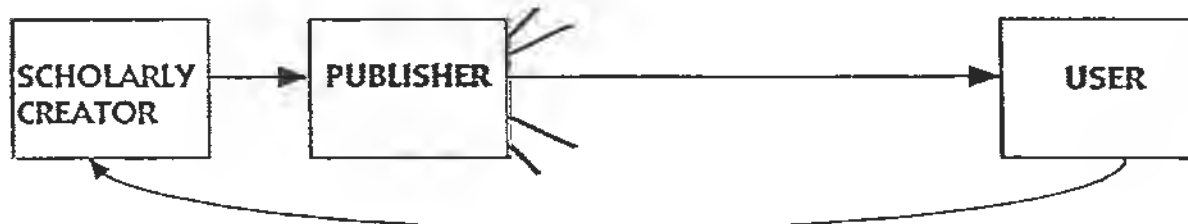
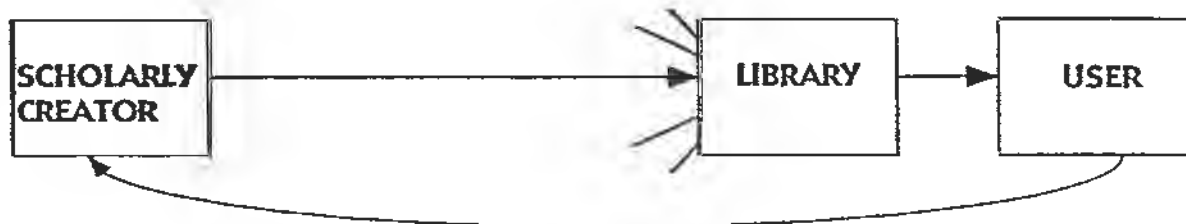
Nearly three months ago, I had the chance to participate in the Foreign Acquisitions Workshop that NASA hosted in Washington, (another paper describes the conference more fully) where the theme this year was also Grey Literature. At that workshop, I became convinced that grey literature lends to requiring a greater market

vision, economic vision and social vision so that it is considered a product of communication as a market commodity, as a springboard for national economic growth and development and as a vital component in the design of a social infrastructure. If these kinds of communication strategies indeed fit for grey literature we are further ahead in determining what kinds of implications it has in many environments, including those of collection units in academic libraries.

Gray literature is to a science librarian like myself whose job it is to anticipate information needs of the merging, emerging, frontier and multidisciplinary sciences, and incorporate the publishing trends to support the discovery of new relationships, a curious, puzzling and mystifying component of my work. The reasons are many, first, until an information seeker recognizes the value of grey information, and determines how valuable it may be, and discovers why it is grey, and not black nor white, it is usually information NOT missed nor considered a void in conducting a literature review. This first slide designed by Peter Graham of Rutgers University, demonstrates the process of scholarly communication in a user-based reading and publishing environment and it is my interpretation that grey literature fits in like any other example of white or black literature, for many of the properties pertain the same ways.¹

However, with so much electronic power behind the publishing engine these days, so much interconnectivity in evidence, and the

¹ Peter S. Graham, "The Cycle of Scholarly Communication," used at the IEEE Workshop on Electronic Dissemination of Engineering Information, September 18, 1993, Parsippany, NJ, USA.

THE CYCLE OF SCHOLARLY COMMUNICATION

(UNLIKELY — WHY NOT?)

movement towards open files and public domain information, a greater capacity for just-in-time indexing, I am increasingly convinced that with electronic scholarly publishing and communication, primarily in the sciences and applied fields, but also in the bridging literature with the expanding social sciences, and with government bodies and agencies individually and collectively creating more grey literature that is posing greater consequences, and the need for new decisions, grey literature is in a new heyday.

With your expressed interest in the subject of this conference and your attendance, I am probably speaking to the converted, that you are not intimidated by grey literature but feel that it has an important role in information delivery, the proliferation of information, and collection development and you share my concerns that libraries need to be better prepared to acquire, maintain and promote its use, whether you are a user, contributor, producer, distributor or librarian.

The abstract to my paper suggests my interest in the challenges, concerns and responsibilities for grey literature in the academic library environment. With greater academic and scholarly value placed in grey literature and it being an original and primary source for information, the links to public opinion, and extensive press and media promotion of it being the source for new discoveries, information, and dialogue, libraries and publishing arenas are forced to respond with a better grasp of the issues associated with making it more widely accessible. The avenue of collection development policies and procedures dictating

how such material is acquired, handled, processed, protected and preserved is not much different in how we treat other library materials, such as books and monographs, serials, data files, special collections, manuscripts, maps and other resources commonly expected in research level collections. Libraries that never had collection development policies in the past are composing them; the greater integration of TQM (Total Quality Management) principles in library management structures encourages collection development policies to document priorities and goals. 5.4

The dilemma of conflicting priorities and the controversies inherent over stretching budgets not only to purchase, when libraries consider the special needs grey literature can require becomes compounded. These needs may include developing human resources with special expertise and subject background to solicit and become aware of the literature, often original cataloguing and special processing to make it easily, expediently and readily available and perhaps creating storage systems offering protection for long term retention. One thing about the selection process, that makes it difficult to assess, is value. Grey literature ages well and to some users, becomes more valuable over time, in historical sequences, which makes it a somewhat different example when studying the economics of scientific information where the emphasis is usually on timeliness and currency and value diminishes over time.

My own work is concentrated as a bibliographer of the applied sciences and technology, multidisciplinary sciences, new and emerging fields of specialization in the environmental and

developmental sciences where I support faculty, graduate and undergraduate students, the scientific industrial community and the lay public who have increasing consumer information needs. I have explored how large academic libraries have traditionally responded to grey literature and the changing trends for better accommodating it in a library context and found few good examples to follow. However, libraries are the testing sites of the growing number of joint ventures between telecommunication networks, publishers and users; if libraries don't want to be bypassed, they need to place greater or higher value on grey literature.

Trust me to say that grey literature has always had a role in academic research but librarians hate it and tried their hardest to provide obstacles in not promoting it very well. Why? - Because it is not easy to collect nor control. In our hunting and gathering role we see ourselves as collectors or acquisitions agents, and organizers to make information available and then preservers for future generations.

Gray literature is not easy to bibliographically describe and in this day of simple and routine procedures being the preoccupation of library practice it is considered expensive and difficult. As I indicated earlier, it usually requires additional expertise and time to process, describe and classify. It does not come from traditional sources, we don't get it automatically nor do we always experience a heavy demand for it. Unit costs and transaction costs are high as well, and when we are pressured to reduce those expenses, it is hard to justify being overly

proactive. As librarians we have not practiced an aggressive approach to collecting grey literature either. Instead we are reactive, satisfying demands that are more likely to be introduced on the Internet. This new wave of access to grey literature has opened a pandora's box.

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But when we offer it, the value can sometimes override other sources and an information seeker can get very excited and charged by the findings, feeling like a part of the puzzle of curiosity and mystery is being solved. Some scholars purposely seek out publishing in the grey literature for it tends to be released in a more timely fashion, gets in the pipeline for quicker response and does not go through such a tedious review process. Disadvantages include its not being perceived as "most critical" or not heavily refereed, with distribution not as wide as traditional works. That is a myth and perhaps it is analogous to the increase in electronic activity we currently see on the Internet - (for which there is hard data to support the exponential growth in electronic use by new distributed passwords), listservs and bulletin boards, new publication arenas and products daily being added from around the world. We actively use these sources of information but are often cautious to cite them as authoritative, although that is rapidly changing.

Research libraries in the US, and around the world, are indeed changing their missions and goals. They realize they can no longer be all things to all users - the scope of collection development has shrunk and in the US and Canada, the 119 current members of the Association of Research Libraries (ARL) can be defined as either

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the largest libraries or the richest libraries in North America. How do we count gray literature? As we shift from an ownership mentality to one of providing access and redistribute our resources to channel and facilitate better access at less expensive rates, we see a convergence. A paradigm shift has taken place whether librarians want to candidly express or suppress it from measuring or evaluating quality in a collection with quantitative holdings data. That shift takes us from having collections that are strictly composed of print - today monographs, serials, series, nonprint, audiovisual, maps, machine readable data files, software, electronic, multimedia elements, posters, constitute the holdings of all libraries.

New alliances have been developed. In North America, the Coalition of Networked Information has brought about a new management style and distribution channels for libraries, publishers and international standards finally are offering clearer expectations in how to proceed in handling information, even the grey literature. As librarians, we must defend what we do best and be happy with that, not stretching our concerns to be everything, but encouraging that special treatment be exercised for all resources that need it. That is now an easier burden to bear because of the global sharing that takes place on bibliographic utilities and thankfully to these alliances and standards. For electronic products we now have SGML and EDI to embrace.

The classic finding aid to grey literature that most librarians have come to depend upon, Auger's, Information Sources

in Grey Literature (3d ed, by Bowker-Saur will be released in early 1994) identifies many sources of grey literature: report literature, theses, translations, dissertations, conference proceedings, microform sets, trade literature, to name some chapter headings. Today, this is easy to find for the most part - "in process" or first passes of long works in progress become the new core of grey literature.

What we have seen in the last 3-5 years is a startling proliferation of finding aids to help librarians and users in the commercial identification of such materials and more specialized directories of laboratories, centres, think tanks, consultancies conducting sponsored and independent research and developing new spinoff technologies and products that the public has an interest in. Reference collections are swelling with these physical works and navigational tools for specialized databases devoted to a splinter science have drained our resources and made us consider our priorities very seriously.

But is that really the gray literature that we talk about? What do we do with such materials, besides eventually process them and shift them from backlogged holdings to a shelf somewhere and I bet increasingly to remote storage facilities. I urge you to consider the concept of vertical files. Traditional grey literature frequently ends up in "office grey" physical vertical file cabinets and librarians dislike that because we can't count it adequately, and it requires special care and curatorial management to effectively retrieve anything from it. It takes valued real

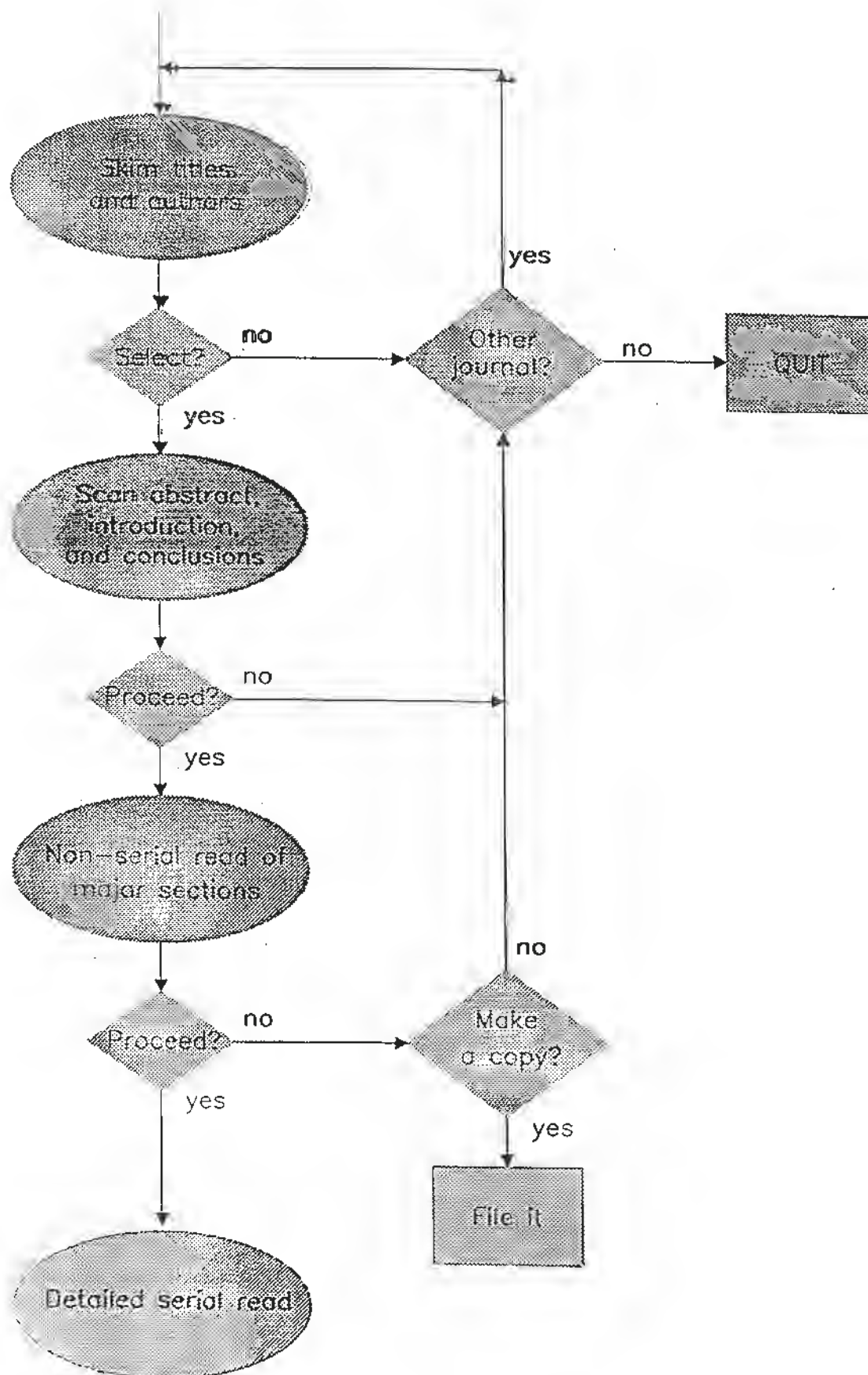
estate in libraries which have no room to expand as is and suffers from a high degree of lack of comfort in use. Microform was once a substitute, now replaced by low use CD-ROM titles. Controlled subject access is difficult to assure unless subject thesaurus construction becomes a priority and that tends to require major commitments to ongoing publishing on that topic. Usually the grey literature is unprocessed papers and folders, obscure works and most recently downloads of database files.

User behavior has changed - the just in time vs the just in case scenario points to this almost daily. Figure #2 indicates how typical journals are used and can be a source of comparison with grey literature.² Some of the grey literature that has become increasingly visible contains the archives of television programs and news releases, where if you missed it at the time of programming, it is easily retrievable and available for later viewing and study because some repository or library is committed to retaining it.

The historical relationships to literature are changing - scholarship in the history of science has demonstrated the value of computing or resistance to new technologies in social and sociological contexts that we must retain for historians and anthropologists. Another population that has placed enormous demands on gray literature is the business and management communities - they want longevity data retained for historical

² A. Dillon, "Typical Journal Usage," Computers in Libraries, v. 11, 1993, p. 23.

Typical journal usage *



* A. Dillon, *Comput. Libr.* 11 (1991), 23

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purposes to study influences of industrial and technological developments.

All libraries do not have to be the source of last resort. One of the reasons I believe this conference was conceived and convened is to "share" the need to have expertise available in the compiling and editing, publishing, distribution and retrieval of information for different purposes of information exchange. Government agencies have traditionally been the source in the US for much grey literature in the sciences. The breakdown in the depository system highlights uneven distribution. Around the globe the situation varies, and regardless of one's passport, or location of residence and work, information travels and the chain may break down occasionally, but human and cable networks illustrate how important information transfer becomes. In addition to the governments, broadcasting and journalism media, the corporate and consulting worlds, philanthropic groups and consumer research each provide information that we may define as grey but want very much.

In examining the following series of scenarios that suggest different outcomes for a library environment regarding the relationships between scholarly creator, publisher, library and user we see some common themes. First, let's assume that in the current economic climate, the materials budgets are stretched very taut, the collection development policies of academic libraries reflect the primary emphasis of supporting current academic research and instruction missions of the institution with very

little padding or fluff and that acquisitions must come from very established sources - traditional suppliers and agents who get heavy discounts from volume buying - meaning the major publishing houses worldwide who offer discounts that can be passed on to the library customer with the agent still making some profit. The processing and procedures are mainstreamed to reflect a popular downsizing of staff and most have been converted to automated operations. The buying costs of grey literature are not what makes it expensive, it is the associated costs, already mentioned.

Collectors and convinced users of grey literature can look at another body of literature for some direction in how to better incorporate a commitment to acquiring grey literature for library collections.³ That is the increasingly visible role of MRDF in academic libraries. It, too, can be characterized as specialized and multidisciplinary and always having major hardware and software engines to steer it for sophisticated use. Numerical data became the mainstream method of social science research in the 1960s and had to be shared by wider communities of users. It took time to convince libraries to regard data files as within their collection and service parameters and until then, data archives were operated and managed independently of libraries. The referral networks were born outside of libraries.

As academic libraries want to see more consolidation of

³ Dan Tsang, "Academic Libraries and Collection Development of Nonbibliographic Machine-Readable Data Files," Paper presented at the annual meeting of International Association of Social Science Information, Service and Technology (IASSIST), Washington, DC, 26-29 May 1988.

service points and fewer departmental reading rooms or specialized collections, they are forced to blend and incorporate nontraditional materials and create service plans to promote their use. Concerning MRDFs, there was a resistance and avoidance to cataloging such materials, except perhaps for codebooks. Still today, there is a great void and absence of any overall policy that would state clearly the role MRDFs play in the library's collections. That may be due in part to a library-phobia about the special needs they require (MRDFs usually run off a mainframe), but as we become more electronically oriented for other purposes and incorporating end-user searching, a variety of easy and complex CD-ROM products emerge and we consider ourselves living in a cyberspaceship, the ironies are immense.

Two librarians have explored these scenarios in the context of collection development very comprehensively. Ross Atkinson, currently at Cornell and Charles Osburn, University Librarian at Alabama, have strong links to the humanities, but have been successful in identifying the conditions of how collection development have become chronically tied to the financial resources of the institution.⁴ Expectations of providing more for less is the way we come to function. Most librarians try and follow a standard set of guidelines in revising the collection development

⁴ Atkinson, Ross, "The Conditions of Collection Development," in Osburn, Charles B. and Ross Atkinson, eds., Collection Management: A New Treatise, in Foundations in Library and Information Science, volume 26A. Greenwich, CT: JAI Press, 1991, and Atkinson, Ross, "Old Forms, New Forms: The Challenge of Collection Development," College and Research Libraries, vo. 50, #5, September, 1989, 507-520.

policy to reflect current directions and document ways that materials budgets are allocated.

Grey literature may lend well to a narrative approach that describes the scope of languages and chronological emphases, format, and exceptions to the policy. It is difficult to anticipate exactly what segment of the grey literature will be most heavily used and by whom. It will be determined by current events and the depths of the collection and access to other local and specialized resources. It is incredibly hard to promise that balance in grey literature can be achieved. Collection strength will be determined by the good fortune of having the materials sent to the library, or cultivated by someone with a keen sense of speculation and anticipated need.

Most academic institutions have different kinds of collection policies, annually reviewed and revised. Grey literature is not usually among the separate chapters, but is mentioned in the context of support for science literature, social sciences and in the policy for government publications. In late 1986, at my institution we created an addendum to our policy, "Collection Policy Governing Machine Readable Data Files," which recommends substituting MRDFs for printed information only "with extreme caution," given the volatility of the information industry, the limited number of simultaneous users and need for staff assistance. It also cautions against acquiring MRDFs purely as a depository function and urges that all collecting be evaluated against other potential acquisitions and weighed against other uses of book

monies.

The University of California, spread over 500 miles, also has an active collaborative collection development program for all nine campuses and which includes Stanford as well. This "Shared Resources" pool of money includes consortia membership to the Center for Research Libraries, certain backfiles of materials, large microform sets and cartographic information products, translations of science journals, tape loaded of major commercial indexing and abstracting tools and now increasingly full text products, cooperative yet informal ILL via fax agreements and other projects. The monies are drying up as many of the commitments have ongoing responsibilities, but the criteria indicates that the materials must be easily shared and transported and easily copied within the current interpretations of copyright.

Earlier this year, I conducted a rather crude survey of six major questions of the 9 campuses of the UC to learn how they treated grey literature in their collection development policies. I found out that no separate mention was made or an isolated example defined, but it was not to be any different than collecting other materials. "One should not acquire material that is clearly being added to the processing backlog" or that "requires such specialized processing that it becomes not cost-effective to add," says another respondent.

What I can summarize is that not much thought and planning focuses on grey literature at all. The units to which it is most important appear to be government documents where foreign

collections are valued. Science bibliographers did not respond very precisely to these issues at all.

In conclusion, we continue to see collection policies for books and serial titles and nonprint media at major academic libraries generally divided by subject and within each subject by level of collecting, basically modelled after CONSPECTUS or other criteria suggesting comprehensive, research or basic levels. We must realize that having any formal written policy does not mean that it is engraved in stone; it must be flexible and open to revision. Some important elements of a grey literature collection policy may include: See Figure #3.⁵

FIGURE #3

THEMES FOR COLLECTION DEVELOPMENT CONSIDERATION

1. Selection responsibility.
2. Budget source - who pays?
3. Level of collection activity.
4. Subject scope.
5. Temporal domain - time periods.
6. Spatial domain - geographic specific or publishing origin.
7. User needs
8. Uniqueness of data - how grey is grey?
9. Currency of information.
10. Confidentiality of data.
11. Format of product

⁵ Adapted from D. Tsang, op cit.

12. Compatibility with other collections.
13. Documentation?
14. Quality of product.
15. Access to the literature.
16. Historical significance.
17. Levels of analysis.

Perhaps grey literature is not all that different than anything else, but I have a hunch that it is and will continue to be a thorn for libraries to deal with. Science communication patterns will continue to change radically in coming years and thus user behavior will change and the contributions to the literature will come from a more highly sophisticated population as well. The Internet will continue to challenge us and the entire information industry in mounting more ways to creatively seek information and learn new things and grey literature will continue to have a long future on the net. My crystal ball suggests that librarians will become more proactive in utilizing information on the Internet and demonstrating its potential value for its users and that libraries will be more open to all examples of nontraditional materials because the demand is certainly increasing for it. The collection management and acquisition efforts will become interwoven and the scholarly communication process will develop in grey literature.

Description of grey literature: Demand for standardization

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Abstract:

Publishing houses, database producers and document suppliers are well prepared for the electronic document delivery as international standards and practice had been harmonized for journals and books.

For patents and standards the problems are solved, too. But for grey literature the situation is still very difficult: (corporate) authors do not use standards, database producers offer different depth of description and use different rules, electronic document delivery is not installed.

The paper compiles the different descriptions of bibliographic and subject elements in the most important databases.

Existing rules and standards are compared with practice and lack of standardization.

Grey literature is not used as frequently as i.e. journal articles, therefore economic considerations influence depth of description and storage, too.

The electronic storage, ordering and document delivery for grey literature must be prepared and harmonization of procedures is needed.

1. INTRODUCTION

Grey Literature has its name from the color, that is badly visible, that is a synonym for fog and dust. The cataloguing and description of the contents of this kind of literature has much the same character than the color, it is grey, too, and information retrieval means raking out in a misty environment. But do we really have grey prospects to achieve the application of existing standards? Should we not be working on our grey matter to achieve comprehensive description and thus making grey literature available and thus promoting the value of grey literature?

It is very important to have a forum at the 1. International Conference on Grey Literature and standards included in the plan of action, might be the vehicle for promoting their application. We need further promoting, as many individuals and professions involved in grey literature are professionals for others tasks, but have to handle with it.

The Producer:

Is a professional in his subject and techniques, but not in the environment of publishing. In many cases reports, technical notes and handbooks or other supplementary literature are **not** written or compiled voluntarily but are the most unpleasant part of a research work or a new developed technique.

The Publisher:

Their refereeing systems and application of standards are of a high level, but they are not interested (?) in literature with low numbers of copies to sell!

Abstract:

53 | An abstract should be included, whenever possible. It is the most expensive part for the producer of the information service. But for the user it might be the most cost-effective information.

In an other paper, you hear about ideas, how we can achieve to get abstracts. Modern techniques will help to save cost to include them in databases for the future.

Descriptors and classification are depending on the type of databases and therefore not subject of this paper.

4. CONCLUSION

Implementing the relevant ISO-standards and the mentioned rules for bibliographic description by all partners in the chain from production to usage of grey literature could bring them together. It is true that a report published with all elements described and an exact bibliographic description means more work and therefore costs more money. But if they are used, it is cost-effective, because all partners could use the information in the same way. It is cost-effective, because literature not used for information exchange is very expensive and it is cost-effective, if the work has to be done only once and can be used again and again.

ACQUISITION OF GRAY LITERATURE: RESULTS OF A U.S. INTERAGENCY WORKSHOP

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Abstract

This paper reports on the results of the third *Foreign Acquisitions Workshop*, held in September 1993 in Washington, D.C. The workshop focused on a number of topics relating to the theme of *Improving Access to Foreign Gray Literature*. These topics included defining the scope and value, identifying sources, understanding intellectual property issues, discussing other issues and policies, and examining technologies useful in the acquisition, analysis and use of gray literature. The workshop was sponsored by the U.S. National Aeronautics and Space Administration (NASA), and the U.S. Air Force Foreign Aerospace Science and Technology Center (FASTC), and the Open Source Coordination Office (OSCO). Speakers representing U.S. Federal agencies, domestic commercial providers, and foreign agencies and organizations were invited to report on and discuss aspects of gray literature. It is appropriate to summarize the findings and issues of this workshop for the international community at *Grey Literature '93* as a means to further promote international cooperation in increasing the access to the world's gray literature.

1.0 INTRODUCTION

In 1991, the U.S. National Aeronautics and Space Administration (NASA) organized its first interagency workshop to exchange information on access to and acquisition of foreign scientific and technical information. At that time NASA had a series of ongoing bilateral and multilateral activities with a variety of agencies.

The idea of the workshop resulted from the observation that these many activities had a few common themes and that the participating agencies had a potential interest in opening the activities to broader participation. The first workshop started with 40 people from 18 agencies with a general theme of educating one another about various foreign information programs. The 1992 workshop grew to 90 people from 27 agencies. As a result of input from the first two workshops, it was determined that the focus of the 1993 workshop would be "gray literature." As it turns out, the pulse that was taken turned out to be the right one. Here

on the other side of the Atlantic, a similar recognition of the issues and the importance of gray literature resulted in the planning and expansion of your workshop here in Amsterdam.

The third NASA Workshop was held for three days from September 23-25, 1993. Sponsorship was expanded to include the Foreign Aerospace Technology Center at Wright-Patterson Air Force Base (now known as National Air Intelligence Center (NAIC)) and the Open Source Coordination Office in Washington, D.C. There were over 230 attendees, representing about 100 organizations, including government agencies, universities, business and industry as well. There were 57 speakers representing U.S. domestic, foreign, and international organizations in an attempt to share information.

What we would like to do in this paper is provide the highlights that came out of our meeting in September 1993 and note the challenges that have been identified for continuing interorganizational cooperation in providing better access to the world's information capital. As a result of this paper, it is our hope that continued discussion will take place and ideas will be generated here in Amsterdam that we can take back to the Planning Committee for our 1994 workshop. In this way we continue to build our understanding and identify new pathways to meet our information access goals.

2.0 THEMES IN THE ACCESS AND MANAGEMENT OF GRAY LITERATURE

At the Washington meeting, there were a number of key themes that captured the issues in access and management of gray literature.

2.1 Gray Literature Is Easier to Describe Than It Is to Define.

A number of speakers gave definitions of gray literature. However, most of the definitions were based on some of the characteristics of this type of literature: for example, it was difficult to locate and was not published through regular or commercial channels.

It was also pointed out that gray *information* may be different from gray *literature*. Gray information may be the more significant concept in terms of user needs. The term *literature* is instructive since the phrase and its association with being *gray* comes from the documentalists' or librarians' sense that it is not under effective bibliographic control and, once identified, cannot be easily obtained in a traditional documentation format. In today's technological environment, the concept of gray information in new forms and envelopes may present even greater challenges. You will notice that both terms are used here as they were at the conference, interchangeably and with a lack of precision regarding how and why they are used differently. This is perhaps a point bearing further consideration.

2.2 Pink Literature

Literature is talked about in terms of gray. One can view information that is not accessible as being black and fully accessible information as being white. The color analogy was applied to information being purposely withheld because of security, privacy, or classification reasons. For information that does not fall in a legally withheld (red) category, but is not released (white), the genre of pink information was recently created. This bit of levity points to an important issue in defining gray literature and in circumscribing types of information that may present acquisition difficulties.

2.3 Free Information Versus Freely Available Information

The theme that information being *freely available* is not the same as *free information* was significant for improving access to gray literature, especially in the context of government information. In the U.S. many believe that government information should be free. Implicit in this assumption is that free means free to the public since the taxpayers' dollar already is paying to develop, package and disseminate it. To the extent that agencies cannot charge for information, are not funded for public dissemination activities, or are unable to put a price tag on the activities, resources for getting this information packaged for dissemination are constrained. To the extent that information is recognized as having a cost and this cost is factored into making information available, more gray information will become more easily accessible, not only through government channels, but also through the public/private interface.

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2.4 Just in time Versus Just in case

In today's economic and technological environment, management must consider a *just in time* versus a *just in case* modus operandi. The notion of collecting everything, including the grayer material, *just in case* is giving way to the procedure of identifying where information may be obtained when needed. This has meant an increasing division of labor in terms of collection development. It also has been a driving force in interagency cooperation on acquisition of gray literature and the increasing success of this conference. From a library perspective, it was also noted that, as collection policies become more restrictive, it becomes increasingly more important to educate users on navigational tools to obtain the information from other sources.

Speech tools

2.5 Networked Information Is Not a Linear Extension of Print.

The rapid implementation of a networked information world and, in particular, the development of the Internet, has had dramatic impact on what is and how we deal with information access in general, but it is particularly interesting as we address the concept of gray literature. The problems in information access in this networked world highlight a salient characteristic of gray literature: it is not under effective bibliographic control. In the 1950s and 1960s the fact that government technical reports were not well controlled either bibliographically or in terms of document delivery made them a major corpus, if not the essence, of gray literature. In the 1970s and 1980s, this material has become well controlled for the most part. With the rapid development of information technology and networked information, two things have happened: the sheer volume of information generated has outstripped our ability to manage it, and new forms and media for information have been created. To the extent that we do not have the navigational tools to identify what is there, we have the problem of gray information. There are many experiments and tools being developed to provide the function that bibliographic databases, abstracting and indexing services, and directories have served for the print world. However, there is still significant gray fog in that environment.

2.6 "Too much data but not enough information" or "Are we trying to drink from a fire hose?"

Related to the questions of information overload, about half the speakers were talking implicitly about too much information, while the other half spoke from the premise that they needed more information. The *fire hose* analogy, which was first noted in *Science* magazine about two years ago, supports the point that we that we need to find better discriminators in information seeking. In a world with too much information, gray information which, by its nature, is more difficult to access, must pass an increasingly higher value threshold to be worth acquiring.

2.7 Networking Can Be Personal.

A major point was made that one of the most positive outcomes of the Workshop was the opportunity to network with the other attendees. Many of the people had been interacting on bilateral bases via telecommunications and mail. Listening to people in the flesh and then being able to sit down and discuss ideas between twos and in small groups as ideas developed was considered by many to be the most valuable part of the workshop. This was considered particularly true because the problems of gray literature

management and the efforts to share resources in this area require clear understanding of motivations, confidence among partners, and the opportunity to fine tune common objectives.

2.8 One Person's Gray Literature Is Another Person's White Papers.

Another point with regard to networking and interpersonal communication that was duly noted was that one group's *gray literature* may be another group's *white papers*. (Pun intentional.) A particular case in point was made when the head of publications at an international organization described the publication process and access tools of that organization. In fact, documents were available through regular, if not commercial mechanisms. The information from that organization was unknown to some of the audience and therefore viewed as gray. Once the system was explained, the same audience viewed the material as more accessible and, therefore, *less gray*.

In a more general sense, libraries, database producers, information brokers, end users all have their own standard sources for information and these are not considered gray. However, when one actor tries to trace another's sources, they venture into what might seem gray areas to them.

Gray literature can also vary by the subject field. Science communities differ in this regard. For example, preprints are a standard format for exchange in high energy physics and these are controlled through preprint management systems within the community. Biologists, on the other hand, wouldn't consider sending out preprints broadly for fear of insulting colleagues or being scooped.

2.9 Having Information Doesn't Mean Understanding Information.

The issue of cultural diversity and cultural awareness was very evident in a number of talks. This is especially important in understanding some of the less traditional information sources. It was pointed out that if one understands the people, the culture and the context in which the information was produced, then one gets more and perhaps even a different meaning from it.

In this regard, the issues of language barriers and translations were also raised from various perspectives. One speaker talked about the ISO standard on Universal Coded Character Set Standards, which interestingly enough raised many political questions during development because of different cultural approaches and relationships to alphabets. From this basic element of languages to the broader issue of full text translation, the language barrier remains a problem of special importance to the acquisition of gray literature.

3.0 MAIN TOPICS IN THE ACQUISITION OF GRAY LITERATURE

In addition to themes running through the meeting, the Workshop was divided into nine broad areas.

- Scope and Value of Gray Literature
- New Thrusts in Open Source Activities
- Specialized Sources of Foreign Gray Literature
- Foreign Sources of Foreign Gray Literature
- Intellectual Property Issues in Gray Literature
- Federal Agency Update: Focus on Foreign Gray Literature
- A Session with Experts in Searching and Sources of Foreign Gray Literature
- New Techniques and Technologies for Access and Evaluation
- Where Do We Go from Here?

3.1 Scope and Value

In addressing the scope and value of gray literature, perspectives ranged from a pragmatic information analyst who gave concrete examples of the value of gray information, to a futurist who gave a vision of the new gray literature in a networked world, to a librarian who provided an intermediate perspective on the challenges of gray literature in the 1990s. Also as part of the scoping discussion, the information programs of the United Nations and the World Bank were discussed to give a sense of two international organizations with gray literature holdings of broad U.S. information interest.

3.2 Open Source Activities

The *Open Source* session is of special interest because of the transformation of our geopolitical environment. Increasingly, economic competitiveness issues are seen as fundamental to national security concerns. Scientific and technical information plays a key role in both areas. Open source intelligence, especially in the STI arena now has upgraded status within the intelligence community. The area of gray open source information is the intersection of a common area of concern for the STI and INTEL communities and the area in which sharing has the most potential.

There was a natural focus on the geopolitical changes that are taking place in the world. These included the descriptions of the deterioration of the publishing and information infrastructure in the former Soviet Union and the truth and fiction of difficulties in getting access to Japanese information.

In the case of the former Soviet Union, and especially Russia, organizations seeking to do business or acquire rights to information must be aware that control lies in possession. Signing a contract with a person who holds a position within an organization is not equal to a binding contract with the organization as is the accepted practice in the West. Rather, if the negotiator or signatory leaves, the commitment may, in fact, not be honored by successors.

In the case of Japan it was pointed out that there are many excellent sources of Japanese information. Many Japanese organizations have offices or representatives in the U.S. that are happy to provide good information. The language barrier is certainly a real one and makes some Japanese information darker gray than it needs to be. However, this is not to be confused with active attempts to withhold information.

3.3 Specialized Sources

In the session on specialized sources of foreign gray literature, an array of topics were covered from resource sharing through the Center for Research Libraries, to information from the Agency for International Development, to two subject oriented programs in geology and minerals. The common thread mentioned earlier, that one person's gray literature is another's basic information tool, was evident as the audience listened to the description of the resources.

3.4 Foreign Sources

Since this was a U.S. oriented meeting, the focus on *foreign* sources means, of course, *non-U.S.* The Workshop was fortunate to have visitors from abroad provide insight into the work they are doing to make gray information more available. This included discussion of Canadian STI collections, German information management and its relationship to Sigle, European Community Information, and nuclear energy information from world-wide sources as managed through the International Nuclear Information System in Vienna. Three U.S. based speakers discussed Japanese and Latin American sources in general and worldwide biomedical gray literature available through the Pan American Health Organization.

3.5 Intellectual Property Issues

A session at the Workshop focused on intellectual property rights in this changing environment. Questions are both technological as well as policy

5.3 related. From the U.S. perspective, particularly since we are a recent signatory to the Berne convention, and because U.S. Government documents are not permitted to be copywritten in the U.S., the issue of national treatment or *open material* reciprocity was highlighted by two speakers. It was also noted that copyright enforcement has been dramatically increasing recently. One of the watershed issues in the success of suits against copyright violators is that there is now a mechanism (Copyright Clearance Center (CCC)) which provides reasonable means for users to pay for use of copyrighted material. In this regard gray literature continues to have the problem that it is not generally covered by such organizations as the CCC because they are generally commercial publisher based. In the U.S. Federal Government, issues of copyright and data rights are changing in view of various competitiveness oriented legislation. Increasingly, contractors are given more opportunities for capturing intellectual property rights. New public/private relationships such as Cooperative Research & Development Agreements (CRDAs) increasingly cause gray literature to be withheld by contractors in the interest of commercialization. Looking at the technological impacts on copyright, the issue of software is a key concern. The new forms of *literature* created with networked information is a question that is being addressed in many forums, especially as it relates to digital library development. In the U.S. there are a few testbed experiments in this area.

3.6 Federal Agency Update

Because of the orientation toward U.S. Federal STI sharing, a special update session was held on the major STI agencies and what they are doing with regard to the collection and management of gray information. Activities range across the board from formal international multi-national exchanges covering such areas as energy to areas where gray literature is obtained through individual programs of institution by institution exchange or through purchase or items on an *as identified* basis.

3.7 Searching and Sources

The user view was presented from the perspectives of an end user, an information broker, and a directory publisher. It was evident that each had found both formal and informal methods to make the system work for them. In all cases, the ability to make personal contact with people with *institutional memory* rose high on the list of sources for the most difficult to obtain gray information.

3.8 New Techniques and Technologies

The final technical session focused on new techniques and technologies for access and evaluation. Two of the talks focused specifically on the networked environment and the tools and techniques for improving navigation and post processing of material on the network. The others focused on experiments on how to enhance the new types of gray information with methods of abstracting, indexing and creating surrogates or directories of these new forms so there are hooks for better retrieval.

3.9 Where Do We Go From Here?

The final session was an open group discussion and an overall assessment of the conference from the participants. The overall feedback indicated that it was a very successful meeting. Attendees felt that they got both an overview perspective and operating details. They learned about a number of collections that are available and how to access them. They went as far as exchanging phone numbers with each other for follow-on work.

4.0 PLANNING FOR THE FOURTH ANNUAL FOREIGN ACQUISITION WORKSHOP

There is always room for improvement and suggestions for consideration for the Fourth Annual Workshop included the following:

- Have more industrial representation
- Encourage more end user participation
- Reduce the total number of speakers and give each more time, with more overall time for discussion both in the formal program and during breaks

Regarding the technical program for 1994, there were a number of themes proposed for possible deeper examination:

- New forms of STI, especially multi-media, and how they can be indexed and identified.
- Foreign information acquisition from a user perspective and what we know about user needs in this area.

- The relationship of the concept of digital libraries in a networked environment and how they relate to foreign acquisitions and gray literature.
- Continuation of the cross fertilization between the STI community and the open source intelligence community each of which has developed tools and techniques that might be used by the other.

We hope we have given you a useful overview of the results of our Workshop. If you want more detailed information, a Notebook of abstracts and speakers notes was compiled. Although it's gray, and will not be formally published, it is available at the cost of reproduction. For more information about the meeting or to obtain a copy of the notebook, please contact:

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GREY LITERATURE Revisited : The Southern African perspective

Abstract

The 1985 UNESCO-sponsored workshop on Resource sharing amongst the Southern African Libraries recommended inter-alia; that some sub-regional centres be recognised as national depositories of Grey Literature. The proposal itself was seen as a success by those documentalists (the author included) whose then persisting problems with this literature, had marginalised them in several ways.

That notwithstanding, 9 years later, alas the implementation of that recommendation has been difficult. Moreover, time after time those institutions concentrating on this type still have to grapple individually with numerous locally-related problems of the literature, especially the:

- definitions; so as to distinguish it from books and archives;
- acquisitions; due to it being fugitive, often unavailable in bookshops, and hence being difficult to trace/collect;
- formats, which are unusual and can't lend themselves to normal library techniques;

also, as unpublished, this material often lacks full bibliographic details that facilitate processing.

Consequently, through literature review and questionnaire to some centres, the results make this article a compelling re-visit to Grey Literature on Southern Africa; so as to:

- analyse the material from the actual geographical field of concern; to determine the suitable handling approach;
- assess the extent to which the politico-economic and technological changes in Southern Africa have affected this literature, in terms of its quantities, subject matter, formats, use, etc; all of which will require adequate attention;
- determine once again how to instil awareness of the value of grey literature first to sub-regional information scientists who will then promote networking; secondly, to suppliers and users who will support availability and protection.

Introduction

When the representatives of Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe met in Dar es Salaam in 1985, the theme was not Grey Literature. The theme of that UNESCO and IDRC sponsored workshop was Resource-Sharing in Southern Africa. Though it was not the first time those archivists, documentalists and librarians met to discuss the same topic either at national, sub-regional or continental level; it was definitely the first time that their gathering mentioned in specific terms aspects of grey literature. Despite it being for the first time, that initial reference to Grey Literature (GL) was certainly explicit. Firstly, the "problems surrounding grey literature were discussed. It was noted that grey literature required hunting for, it was difficult to handle and organise. It was stressed that such literature was extremely important as a source of local information for development, and that it was mostly available free requiring no foreign exchange outlays."¹ Regarding Cooperative acquisitions as an appropriate scheme for resource-sharing; the workshop noted that careful attention ought to be paid to acquisition of local grey literature and items produced by locally based international organisations.

Under the subtopic of National Bibliographies as one of the four important tools for resource sharing, it was emphasised that such bibliographies need to be comprehensive, a condition which may be satisfied by inclusion of grey literature that is adequately covered in legal deposit laws. Indexes and abstracts were a second type of important tools in resource sharing. By indexing local research and consultancy reports, proper documentation and inventory of completed studies are provided, such that unnecessary duplication of research efforts is avoided. Finally, the workshop considered it necessary to recommend that a national institution in each country be identified and be mandated to handle grey literature; and that such an institute should be given appropriate government support. Needless to mention that the workshop was later followed up by an official mission to all the countries; to conduct an indepth study of conditions that would facilitate resource sharing. That notwithstanding, nine years later when one assesses progress made in the implementation of the stated resolutions and recommendations and with their particular reference to grey literature (GL), the picture is rather tricky and uncertain. Uncertain because on the one hand there is just a ray of awareness of the importance of GL in the subregion while on the other hand, the actual collection and control by the locals, is either minimal or non-existent.

For the purposes of this paper, the total membership of the Southern African countries is eleven. Angola, Namibia and South Africa completes the list of those which participated in the Dar es Salaam meeting. Besides Angola and Mozambique which are Lusophone the rest are Anglophone and former British colonies. Tanzania and Namibia were at some stage in their History under the German rule. There are also major intra-national languages plus minor local ones. As Table A shows, four countries belong to the Common Monetary Area; five are members of the Southern African Customs Union. All of them, except South Africa form the Southern African Development Community. The Preferential Trade Area of Eastern and Southern Africa also constitutes seven. The biennial Standing Conference of Eastern Central and Southern African Librarians attracts all except South Africa; and so is the Lusaka based Eastern and Southern African Documentation and Information System of PADIS. All their University Research Institutes excluding South Africa form the Southern African Development Research Association (SADRA). Seven countries participate in the Southern African Inter-lending Scheme.

TABLE A

Membership of Southern African countries

Country	CMA	PTA	SADC	SACU	SAILLS	SCECSAL	ESADIS	SADRA
Angola		X	X			X	X	X
Botswana			X	X	X	X	X	X
Lesotho	X	X	X	X	X	X	X	X
Malawi		X	X		X	X	X	X
Mozambique		X	X			X	X	X
Namibia	X		X	X	X	X		X
South Africa	X			X	X		X	
Swaziland	X	X	X	X	X	X		X
Tanzania		X	X			X	X	X
Zambia		X	X			X	X	
Zimbabwe		X	X		X	X	X	X

Whereas these countries are geographically together and of some similarities, they form a sub-region of great differences as well, and such challenging peculiarities even in the very study of Grey Literature.

This paper therefore, attempts to analyse the regional scenarios upon which GL was the topic in 1985. The object is also to highlight social, economic, cultural and political trends in the world; all of which determine the type of GL that pertains to Southern Africa. The discussion also outlines the market for this material, as well as their problems and prospects for its networks.

The Delayed but Confused Concept

When the term Grey Literature was touched in Dar in 1985 and within the broad theme of resources sharing, the subject had already been discussed in York in 1978 by the Commission of the European Community and the British Library. With the latter, the seminar was focusing directly on Grey Literature. By comparison then, in Southern Africa, though the Dar es Salaam gathering marked the *emergence* of professional consciousness of GL, its existence and importance, there is still a delay because the sub-region has not yet specifically put the literature on the agenda. Moreover, when it was mentioned in passing as it was, the concept was perceived exactly the way it is understood in Europe or elsewhere; as if such adopted definitions and descriptions may be applied entirely and religiously without questioning.

The 1970's or earliest efforts to identify and describe GL forward some open-ended and subjective definitions which pose problems to the Southern African region². The study by DEVSIS (Development Sciences Informative System) (1975) categorised the world's Development Literature into three categories namely journal articles, 22%; commercially available books or monographs 18%; and the invisible, unpublished, grey, less accessible, fugitive material like "unpublished working papers, feasibility and pre-investment studies, theses, research reports and documents of governments and international organisations which

are not widely disseminated"³ being 60%. Though herein emphasis was on *development literature*, the similarity and the relevance of its third category to GL is therefore not far fetched. However, this category is described by negative terms and in comparison with other material. The dilemma is then what makes the material "invisible", "less invisible" or "unpublished". A few examples given above qualify well in the Developed Countries where before they are published, theses for instance, are less accessible and not widely disseminated. But in the developing regions like the one under discussion where even visibly bookish material are not widely disseminated due to poor publishing industry, weak bibliographic control or purchasing power, the definition is not very adequate. The York Seminar too concluded that GL may be roughly equivalent to *non-conventional literature*. Non-conventional literature is yet another term which having been elaborated by (Posnett and Baulkwill) has become almost synonymous with GL. Another problem is what determines non-conventionality. If it is poor appearance, weak format, failure by originator to draw the attention of potential users to the document, lack of capacity to publicise it to centres of interest or users, security restrictions, small quantities, lack of international standard book/serial numbers; then a majority of Southern African material would by default become GL. (Kabamba) too agrees that "Africa with relatively poor network of contacts between generators of non-conventional literature and documentation centres, should have a lower level of publicity of this literature than in ----- developed countries⁴. Perhaps another confirmation is made by (Gehrke) that more of what we have and we see in Southern Africa is non-conventional. He defines GL generously as embracing all those publications which are published outside the book trade and which have information value either for practical or research purpose. Whereas one would have preferred that to read as "all those material which are issued or produced or announced" instead of "all those publications ... "published"; his definition well suits published archives and some ephemera. Yet (Line) believes GL excludes ephemera⁵. And on the contrary (Ambrose) observes, and from the Southern Africa point of view that archives, once photocopied, may become GL⁶. (Ambrose) philosophy may be expanded further that if GL undergoes some metamorphosis, from semi-visible to invisible, or from light to dark grey the most common practise of translating, photocopying or clipping from conventional published items, also augments a great deal of Southern African GL by photocopies of journal articles, excerpts from books, newspaper cuttings, press clippings and such reproductions. The advent of technology in reprography including email will therefore contribute immensely to the growth of this region's GL.

The DEVSIS term "fugitive" itself tells something important about GL which is relevant to this region. The material has that tendency of fleeing away; it passes out of scene quickly and therefore runs the risk of being lost forever. Since it is the literature produced in limited quantities within a given geographical area and for a limited topicality or very definite purpose, it thus becomes less accessible to a wider public which is not at a given area at that particular time. In Southern Africa where libraries are not widespread to attract these material at every spot; where documentalists are few and not as outreaching as journalists, numerous events rich with GL, like rallies, come and go without records, and a thing which makes this literature in this region more fugitive than it can be imagined. Here people go to rallies, papers are distributed, some people are illiterate and they ignore this literature. Others read but innocently destroy or simply throw this GL away.

In Southern Africa, Government Archives were developed earlier than most of public or the post independence state libraries. Perhaps this was due to the abundant colonial

records and new historical manuscripts which had to be preserved then. Consequently it follows that most of the fugitive or GL of the past still exists in the Archives of this region. Finally, to clarify this confused concept and the idea of shades of Grey, (Schidmaier) indicates that GL "is that in the libraries which is not "white" (available, catalogued, classified) or "black" (not available unknown, not obtainable, secret)"⁷. One wonders then, if "libraries" here is used in its generic sense, so as to include archives as mentioned, and documentation centres which commonly abstract, index and do clippings. GL is that which is between "black" and "white", however the range is wide and the shades of grey vary because some may be more towards black, for instance politically censored items in the apartheid South Africa; whilst others may be closer to "white" like material which are meant to be published but due to perhaps economic factors, remain as manuscripts and in limited quantities.

To conclude, the perfect identification for Southern African GL, and to demystify the confused definitions, is that which may be so judged at the discretion of the beholder. However, generally the list includes conference proceedings, seminar papers, university publications, patents, standards, research reports, development bulletins; public speeches and addresses, government publications, business documents, some magazines, newspapers, their cuttings, teaching notes, press and radio services, translations, posters, exhibition, ephemera, statistical reports, leaflets, rally literature, consultancy documents.

Sources and the Market

The Southern African GL is produced within and outside the sub-region. Major producers are:

Governments: through their local and centralised administration; as well as regional governmental organisations such as SADC, PTA, OAU; plus various international ones like the Commonwealth, UN, Non-aligned Movement, and the ACP/EEC. These are the type of sources whose material are often of limited or restricted circulation. Their material usually end up in the executives' offices unrecorded and then finally get lost before they are collected by any library. In addition there are local, regional and international NGO's which include the grassroot groups whose literature of manual or promotional type may be in local vernaculars that are easily overshadowed by the so-called official or international languages. Of late, it is clear that this category of sources play a significant role in development such that their literature no matter how 'grey' it should be attended to. The NGO's role in both the Rio's Environment and Vienna's Human Rights Conferences is proof of their prominence and influence. The Lesotho Council of NGO's with over 200 members, on its own is the Commonwealth Liaison Unit of the Country. This is another indication that as they mushroom NGO's interconnect like labyrinth which is so tightly knit that an attempt to tap all their "publications" in the developing regions is the documentalist's nightmare.

Academic Institutions: Over 20 Universities inside the sub-region are very active producers of various types of GL. In addition several European and North American institutions of higher learning are not only other sources, but markets as well of this valuable information for African Studies. In the UK, about nine members of SCOLMA (Standing Conference on Library Materials on Africa) are well established libraries that collect and generate GL and published items pertaining to Southern Africa. In the US there are even more Africana

resource-sharing of GL and other material. So, whilst these librarians were willing to share GL their humble budgets do not permit comprehensive acquisition of GL from within, let alone from the overseas sources.

Misplaced Emphasis: The region under discussion has no conventional material. It has no significant published items or books. In addition to indigenous knowledge which is indeed abundant, as (Mchombu) proves, what we have is certainly GL. It is the unique GL which is issued from our own oral or other indigenous sources, as well as GL we sieve from imported books and periodicals respectively, as excerpts or clippings. Yet we do not promote what we have; we emphasise most of the time what we do not own. This wrong orientation by librarians by researchers and by training is just on conventional items or books. Librarians are taught how to order books how to classify, catalogue and shelve books. If these books have CIP they are taught (I believe) how to copy it! When they are then faced with GL which has no title page, which is too limpy to be shelved conventionally, we develop fears of GL as (Schmidmaier) is convinced. So are library users. It is common in our documentation centres to get enquires like: "Do you have any books on such and such a topic?" This gives the impression that only books are handled in these centres.

One is not underestimating the wealth of knowledge contained in books, but instead calling for a fair balance of efforts in handling conventional and non-conventional carriers of knowledge. The story goes that in Uganda when the economic decline during Idi Amin's rule was taking effect on academic libraries, there were virtually no books coming in. Students, lecturers and researchers had to depend on the locally available GL and indigenous knowledge. It was later discovered that the originality of reports, lecture notes and research papers that were issued at such adverse times were a unique opportunity ever.

Contradictions about South Africa

For a long time, South Africa was ostracised due to its apartheid policies. That is why it did not participate in the mentioned Resource-Sharing Workshop. But at the very same time that the region attempted to leave South Africa out, Botswana, Lesotho, Swaziland, Malawi and Zimbabwe were freely contributing their library catalogue records for the union catalogue which is determined, owned, and administered by South Africa. Though the participating libraries do not necessarily specialise in GL; the small proportions that may find their way into that consortium, will not be well served as (Moshoeshoe)¹² observed. So dictated the SADCC spirit of attempting to reduce these countries' dependence on South Africa; let alone the related concerns of (Datta) that the scheme promotes dependence more than cooperation.

On the other hand, (Wood)¹³, comments that whereas reading "the literature on interlending in Africa is, in many cases depressing... To some extent the problems are not so great for those countries in Southern Africa which participate in South Africa's interlending system". Indeed there are some benefits nevertheless, and these are of course some of the contradictions or some irreversible facts to be taken into consideration even in the post-apartheid South Africa. Whatever the situation now, the exodus into South Africa

will again mean the region's GL boom which requires the documentalist's professional preparedness. The question is then "do we negotiate the terms of strengthening the Pretoria's network; or do we establish anew, the regional one which will be adequate for GL".

Prospects

On Bibliographic Control of GL which the workshop rightly recommended, one notes that despite the fact that large proportions of Southern African GL is still not collected, sporadic efforts are noticeable within the region, by some individuals, centres and systems whose acquisitions on GL are periodically annotated and listed in such tools as Devindex Africa by PADIS, Devindex Botswana by NIR and Lesotho Index by ISAS (Institute of Southern African Studies). In South Africa at the University of Natal the Innovation journal has been publishing a series of innovative articles on South Africa in transition; a bibliographic introduction to new grey literature. Finally, unlike in the past, several governments are now issuing lists of "publications" by their Government Printers.

It is likely, as it was recommended by a majority of local professionals contacted, that an effective handling of this literature will be by a Sectoral approach. The obvious fields include Agriculture whose 50% is estimated to be non-conventional (Wood)¹⁴. The SADC's Southern African Centre for Cooperation on Agricultural Research (SACCAR) is doing a commendable job with a country by country bibliographies on Agriculture and related efforts. Human Rights is another sector whose effective documentation most of the time require clandestine methods. In the region, EDICESA (Ecumenical Documentation and Information Centre for Eastern and Southern Africa) in Harare, and ISAS are the examples. Environment, as handled by the national focal points of INFOTERRA and Gender Issues or Women in Development are other disciplines for which there are prospects for sectoral approach to bibliographic control of Southern African GL. SCECSAL which has been contemplating special sub-committees could play a role in the establishments of the mentioned subjects.

Awareness: It being a fact that progress may be marked if all the affected groups of suppliers, producers and users of GL are fully aware of its existence and importance, through PADIS, the ECA Conference of Ministers by Resolution 732 (XXVII) of 1992 invited member states to declare 19 November as African Development Information Day. As this paper is being written, preparations are underway in Lesotho to celebrate this day such that policy makers, researchers, students and information workers are made conscious of development information whose relation to GL has been outlined. As these awareness services gain momentum, it will be worthwhile that the sub-region, in conjunction with the ESADIS office, on the subsequent 19ths of November, consider seminars, training workshops or other meaningful events whose specific themes will be GL.

Recapitulation on Networking

It was an important proposal made in 1985 that there be national centres which specialise

in GL collection, and documentation. Whereas the participants there, now report that no official designation has been done, the task is haphazardly shared by several libraries in the given countries. Malawi has in addition, a newly established national documentation centre which is hoped to focus on this area.

The challenge then is if such centres have not been designated, is it not hightime the professionals met, but this time focusing on the theme GL, and also considering the aforementioned national, regional and international structures! There seems to be four alternatives for the network. The first is the SAILLS. Its attributes are that it has acquired experiences of interlending. But whose scheme is it? The second possibility is within ESADIS which is often rigidly administered as it follows government's protocols. Since it comprises Eastern and Southern Africa its size is likely to be unmanageable for this regional GL, and as it is indeed the biggest of PADIS sub-regions. SADRA arrangement is a third consideration. Its secretariat being in Lesotho which is surrounded by South Africa, puts it within a desirable proximity to the information hub and the advanced technology of the region. The fourth is of course either the combination of some these options or the creation of a new structure altogether. This particular international conference is obviously a ground-breaking force for all the regions to consider the way forward.

Southern Africa in the Globe

Finally, it is imperative that the Southern African prospects should positively take charge of developments made internationally. Of significance we shall learn from the experiences of the Western countries which notably have some milestones now on GL. But not only that; in addition that we negotiate formal means and way of fitting into their networks. Of relevance again are structures within the South-South cooperation whose common problems persist in GL. Assistance of international bodies such as IFLA, Unesco, IDRC, HURIDOCS, The British Council and FID are of immeasurable importance in the entire GL discourse.

Conclusion

This paper has tried to make the resolutions of the Dar es Salaam workshop a centre of debate in determining the conceptualisation of GL in Southern Africa. Different actors in collecting, generating, documentation and exploitation of this GL are enumerated. The scenarios indicate progress on the one hand, while on the other it is a worthy challenge for the region to ask: what do we do next?

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THE PROBLEMS OF ORGANISING AND DISSEMINATING GREY LITERATURE IN AFRICA

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ABSTRACT

Grey literature constitutes a substantial proportion of literature produced in Africa. The major producers are government agencies, universities, research organisations and the private sector. Most of the development literature produced in Africa usually appears in the form of grey literature. Unfortunately grey literature is hardly organised or disseminated in Africa.

The difficulty in organising and disseminating grey literature stems from the fact that producers, for one reason or the other tend to neglect them once they have satisfied the purposes for which they were created. Also most countries do not have well developed infrastructures for organising and controlling grey literature. In addition to these problems, the potential users of grey literature such as researchers, students and other professionals do not know that a lot of information they may never have found in conventional literature abounds in grey literature, hence they hardly exploit the contents of grey literature.

In order to ameliorate these problems, it is recommended that every country should establish a national documentation centre for grey literature with the main objective of collecting, organising and disseminating grey literature emanating from the country. This is without prejudice to national libraries which are empowered by law to collect and provide bibliographic access to all publications emanating from a country. The national libraries can concentrate mainly on conventional literature. Progressive information professionals should become private entrepreneurs and get involved in information broking. Thus they can provide bibliographic access to some kind of grey literature such as conferences, theses and dissertations, technical reports, feasibility reports, technical papers, etc. Such information products which could be produced periodically can be sold to interested buyers all over the world. Learned societies and associations must provide for the collection of grey literature produced within their disciplines and ensure that there is a bibliographic access to them by co-operating with the information brokers in their subject fields.

INTRODUCTION

Many writers have characterised grey literature in various ways as fugitive, ephemeral, non - conventional, invisible,

unpublished, informal etc. In spite of these attributes of grey literature, the general consensus is that it contains invaluable information which may never be found in the so - called conventional literature. According to Wood (1984) it contains information that is likely to be of use to a considerable number of people. Posnett and Reilly (1986) reported that at least 50% of the information supplied to answer users' queries at the United Kingdom Resources Development Centre came from grey literature. Studies have revealed that many researchers in basic and applied sciences use a high proportion of grey literature. The same thing applies to development literature as many surveys and consultancies undertaken by many government agencies and organisations contain useful information about solutions to local problems which conventional literature may not be able to supply (Zulu, 1993) since such reports will normally appear in the non-conventional format. In a study I carried out on the literature cited by agricultural researchers in Nigeria, I found out that as much as 14.2% of the literature cited in 33 doctoral theses in agriculture was grey literature (Aina, 1987). It has been revealed that majority of the literature produced in developing countries are grey literature. According to Posnett and Reilly (1986), at least 50% of a developing country's agricultural literature could be grey literature.

To us in Africa it assumes a wider dimension, as most of our literature output appears in the non-conventional format. In a recent analysis of development literature in Botswana for a three year period I found that grey literature constituted about 98% (Aina, 1992). Most of the literature produced in Africa are technical reports, annual reports, conference proceedings, seminar papers, consultancy reports, theses and dissertations, reports of commission of enquiries, panel reports, etc. The producers of grey literature in Africa are mainly government agencies, universities and research institutes, private sector and non-governmental organisations.

In spite of the importance of grey literature it is generally not accessible even in their countries of origin (Posnett, 1986). According to Chillag (1982) it is difficult to identify, acquire and provide bibliographic control and accessibility to grey literature. A problem highlighted by Wood (1984) is that originating organisations have neither the staff nor the funds with which to control and disseminate grey literature. It is therefore not surprising that many organisations in Africa could not even produce a list of documents produced from within their organisations since they tend to neglect the documents once they have satisfied the purposes for which they were created. It is very common in many African countries to see such documents being used by market women as wrappers. Since the documents were not publicised in the first instance it invariably becomes a problem for libraries and other information centres to collect grey literature and make it available to potential users. This seems to be the crux of the matter in Africa where infrastructures for national bibliographic control are generally lacking. Only very few countries in Africa produce up - to - date national bibliographies and even fewer have comprehensive national bibliographies that cover all types of literature including grey literature. Kwafo - Akoto (1988) mentioned the few

countries having national bibliographies in Africa as Botswana, Ethiopia, Ghana, Nigeria, Senegal, South Africa and Zimbabwe. Kohl (1975) said that few countries in Africa that have national bibliographies can be said to have satisfactory referencing which will necessarily make acquisition very difficult. This presupposes that a lot of valuable information contained in grey literature will be unavailable to users. The effect will be more felt in Africa given the fact that grey literature constitutes the bulk of literature produced in Africa. Also most of the development literature in Africa appears in this form. It is therefore not surprising that our planning has always been haphazard since our policy makers do not have access to documents that contain all the facts and information needed for decision making.

FACTORS RESPONSIBLE FOR INACCESSIBILITY OF GREY LITERATURE IN AFRICA

Many factors militate against organising and disseminating grey literature in Africa. The prominent ones being the so -called confidentiality of grey literature, the librarians' low perception of grey literature and the lack of infrastructures to support the bibliographic control of grey literature.

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The major producers of grey literature are the government agencies and documents that emanate from government agencies are generally treated as confidential thus as much as possible the circulation is usually restricted hence in most cases it is difficult to know of the existence of such reports and even when known they are extremely difficult to acquire. This obviously affects accessibility of such documents. In a study by Kwafo - Akoto (1988) she reported her encounter with government officials while trying to collect census reports and other government documents for Population Information and Documentation System for Africa (PIDSA) based in Ghana in which many of the officials were reluctant to give her the documents she wanted as they perceived such documents as confidential and that it was politically inexpedient to make such documents available to the public. The documents were kept under lock and key in their offices. This is also true of the private sector where their working papers especially technical papers, feasibility studies and consultancy reports should not be divulged to their competitors who may use it against them hence they are hardly organised thus creating inaccessibility.

Confidential
Reports

Conventional literature constitutes the bulk of the collection of most libraries and information centres in Africa thus non -conventional literature is treated as an extra burden. Indexers find it more difficult to catalogue grey literature than conventional literature because of its non -conventional format thus the usage of grey literature by users is given low priority. Most libraries hardly provide subject access to grey literature as only author or organisation access is provided thus users are unlikely to gain access to grey literature since a majority of users approach the catalogue by subject. In such a situation readers are not likely to know of the existence of

any grey literature that might be useful to them. Even when readers are able to locate relevant grey literature through the catalogue the documents may not be readily available on the shelves because of their ephemeral nature. Storage facilities for grey literature in libraries are generally poor.

Another important factor is the lack of infrastructures to support bibliographic control of grey literature in Africa. Most countries in Africa have national libraries which are empowered by law to have all publications emanating from within each country to be deposited with the national library. The library is thus expected to publish annually a national bibliography which will invariably include grey literature every year. Publishers and authors are mandated to deposit their publications with the national library of each country but this is hardly the case and no sanction is made against them, hence only a fraction of producers do deposit their publications with national libraries. Many countries in Africa have stopped publishing national bibliographies, and those that do, are many years behind schedule. Even within various organisations, as earlier reported, only very few of them can produce a list of their publications. This is also true of researchers and scholars who attend conferences and workshops, once proceedings of such workshops and conferences are not published, the writers may never locate such papers physically.

THE WAY FORWARD

In many African countries it is difficult to identify all producers of grey literature. The first step forward is to have an inventory of actual and potential producers of grey literature within each country. Having identified the producers it will be necessary to sensitize them on the need to deposit at least a copy of their publications to a designated depository centre within each country. In addition, each producer should be encouraged to maintain a textual data bank of all their publications as well as a bibliographic database of all their publications which they can make available to their actual and potential users.

Learned societies, as major producers of grey literature, have a crucial role to play in the collection of grey literature given the fact that they have advanced degrees in the various disciplines and they are thus in a position to monitor all the activities that will generate grey literature. Thus apart from depositing a copy of all their publications with the designated depository centre in each country it is necessary for each learned society to maintain a small documentation centre in which all publications including grey literature that emanate from the society will be collected, organised and disseminated. It will not be difficult for them to abstract such documents and make such abstracts available to potential users.

The designated national depository centres in each country are expected to have professionals who are highly qualified and adept at organisation of knowledge, and have good knowledge of information technology. In addition, they should have at least first degrees in their first disciplines, preferably advanced

degrees. This will ensure that any publications deposited with them, that are not abstracted, can be done at the designated centre.

There is also the general belief in Africa that any product that is free has little or no value, hence producers of grey literature must price their products by advertising and selling them to potential users.

5.3 *
Economic
writing

CONCLUSIONS AND RECOMMENDATIONS.

There is no doubt that grey literature is an important component of the literature of any country. Given the fact that it contains valuable information which is very useful to planners and decision makers, grey literature should be treated just as conventional literature, if not more. A policy for collecting and disseminating grey literature should be formulated as separate from conventional literature.

Because of the nature and characteristics of grey literature it needs more special treatment than conventional literature thus its collection and organisation should be given the importance it deserves by African governments.

It is recommended therefore that every country in Africa should establish a national documentation centre for grey literature with the objectives of collecting, organising and disseminating grey literature. This centre should have the same status as a national library. While the national library should be charged with the collection, organisation and dissemination of conventional literature, the national documentation centre for grey literature should concentrate mainly on grey literature. The centre should establish links with the various types of producers of grey literature in the country, it should identify potential producers within the country and it should monitor all their activities that will result in the production of grey literature. A databank of all producers of grey literature should be maintained including all their activities for the year. There should be a textual databank of all grey literature deposited with the centre. The centre will be expected to disseminate abstracts of grey literature in their data bank to potential users. In the alternative, poor countries or countries with small population can establish a semi-autonomous unit within the national library to cater mainly for the documentation of grey literature.

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Retired information professionals and young dynamic information professionals must be encouraged to be involved in information broking as they can profit from collecting, organising and disseminating one type of grey literature or the other which they may sell for profit. Thus we may have information brokers who will be involved only in conferences and workshops, or theses and dissertations or technical papers etc.

INFO
Brokers
5.4

Finally, it is hoped that library and information science schools will give special attention to grey literature in their curricula. The cataloguing of non-conventional literature should be given the same treatment as conventional literature as this will ensure that their products will be adept at organising

grey literaure.

Once these various infrastructures are present in each country it will not be difficult for countries in Africa to co-operate among themselves and with relevant international organisations and thereby making grey literature available globally.

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FROM WEIMAR TO MAASTRICHT AND BEYOND - Half a century with grey literature

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Abstract:

The paper sketches the author's first encounter and his close association with grey literature over half a century.

The background to how the present BLDSC became the largest single centre for collecting grey literature is given. Starting from his links with the early days of EURATOM, some details of EUR documents are explained, citing it also as an example on how 'grey' literature can become 'white'. With another EC example, the converse is shown with a drift from 'white' to 'dark grey'.

The paper concludes with a brief description of the role Euro Info Centres play in helping business and industry with its need for often elusive, grey EC information and documentation.

If anyone thought from the title that this is going to be a paper on European history of the last 75 years, they will be very much mistaken. Invariably, history is tangled up in it, because report literature, grey literature is essentially a creation of the 20th century, and particularly of the last 50 years.

It was in Weimar in July 1945, that I had my first conscious encounter with grey literature. As a young 'assimilated rank' attached to the US Army, I was involved in the gathering together and the shipping westward of wartime German research reports now known as the 'German documents'.

Working in adjacent offices at the Allied Control Commission with one Captain Robert Maxwell was another 'encounter' of that period!

On joining the National Lending Library (now BLDSC) in 1963, by odds equalling that of the 'breaking of the bank at Monte Carlo', my first job at Boston Spa was the sorting out of a vast mountain of paper - the remnants of shipments from Weimar in 1945 !

Working in the years between mainly in energy and nuclear research establishments, - at that time virtually the only workplace where GL was the norm for technical literature -, atomic energy reports became the 'staple diet' in essential reading.

In researching for this presentation, the first 'unclassified' report (MDDC-1) of the then US Atomic Energy Commission came to light. It is a prophetic paper, written by Enrico Fermi in 1945 on the future of nuclear power, its benefits and problems. A paper which could appear, without alteration, as the main editorial in any of today's newspapers.

In my nuclear past, some of my work was done in conjunction with EURATOM, an association which led later to involvement with EC documentation. To this subject we shall return later.

With this sort of background, it is perhaps not surprising that I spent my last thirty years in the identification, acquisition and supply of grey literature.

It is not intended to say much here about the BLDSC or its predecessors. The same applies also to SIGLE. One can be sure that some of the other papers will do so.

However, to set the scene, some historical background: in the late 1950s two events helped to shape the future in which 'Boston Spa' developed into the world's largest single centre of grey literature and all that term entails today.

The Tri-partite Group of USA, Canada and UK, originally set up during the war to develop the atom-bomb, met around 1957 to chart a path for wider dissemination of what at that time was still very much wartime R & D being declassified and channelled into civilian use. Most of this material was report literature. The UK participant in these meetings was DSIR, the Department of Scientific and Industrial Research. DSIR was also the government department at that time putting together a brief for a then still only planned national lending library for science and technology. On its establishment two years later, the NLLST became part of DSIR. Most of the 'unclassified' stock of wartime and post-war nuclear and other report literature, collected and stored on a rather *ad hoc* basis by DSIR 'divisions', other government departments, etc., was transferred to this new library at Boston Spa. So were the US reports (AD, PB, TT) held in the UK under the tripartite agreement. The NLL was also designated a depository library of the USAEC.

As the subject coverage of the NLL/BLL/BLDSC increased to include not only science and technology, but also the social sciences and humanities, and the type of grey material collected diversified from just reports and translations also to conference material, theses, etc., it became almost inevitable that Boston Spa built up the largest collection of 'unclassified' grey literature. Where else would one find under the same roof material from NASA and ERIC, EURATOM and ESRC, ASI and AGARD, - and of the types just mentioned. Of course, NASA will have a more comprehensive aerospace collection (even for 'unclassified material'), etc.

Terms like *unclassified*, *unlimited* have been mentioned. This is the only group of material knowingly collected by BLDSC. One recalls at the height of the 'cold war' US federal agents coming to recover a sensitive AD report which slipped through, and one hopes that no one made nuclear devices in their backyard from the *Los Alamos Primer*.

There is an interesting phenomenon regarding 'markings' worth a mention:

Grey literature from within a single nation may have security markings for national, defence or commercial reasons ('unclassified' to 'top secret' and beyond). However, generally such material - albeit on a 'need-to-know' basis is usually well documented. For example, NASA produces not only *STAR* for its 'unlimited' content, but also *XSTAR* for other documents, etc.

With international organisations : United Nations, OECD, the European Communities, the problems are quite different. Great play is made of what is a publication and what are documents. In theory, and generally speaking, the former are not grey literature at all. They usually appear in the organisation's sale catalogue and are available through a variety of commercial sales outlets.

After these generalities and background, let me turn to documentation of the European Communities. Even to attempt to cover the complexities and diversities of this material in a few minutes would be futile, particularly as the subject has been dealt with in *Documentation of the European Communities*¹. I would like to concentrate on just two sets of the EC material as an example of how grey literature can turn almost white, and conversely, how light grey has a tendency to become nearly black.

(grey → white
R)

The former can be illustrated by the EUR reports, originally started as documentation of the scientific research results of Euratom, established by the Treaty of Rome on 25 March 1957.

Curiously perhaps, the very first EUR Report, issued in 1960, is a properly published book. There is no mention of any report number in it at all, although in the first *List of Euratom Scientific and Technical Reports (up to 31/12/1963)* (EUR-225.e) it is shown as Report EUR-1. The first report with an EUR report number printed on it is EUR-CNT-1. According to the 'List' this is Eur-2.f, but the latter number appears neither on the cover, nor on any inner page of the document. Not the most auspicious beginnings ! But are the above really the first EUR reports? They are not. That claim belongs to EURAEC-1. EURAEC, an R & D program of the Joint United States - Euratom Research and Development Board, was established in 1958.

Early Eur and EURAEC research reports often were just journal articles inside their report covers. But whatever they were, they were listed in Eur-225.e and later in *Catalogue Documents 1968-1979*, and *1980-1982*, respectively (both EUR-7500).

There is an interesting story behind certain number gaps in these listings of EUR documents. Neither the Commission, nor its relevant directorate(s) could locate even archival copies of some of the reports. It has been mentioned that the author had some links with Euratom in its very early days. Partly as a result of that, but mainly because the NLL became so well known as the repository for grey literature, - when the Directorate 'Dissemination of Knowledge' moved from Brussels and from its city premises in Luxembourg to Batiment Schuman -, lorry loads of their reports were despatched across the Channel to Boston Spa.

Technical grey literature at the Delft University of Technology Library

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Abstract

The Delft University of Technology Library (DUTL) plays an important role in the dissemination of grey literature (GL) among industry and research agencies in the Netherlands. Reports are obtained and selected from approx. 150 organizations. Motivated by a growing market-awareness we investigated our customers' use of GL by analyzing a survey among major external (outside the Delft University of Technology) clients, and measuring the loan of GL directly in the DUTL collection. The survey shows that report literature amounts to 9 percent of the customers' demand. Its use is concentrated in subjects related to the practical application of technology rather than fundamental research. In the loan measurements, we studied the relation between the use and age of GL. There is an unexpected high use of older reports which is, however, dominated by a limited number of subject categories, often with local, economic or policy-making aspects besides purely technical ones (e.g. housing, urban planning). Another point of interest is the correlation of loan with the level of subject indexing, which is studied for dissertations. It is found that the addition of keywords enhances the loan with a factor 3 to 15. Implications of the results are: (1) selection of reports as well as the weeding of old ones in a general technical environment should be discipline-dependent; (2) good indexing is essential in a GL database and may be preferable above completeness of coverage.

1. INTRODUCTION

The Delft University of Technology Library (DUTL) has a national task in the Netherlands for the collection of technical literature. As such, it is also the focal point for collecting technical GL from the Netherlands, and cooperates with SIGLE and NTIS for disclosure of this material beyond the own library catalog. The library has contacts with approx. 150 organizations which regularly send their reports. These reports are pre-selected by administrative staff on the basis of subject-independent criteria, e.g. preprints for journal articles are filtered out. The final selection as regards content is carried out by discipline-oriented information specialists.

As a library collecting GL, we highlighted the existence of GL towards our customers on various occasions. Knowledge about the customers' use of GL, however, has been scarce. With ever tighter budgets and increasing demand for efficiency we had to fill this knowledge gap. Important issues that deserved investigation, were:

- 1) How important is GL for our users?
- 2) What are the main subject areas of interest for GL?
- 3) At what age does GL become obsolete?
- 4) How should GL be treated in the online library catalog and how effective is subject indexing?

We analyzed a survey by questionnaires among major external (outside the Delft University of Technology) clients to answer the first two questions. In addition, we measured the loan of GL in the DUTL collection as a function of its age and the presence or absence of keyword indexing.

2. GL IN DIFFERENT SUBJECT AREAS

The first question we asked ourselves was: how important do our customers estimate GL compared to other literature? To this end, we compared the use of the most common 'grey' document type, reports, with other document types: journal articles, conference proceedings and books. We used data from a large survey, held in 1992 among major 'external' clients in industry, research and technical services [1]. The survey was not set up especially to study GL; in fact, it was much broader, covering the whole spectrum of information products, service and collection of the DUTL. One of the questions dealt with the frequency of requests for loan or copies of the different document types, viz.: (1) reports, (2) journal articles, (3) conference proceedings (either loan or copies from articles), (4) books. The questionnaire offered a choice between daily, weekly, monthly, occasionally and never. From this, we calculated an estimated request frequency as a measure of the relative importance of the four document types. The results are depicted in figure 1. As expected, journal articles are by far the most requested type of literature. Reports, however, score 9 percent of the total, which is far from negligible and hardly less than the score for conference proceedings.

This leads us to the next question: how is the need for report literature related to its subject? For this purpose, we calculated the relative frequency of requests for reports and other document types within each discipline or field of interest (one or more of 20 categories could be chosen from in the questionnaire). The result can be seen in figure 2. One can see a clear trend in these data. The more the subject tends to the practical application of technology, the higher the influence of report literature is. On the other end of the scale, for subjects that are more close to pure science and fundamental research, reports are less important. This trend conforms with the common view that fundamental research is well served by regular journals but the dissemination of knowledge in applied and technical research follows more complicated patterns, including a larger grey sector.

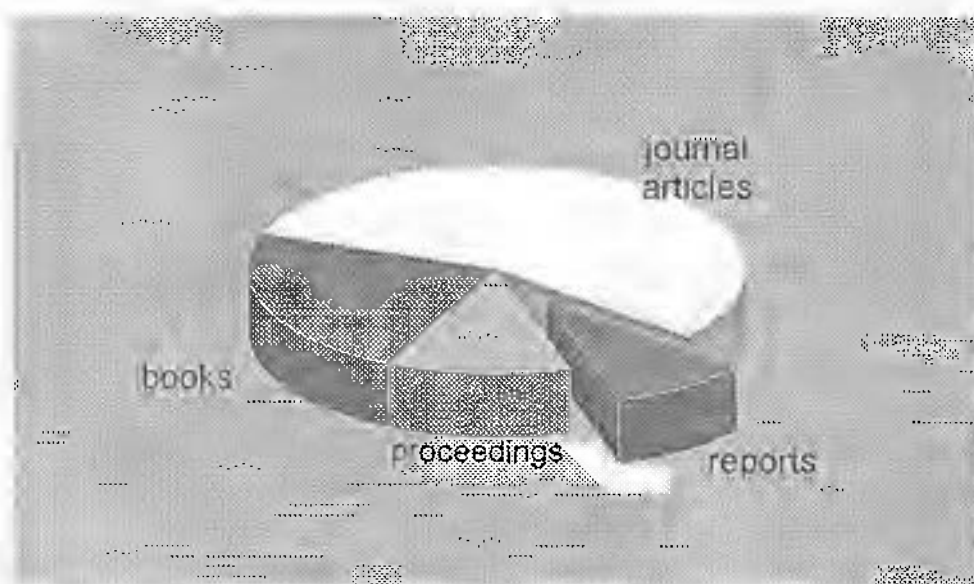


FIGURE 1 Relative number of requests for different document types, calculated from 300 answers from a survey by questionnaires among major clients. Reports comprise 9 percent of the total.

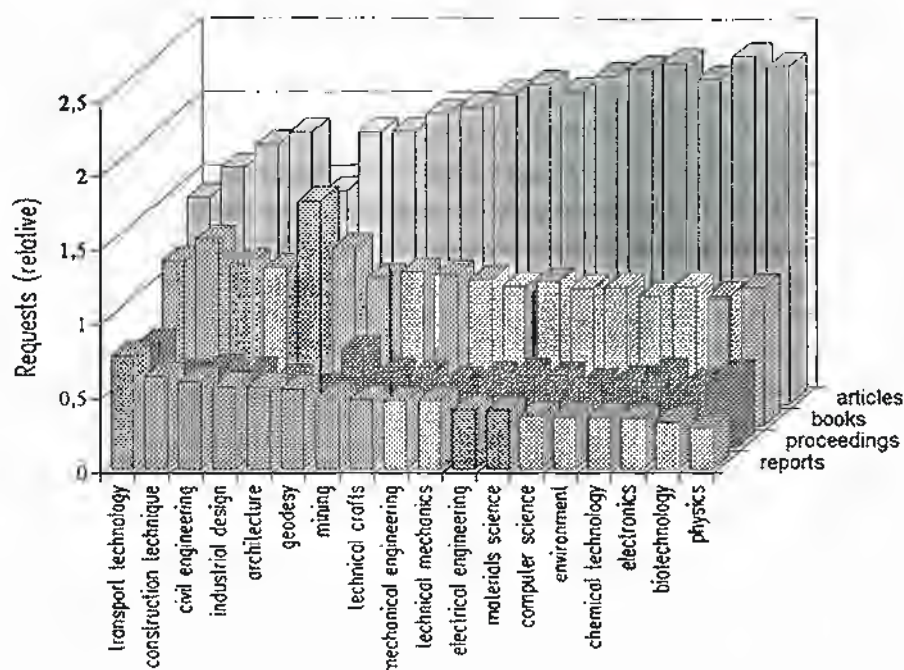


FIGURE 2 Relative number of requests in 18 subject areas from the survey mentioned in the text. The data are normalization so that the average over the document types is 1 for each subject. The subjects 'aerospace' and 'shipbuilding', which scored relatively few answers, were combined with 'transport technology'.

3. AGING OF GL

Reports are often referred to as a type of literature that relatively quickly after publication loses its value by a number of mechanisms, most noticeably by 'white-washing'. We went out to test this assumption by looking at the actual amount of loan in our library, as a function of the publication year. For comparison, we measured the loan for reports, dissertations and books, and requests for journal articles. The cumulative number of these documents on loan or requested vs. their age is depicted in figure 3. What strikes immediately is the similarity of the three curves for reports, dissertations and books, with half-times between 4.5 and 5 years, compared to a short half-time of 1.6 years for journal articles. These curves, however, are influenced by the size of the collection for each year and document type. Since we want to monitor the users' lending behavior, we have to correct for these factors. In figure 4 we plotted the results for reports, dissertations and books. The plot is non-cumulative, which emphasizes differences between the curves. Nonetheless, the amount of loan L shows a decay which has roughly equal characteristics for all three document types. It drops significantly after a few years and can be modelled reasonably well as an exponentially decaying function of the age t of the publication plus a constant background:

$$L = L_0 (e^{-t/T} + b)$$

where L_0 is a constant, T is a decay time and b is the constant background. This function was chosen as a special case of the sum of n exponentially decaying functions with different decay times, each exponential representing the loan in a specific part of an inhomogeneous collection. We used $n = 2$, with decay times T for the 'fast' and ∞ for the 'slow' subjects. The line drawn in figure 4 with $T = 6$ years and $b = 0.1$ fits the measurements for reports and books

equally well. The fact that loan patterns of reports and books do not differ significantly agrees with earlier measurements of technical report demand at a research university [2], but seems to undermine the common notion of GL as 'volatile' literature with a half-time for *requests* of 2 years, as opposed to 4 years for books [3].

Puzzled by this result and in order to identify the nature of the long-time tail in figure 4, we took a closer look at the reports on loan which were published before 1980. The large majority of these titles appeared in civil engineering, urban planning, housing and environmental issues, often with economic, local or policy-making aspects besides purely technical ones. In the older *book* titles on loan, we see a similar but much less pronounced concentration in these subjects.

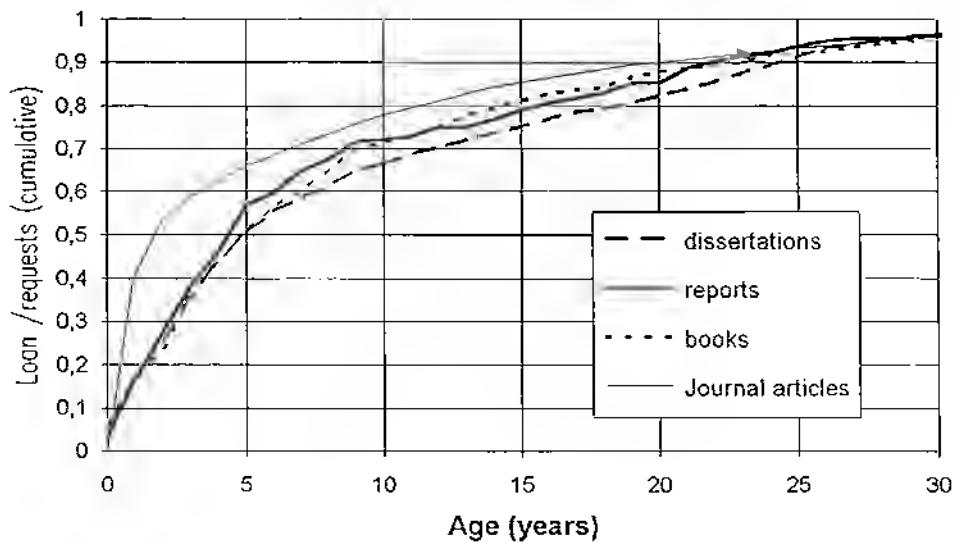


FIGURE 3 Cumulative loan vs. age of information, for dissertations, reports and books, and requests for journal articles. For each of the document types, the total loan has been normalized to 1.

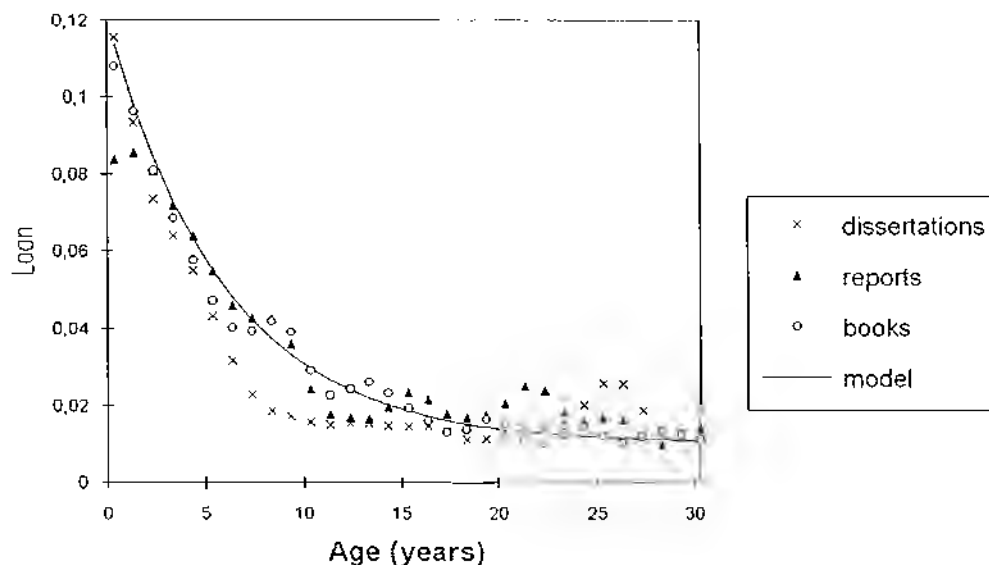


FIGURE 4 Loan vs. age of information, for dissertations, reports and books, corrected for the varying size of the collection and normalized to a total of 1 for each data set. For reduction of noise and better visibility of trends, each point except the first one represents an average value over three consecutive years. The model is explained in the text.

4. KEYWORD INDEXING

Although the acquisition itself may be free, the logistics of GL and the description in the library catalog are a costly affair. The overall cost at the DUTL is roughly estimated at \$40 per document if full keyword indexing is applied, and \$30 without keyword indexing. In this context, it is interesting to know if keyword indexing enhances the use of GL and, if so, to what extent. This question is particularly urgent in the case of closed stacks, as in Delft, where the only contact between the user and the collection is through the online catalog.

We studied the use of dissertations to answer these questions. The choice for dissertations was based on practical grounds. There is no reason *a priori* to believe that the results would be very different for reports.

Historically, some dissertations in the DUTL collection receive keywords (in Dutch) and some do not. Apart from the subject of the dissertation as a criterion, there is an important randomness in whether or not a certain dissertation receives keywords, depending on factors like the momentary work load of the indexer. This, in itself not being an ideal situation, offered us the opportunity to investigate the relation between keywords and loan of dissertations.

Eight sets of dissertations (1730 in total) were investigated for this test, four with keywords and four without, each set being as homogeneous as possible to exclude the effect of parameters other than the presence or absence of keywords. We attempted to reach this homogeneity by admitting only dissertations published in 1988 or later at universities other than the Delft UT (because Delft dissertations always receive keywords), in the subjects of mathematics and chemical technology, and in the English or German language. These languages comprise the vast majority of dissertations in the DUTL library: English because virtually all Dutch dissertations are written in English, and German because of an extensive exchange with German technical universities. The subjects were chosen so as to obtain sets of reasonable and comparable size.

The result is shown in figure 5. In all cases, the loan of dissertations *with* keywords is dramatically higher than *without*. The increase varies from a factor 3 to 15. The same trend is observed for dissertations in Dutch, albeit with poor statistics due to the small numbers. Although some of the effect may be reasoned away with the argument that the indexers tend to add keywords to those dissertations that they judge as specifically interesting, the effect is still striking.

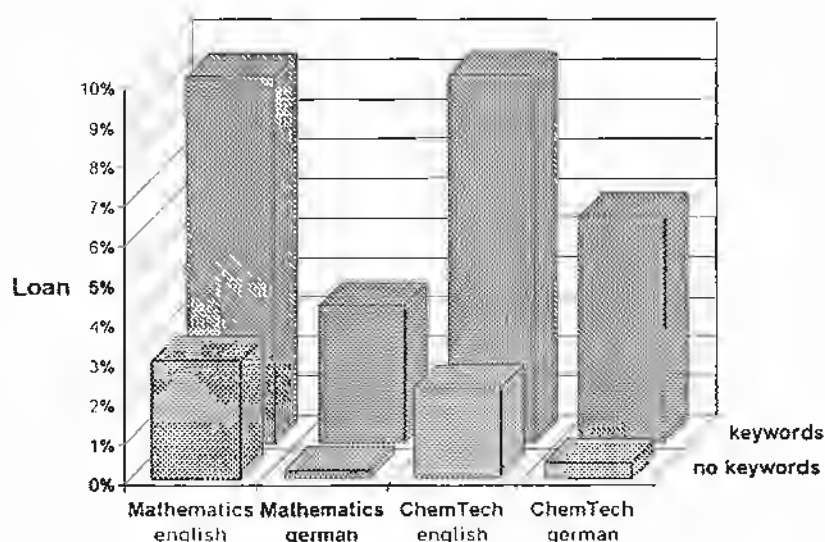


FIGURE 5 Percentage of dissertations 1988-1993 on loan, for mathematics and chemical technology, English and German language, with and without keywords.

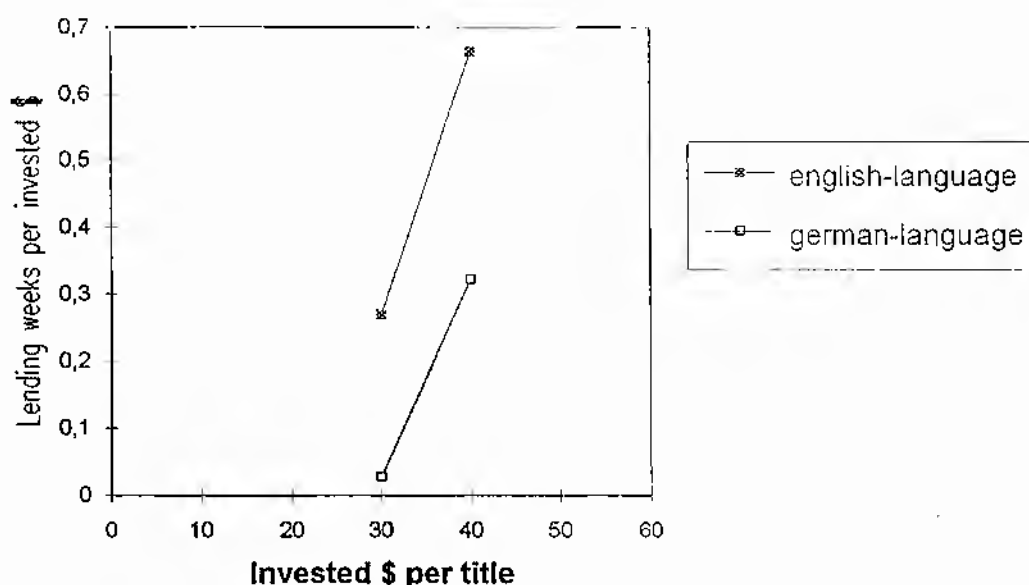


FIGURE 6 The economy of keywords. Average period of loan per invested dollar vs. investment per title, for English and German language dissertations. The \$30 points are for dissertations without keywords, the \$40 points with keywords.

This indicates that our users find their information mainly by subject searching, which makes the indexing a key issue. Even taking into account the extra cost, keyword indexing is economical in terms of use of the collection: the extra use more than justifies the extra cost (see figure 6).

Other document types, such as reports, may be sought after by other user groups with a different searching behavior, but for the conclusions above to change in a qualitative way, it would require a drastic difference in searching behavior for which no evidence exists. In fact, the preference for keyword searching in the DUTL catalog has been shown to be quite general [4]. Therefore, we believe that our findings can be generalized to other document types, which makes it tempting to apply full subject indexing, which is standard for books, to *all* GL. One should be careful, however, in one respect. Other parts of the collection, e.g. books, may become hard to find if large numbers of dissertations or reports are made accessible through the same keyword system. The online catalog should offer filters to cope with this problem.

5. CONCLUSIONS

What are the implications of the above? First of all, the selection of GL in a general technical environment like the Delft UT may be biased in favor of the subjects on the left end in figure 2, summarized as 'application of technology'. Reports published in these, often interdisciplinary, subjects may attract a larger audience than reports in pure science, which are more specialized into one narrow discipline and probably more prone to 'white-washing'.

Secondly, the supposedly 'volatile' character of report does not mean that all reports can be disposed of after a period of 5 or 10 years. Weeding procedures should be discipline-dependent, saving subjects where we observe a more long-term lending pattern.

Finally, good subject indexing is essential for any database containing GL. If resources are limited one may face the choice to cut either in acquisition, implying a sharper selection, or in indexing, implying that many relevant documents are not found by users. Our results suggest

that users are better served with a sharper selection, traumatic as it may be for any librarian seeking completeness.

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- [3] R. Wessels, *Salinfo* brochure. Book data from DUTL (1981 and 1984), GL data from BLDSC (1978)
- [4] R.P.C. Arensman and J.M. van der Velden, 'Evaluatie van het Automatisch Bibliotheekstelsysteem Delft (AUBID) naar gebruiksgemak' ('Evaluation of user-friendliness of the Automatic Library System Delft (AUBID)'), report UT Delft, 1991.

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The Importance of Social Science Literature as a Part of Grey Literature and the Representation of Social Sciences in SIGLE

Chapter 1: General Aspects

Since social sciences include not only the philosophical groundings but also the empirical analysis of various societal and individual problems they have become a discipline which not only produces discussions and some basic books and articles but a lot of research and empirical findings: there is a wealth of research projects with private or public sponsors who want to get regularly reports of progress and final reports of the results. On the other hand the possibilities of publishing in a journal or in a book are limited and the publication often needs a great time span. So the Grey Literature has become an important way of publication, even in the social sciences.

The general remarks of Auger are also valid within this discipline: "Over the years grey literature has come to constitute a section of publications ranking in importance with journals, books, serials and specifications, and the time has come to grant it full recognition." (1) And Grey Literature is also needed as a medium of the scientific communication especially in the social sciences (2). Therefore social science literature has also been included in the SIGLE database, and rightly so.

Chapter 2: The Representation of Social Science Literature in SIGLE

This chapter will show the shape and development of social science literature within SIGLE and discuss the steps and dimensions of this integration.

At first the input will be analyzed appropriate to the last 10 publication years (see Table 1). Referring to the respective publication year the input in SIGLE has an amount of about 30 000 documents since the publication year 1986. There is a big time lag of the input between the publication year and the input year of the documents. Related to the last three publication years the input is decreasing. At the beginning of December 1993 there have been only 5 700 documents in the

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database which are published in 1993, only about 19 % of the estimated production of this publication year. There are surely some objective reasons for this delay as for instance the difficult way of acquisition of Grey Literature. But on the other hand there should be done some work to improve the situation. As shown in **Picture 1.1** the decrease of the input with publication years since 1991 catches the eye.

The average of the proportion of social science literature in SIGLE is 29 % (see **Table 1**). Referring to the last ten publication years the percentage of social science literature comes near to one third (see **Table 1** and **Picture 1.2**). The increase of this percentage for 1992 is probably caused by the above mentioned abnormal situation of the input for this time span. The absolute amount of social science documents comes to nearly 10 000 in each publication year (see **Table 1** and **Picture 1.1**).

Another interesting aspect is the national proportion of input (see **Table 2**). The very most documents come from Great Britain with about 175 000 documents. Germany is following with about 90 000 documents. At the third place there is France with about 45 000 documents. The other countries (the Netherlands, Italy, Belgium, Spain, Sweden and Luxembourg) are supplying only a small number of documents. A considerable amount of documents (about 7 800) has been produced by the Commission of the European Communities.

The origin of the social science documents does not follow the general proportions (see **Picture 2**), because in countries with a low input there are heavy disproportions.

The description of the above proportions shows that the social science literature is very well represented in the database SIGLE as a whole. And it can be said that the social science literature is an integral and important part of this database!

Chapter 3: The Integration of German Social Science Literature into SIGLE

Focussed on the German part of the social science literature within SIGLE the fields of acquisition, data exchange, and availability will be discussed.

The German Grey Literature on social sciences is supplied by the "Informationszentrum Sozialwissenschaft (IZ)" which is situated in Bonn and Berlin. The IZ produces two online databases: 1. SOLIS which contains social science literature from German speaking countries, 2. FORIS which contains current social science research projects from German speaking countries (3). The subfile of Grey Literature is taken from SOLIS and - after conversion - put into SIGLE.

The acquisition of Grey Literature for SOLIS - and even for SIGLE - has its starting point in FORIS because all researchers or research institutes, which are located in Germany, Austria and Switzerland, are asked by a questionnaire whether they produce reports, discussion papers, preprints, unpublished dissertations and so on. The IZ also makes a request

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to give one copy of this report or paper for purposes of documentation and of storage in a library. So in the first step there is a document on current research in FORIS, in the second step there is a document on Grey Literature in SOLIS and in the third step the storage of the report or paper takes place in the university library of Cologne. All steps are linked by the document number of the single piece of Grey Literature. The document number also serves as shelf mark in the university library.

Another important path of acquisition is the regular sending of reports by research institutes which publish own "grey" series. Finally several other sources are supervised, for instance annual reports of institutions, bibliographies, and the database of the national library.

The database SOLIS has a yearly input of between 10 000 and 12 000 documents. Over all the years about 10 % of this input can be characterized as Grey Literature; this proportion is very constant. Hence there will be about 1 000 to 1 200 Grey Literature documents per year (4).

There is a good precondition for the data exchange to SIGLE because SOLIS includes an English translation of the title of each document. The controlled terms are also available in English but they are not used for SIGLE. The classification codes of SOLIS are transformed into the SIGLE classification by a transformation list with a definite assignment of each classification respective of each classification code. The transformation into the technical format of SIGLE unfortunately destroys the advantages of the storage in SOLIS because the separate fields, of which each contains one distinct information particle, have to be concatenated for the SIGLE format.

Nearly all of the reports are available at the above mentioned university library of Cologne (Universitäts- und Stadtbibliothek Köln = UuStBKöln) and can be requested under the document number which is shown in the source field with its subfield availability. If there is another document supplier, it is indicated as well.

Chapter 4: The Interdisciplinary Usefulness of SIGLE: Two Examples

Two examples of interdisciplinary research will demonstrate the importance of the social science part of SIGLE and illustrate the importance of the whole database for interdisciplinary research. The examples are the research on time and society, and the research on qualifications and professionalisation in the field of scientific information and documentation.

The search for the examples has become a very good demonstration of the usefulness of SIGLE for research in interdisciplinary fields. Although the description of the contents of the documents does not reach into depth in this database, because there are no controlled terms or other controlled subject fields except the very rough classification codes. Even the search with search strategies which have not been sophisticated

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ted has had acceptable results(5). The queries had been carried out with some Boolean operators, a distance operator and especially with free text in the basic index or in the title field, and had been combined with a subject classification (6). Probably it would be helpful to note the given controlled terms or free terms which are included in the original data in a separate field which should be included in the basic index.

Paragraph 4.1: The First Example: Time and Society

First I will mention a quotation of Wilhelm von Humboldt: "Time is surely the most marvellous thing of our human being".

The respective example concerns the subject of time and time related problems of the society. There has been a lot of research and discussions between several disciplines of science and social science, so as on one hand biology, medicine and physics, and on the other hand philosophy, sociology, psychology and law. Because of the interdisciplinary character of this field, it is not so easy to get access to the literature and reports concerning time research. The discussion takes place inside specialized communities and the papers are widespread published in journals, readers, proceedings, and reports which are connected to various disciplines. Even in the field of social sciences the situation is difficult, and Helga Nowotny remarks: "Although there have been many conferences and meetings on time ..., they have tended to retain the ad hoc character of single events without follow-up activities." (7) These problems are similarly described by Rudolf Wendorff: "Many research projects are staying rather isolated and are - as books or articles written in someone or other language - often unknown for other persons who work in the same area. Libraries and booksellers have no place at which the different publications on time problems in any context can be put together. It is difficult to get an overview in this area - across all fields of science." (8)

So it is very necessary to get information on results within this field by studying Grey Literature!

There is only one international journal (and it is existing only since 1992) concerning the debate on time and its facets in different disciplines: it is called "Time & Society. An International Interdisciplinary Journal". On the other hand - Helga Nowotny states - "interest in time emerges rapidly from many studies; hence came to form a kind of temporary derivative, an interesting sideline, rather than the core of a continuing research programme. This may also account for the often remarked-upon discontinuous nature of the study of time in the social sciences. (...) Anyone who has worked, even for a short period, in the area of time very soon comes to realize that the literature is booming, also in the social sciences." (9)

The field of time studies is marked out by the doyen of this research J. T. Fraser: "For the purposes of scientific division of labor, the study of time has been carried on four ma-

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major areas of learning: They are: the socialization and collective evaluation of time (social sciences); time in the organizing, communicative and imaginative functions of the mind (psychology); the role of time in the life process (biology); and the time in the physical world (physics). The arts, the letters, no less than good philosophies straddle the phenomenal concerns of the four disciplines and bind their time-related themes together in many ways." (10)

Questioning SIGLE gives respectable results in the field of time research. Here will be shown some of them which are spread over the various disciplines (11):

- TI Demand over time. Attitudes, knowledge and habits that affect when customers use banks and building societies.**
- AU East, R.; Lomax, W.; Willson, G.
CS Kingston Business School, Kingston upon Thames (GB)
SO May 1992. 60 p.
Availability: Available from British Library Document Supply Centre
- TI Is the path leading from the industrial society to the leisure time society?. aspects of changed recreational activities.**
- Fuehrt der Weg von der Industriegesellschaft in die Freizeitgesellschaft?. Aspekte veraenderter Freizeitaktivitaeten.
- AU Reske, Joachim
CS Daimler-Benz AG FoGr Berlin, Berlin (DE)
SO Berlin: 1988. 72 p.
Availability: UuStB Koeln=38*-6L1723.
- TI An investigation of coping styles in time-limited situations. (Loneliness within society.)**
- AU Trent, D.R.
CS Nottingham Univ. (GB) (05686F)
SO May 1988. 239 p. Thesis (Ph.D.).
Availability: Available from British Library Document Supply Centre- DSC:D87510.
- TI Time and social theory. (Philosophy of time and society.)**
- AU Adam, B.E.
CS University Coll., Cardiff (GB) (05878P)
SO Sep 1987. 502 p. Thesis (Ph.D.).
Availability: Available from British Library Document Supply Centre
- TI Economics of time. as an alternative economic theory of a free society; essays on the archeology of the buried economic theory of justice according to Marx.**
- Oekonomie der Zeit. als alternative oekonomische

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substantial; there is only marginal noise in this part of the database SIGLE. Although there are some more opportunities for publication and some more international journals, a lot of discussions and research are manifested in reports which only exist as Grey Literature.

TI Marketing the information profession to the information society.

AU Irving, A

CS Library Association Publishing Ltd., London (GB)

SO 1992. 52 p.

TI Women in information science : an investigation into the characteristics of the professional group of female information scientists, the supply from the education and the position of the female.

Vrouwen in de informatica : een onderzoek naar de kenmerken van de beroepsgroep vrouwelijke informatici, het aanbod vanuit het onderwijs en de positie van vrouwelijke informatici in arbeidsorganisatie.

AU Olde, Cora de

CS Directoraat-Generaal voor de Arbeidsvoorziening, Rijswijk

SO 's-Gravenhage: VUGA [distr.]. 1990. 173 p. ; 25 cm.
Availability: (Copy) available through: Library Technical University, Delft (Nr.47682); Koninklijke Bibliotheek, The Hague (Nr.B9120558).

TI Quantification of overseas market for professional consultancy services in librarianship and information science (LIS) and information management.

AU Carpenter, J.; Davies, R

CS British Library, London (GB). Research and Development Dept

SO 1992. 64 p.

Availability: Available from British Library Document Supply Centre- DSC:2113.56F(BLRD-R--6077).

TI A framework for continuing professional development for library and information services staff.

AU Brown, R

CS British Library, London (GB). Research and Development Dept

SO 1992. 63 p.

Availability: Available from British Library Document Supply Centre

TI The UK professional resource for library and information science development overseas. A study for the Library and Information Services Council (England).

CS British Library, London (GB). Research and Development Dept.; Carpenter Davies Associates, London (GB)

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- SO Sep 1991. 59 p.
Availability: Available from British Library Document
Supply Centre- DSC:2113.56F(BLRD-R--6060).
- TI Continuing professional development for library/
information staff in UK professional firms.
AU Webb, S.P
CS British Library, London (GB). Research and
Development Dept
SO Apr 1991. 78 p.
Availability: Available from British Library Document
Supply Centre- DSC:2113.56F(BLRD-R--6039).
- TI Provision of professional events for library-
information workers.
AU Slater, M
CS British Library, London (GB). Research and
Development Dept
SO Jul 1990. 128 p.
Availability: Available from British Library Document
Supply Centre- DSC:2113.56F(BLRD-R--6013).
- TI Curriculum development for librarianship. An outline
of a systematic foundation for professional education
and training and information service with
recommendations for the decade 1980-1990.
AU Burrell, T
CS Strathclyde Univ., Glasgow (GB) (05787Q)
SO 1982. 891 p. Thesis (Ph.D.). In 2 vols.
Availability: Available from British Library Document
Supply Centre- DSC:D44870/83.
- TI Towards a unified professional organization for
library and information science and services. A
personal view. (Library/information services.)
AU Saunders, W.L
CS Library Association Publishing Ltd., London (GB)
SO 1989. 83 p. Produced on behalf of ASLIB, The
Association for Information Management and The Library
Association.
Availability: Available from British Library Document
Supply Centre- DSC:9236.056R(3).
- TI Information-intensive management. Impact on the
employment market for information professionals.
AU Moore, N
CS City of Birmingham Polytechnic (GB); Aslib, London (GB)
SO 1988. 62 p.
Availability: Available from British Library Document
Supply Centre- DSC:88/29216(Information-intensive).

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- TI Didactic fundamentals [wrong translation, means foundations] concerning the vocational training for commercial professions in computer science.
Didaktische Grundlegung zur informatikbezogenen schulischen Berufsbildung fuer kaufmaennische Ausbildungsberufe.
- AU Koenig, M.
CS Mainz Univ. (DE). Fachbereich 3 - Rechts- und Wirtschaftswissenschaften (00151P)
SO 1988. 299 p. Diss. (Dr.rer.pol.).
Availability: Bibliothek Weltwirtschaft Kiel A 176153.
- TI Meeting the information technology learning needs of professional office workers. (Office worker IT training.)
- AU Eason, K
CS Loughborough Univ. of Technology (GB). Human Sciences and Advanced Technology Research Group (39981H)
SO Jan 1987. 13 p. Paper in NETWork 87 Workshop Bad Homburg (DE) 9-11 Apr 1986.
Availability: Available from British Library Document Supply Centre- DSC:4337.61(HUSAT-M--397).
- TI The documentalst profession through Italian literature (1959-1988).
La professione del documentalista nella letteratura italiana (1959-1988).
- AU Carosella, Maria Pia
CS Consiglio Nazionale delle Ricerche, Rome (IT). Istituto di Studi sulla Ricerca e Documentazione Scientifica
SO Mar 1988. 21 p. Miscellanea in onore di A. Vinay.
- TI Information transfer as profession: final report of a pilot project 'BID conceptions and development of courses of study in libraries, information and documentation centres'.
Informationstransfer als Beruf: Abschlussbericht des Modellversuchs 'Konzeptionen und Entwicklung von Studiengaengen im Bereich Bibliothek, Information und Dokumentation'.
- AU Bock, G.; Hueper, R.
CS Niedersaechsisches Ministerium fuer Wissenschaft und Kunst, Hannover (DE) (01500F)
SO 1985. 128 p.
Availability: Bibliothek Weltwirtschaft Kiel A 165952.
CC *02B Agricultural economics
05A Management, administration and business studies (12)

These titles show the good representation of the subject in SIGLE. The qualifications of information professionals, their training and their professionalisation are discussed in many

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reports. This field is also subject of two reports which have recently been finished at the University of Potsdam concerning 1. the information and documentation as a field of professional training and occupation, 2. the qualifications and the manpower requirement for graduates in the occupational field of the information work (13). These reports are really grey, as type of literature and in their outfit.

Chapter 5: Grey Literature Databases as Important Resources for Social Science Research

As a conclusion can be stated that Grey Literature databases are important for social science research and for opening the opportunities of an interdisciplinary discourse. Using SIGLE the results are encouraging and fruitful. SIGLE can be called a useful resource of international social science research. The inclusion of more European countries and the quality management of the database shall be improved to strengthen the usability and the usefulness of SIGLE. This database deserves a good marketing of the online version and the CD-ROM!

Summary

After some general remarks on the importance of social science literature as part of Grey Literature the article shows the representation of this literature within SIGLE using the input data of the last two years. Then the acquisition process, the data exchange, and the availability of the German social science literature are discussed. Using two real examples the interdisciplinary usefulness of SIGLE is demonstrated: first in the field of time and society and secondly in the field of professionalisation of scientific information and documentation. There are shown several sample titles out of these fields. A statement on the usefulness of SIGLE for the social science research concludes the article.

Notes

(1) Auger 1989, p. 1

(2) cf. Artus 1992

(3) The databases SOLIS and FORIS are offered online at the hosts STN International (Karlsruhe), DIMDI (Cologne), GBI (German Business Information, Munich). The database SOLIS is part of a CD-ROM called WISO (containing German literature on social sciences and economics) which is distributed by GBI.

(4) A part of the delivered documents of the IZ did not appear in the database (about a third). The reasons should be investigated. At this time no new input is done by the IZ. There should be started a political attempt to assure the future input in a regular manner.

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(5) At this point I have to express my thanks to STN and FIZ Karlsruhe because of sponsoring the STN Training Centre at the University of Potsdam. Especially I would like to thank Mr. Lankenau who has supported our work at the STN Training Centre with enthusiasm.

(6) In a few cases the subject classification had been misleading into an other then the supposed area. For example a title dealing with the analysis of 'micro-data' had been classified as 'information theory' although the document is related to a core empirical method of social science and has no aspects concerning 'information theory'. This wrong classification may have the reason that the indexer is coming from science but not from social science.

During my search I found some duplicates. In any case the first document and the respective duplicate were coming from the same document supplier. Here should have been a duplicate check before starting the input into SIGLE.

(7) Nowotny 1992, p. 448

(8) Wendorff, p. 41 (translated by M.K.)

(9) Nowotny 1992, p. 423

(10) Fraser 1992, p. 159

(11) The quality of the presentation of the output is bad because of using the stripped ASCII-format. The hosts should develop methods to present the output in a well formatted, good readable form.

(12) This classification is an example for misleading classification codes. The two assigned classifications are both wrong!

(13) See Kluck/Seeger 1993a and 1993b.

References**Artus 1992**

Helmut M. Artus: Graue Literatur. Zum informellen Kommunikationssystem der Sozialwissenschaften. Abschlußbericht. [On the Informal Communication System of the Social Sciences. Final report]. Bonn 1992

Auger 1989

Charles Peter Auger: Information Sources in Grey Literature. London 1989 (2nd ed.) (= Guides to Information Sources)

Fraser 1992

J. T. Fraser: Temporality in a Nowless Universe. Time & Society, Vol. 1, 1992, No. 2, p.

Kluck: Importance of Social Science Literature as GL**Kluck/Seeger 1993a**

Michael Kluck; Thomas Seeger: Information und Dokumentation als Ausbildung und Beruf. Eine Befragung von Absolventen der postgradualen Ausbildung zum Wissenschaftlichen Dokumentar über Ausbildung, Berufseinmündung und Berufsverlauf. [Information and Documentation as a Field of Professional Training and Occupation. A survey of postgraduates on the education, the career start and the professional career]. Potsdam: Universität Potsdam 1993 (Universität Potsdam, Informationswissenschaft, Modellversuch BETID, Bericht Nr. 1)

Kluck/Seeger 1993b

Michael Kluck; Thomas Seeger: Qualifikation und Bedarf im Berufsfeld der Informationsarbeit. Eine Befragung von Arbeitgebern aus den Berufsbereichen Dokumentation, Information, Informationsvermittlung und Informationswirtschaft. [Professional Qualifications and Manpower Requirement in the Occupational Field of the Information Work. A survey of employers in the occupational fields of documentation, information, information services, and the information industry.] Potsdam: Universität Potsdam 1993 (Universität Potsdam, Informationswissenschaft, Modellversuch BETID, Bericht Nr. 2)

Nowotny 1992

Helga Nowotny : Time and Social theory. Towards a social theory of time. *Time & Society*, Vol. 1, 1992, No. 3, p. 448

Wendorff 1986

Rudolf Wendorff: Zur Erfahrung und Erforschung von Zeitphänomenen im 20. Jahrhundert. [On the Knowledge and Research on Time Phenomena in the 20th Century]. In: Heinz Burger (ed.): *Zeit, Natur und Mensch. Beiträge von Wissenschaftlern zum Thema "Zeit"*. Berlin: Berlin Verlag 1986

Tables and Pictures

Table 1:

<https://doi.org/10.26069/greynet-2025-000.639-gn>

SIGLE Database:

1. Documents per year
2. Social science documents

GL '93
Amsterdam
14 Dec 1993

publication year	documents		social science documents	
	(total)			
	number	percentage (of all documents)	number	percentage (of the year)
1984	24 090	6%	8 641	36%
1985	26 345	6%	9 517	36%
1986	30 906	7%	10 466	34%
1987	30 742	7%	9 983	32%
1988	29 896	7%	9 728	33%
1989	30 938	7%	9 068	29%
1990	31 599	8%	9 736	31%
1991	26 495	6%	9 625	36%
1992	21 312	5%	8 928	42%
1993	5 731	1%	1 467	26%
all years	412 576	100%	121 334	29%

Table 2:

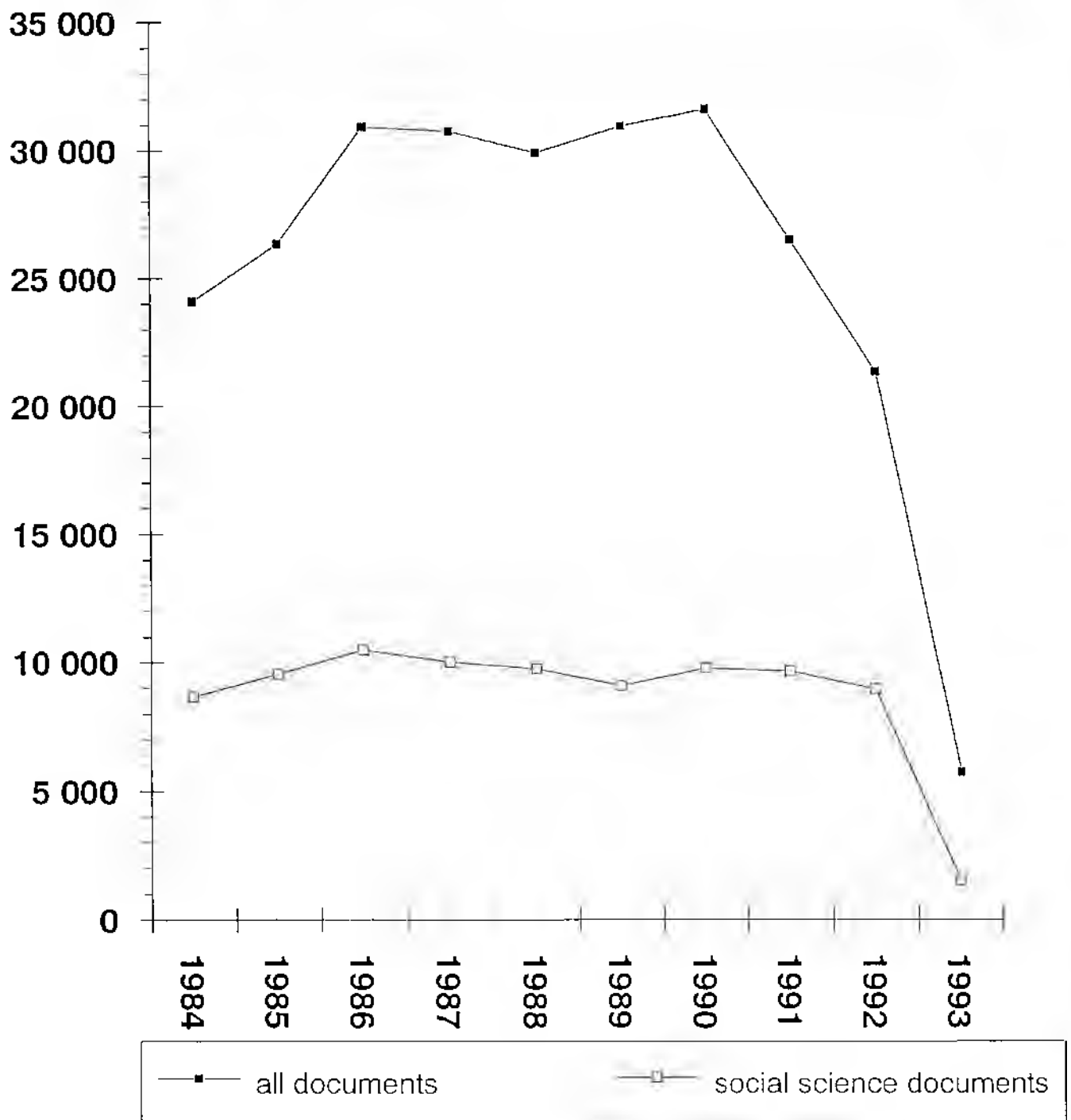
<https://doi.org/10.26069/graynet-2025-000.639-gn>

SIGLE Database:
Input countries

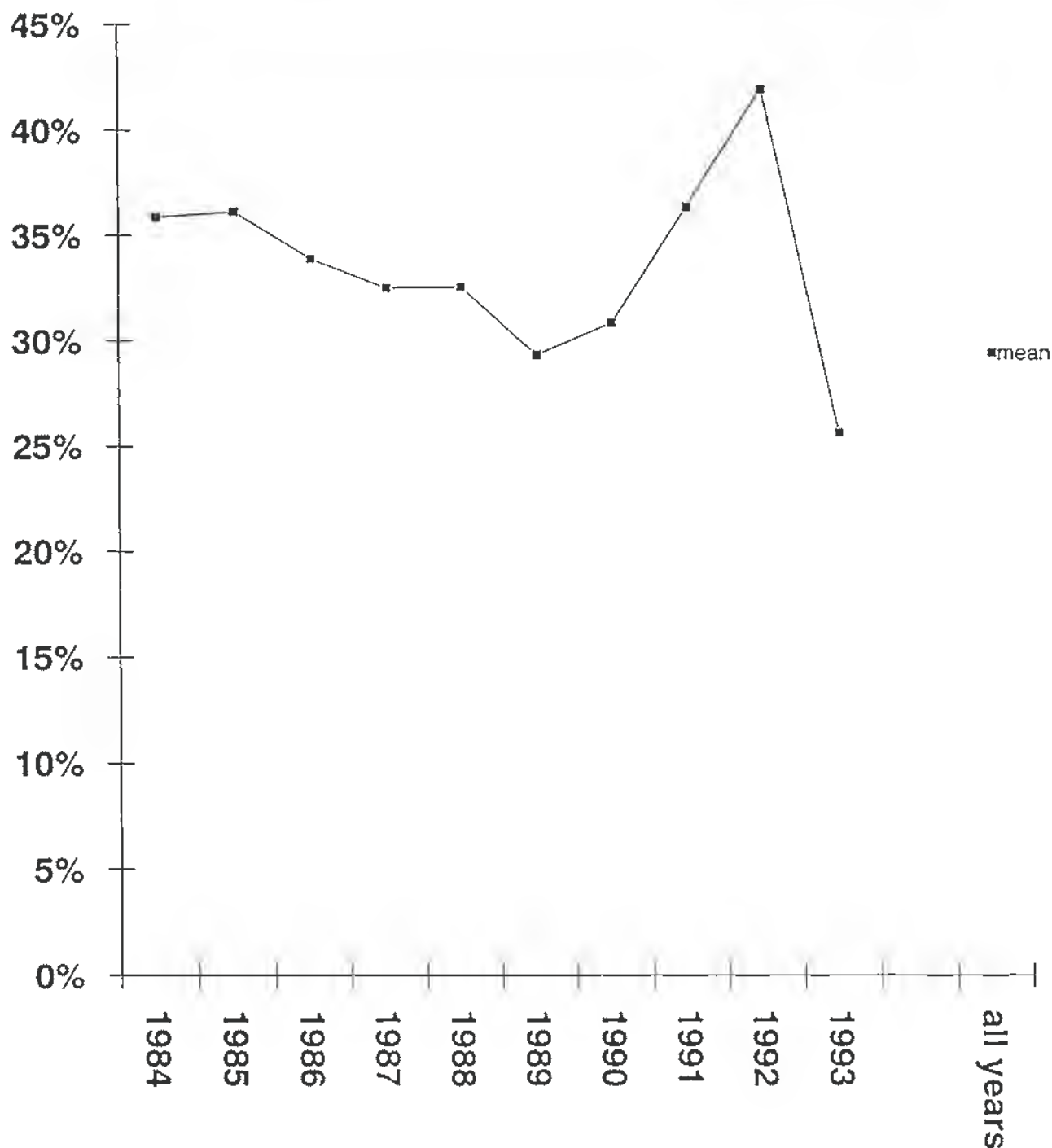
GL '93
Amsterdam
14 Dec 1993

country of publication	documents		social science documents	
	(total)			
	number	percentage	number	percentage
		(of all documents)		(of the country)
Belgium	2 897	1%	115	4%
European Comm.	7 729	2%	2481	32%
France	44 644	11%	3 806	9%
Great Britain	173 078	42%	84 046	49%
Germany	87 377	21%	24 958	29%
Ireland	97	0%	97	100%
Italy	6 895	2%	570	8%
Luxembourg	33	0%	27	82%
Netherlands	14 143	3%	5 189	37%
Spain	126	0%	45	36%
Sweden	14	0%	0	0%
without entry	75 543	18%	-	-
all countries	412 576	100%	121 334	29%

Picture 1.1

SIGLE database
Documents per yearGL '93
Amsterdam
14 Dec 1993**Picture 1.1: Input in SIGLE, documents per year**

Picture 1.2

SIGLE database
Social science documentsGL '93
Amsterdam
14 Dec 1993**Picture 1.2: Input in SIGLE, percentage of
social science documents**

Picture 2:

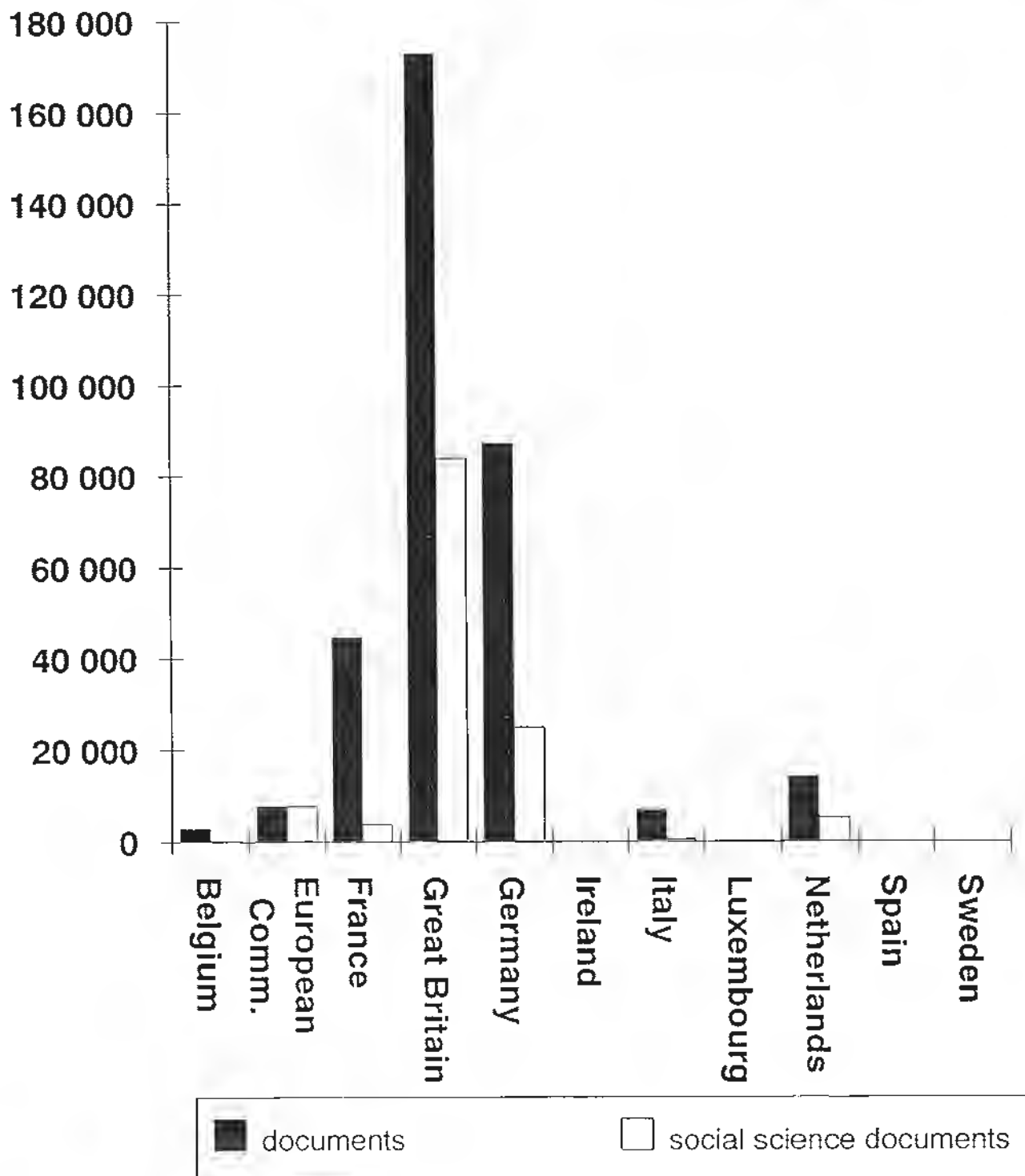
SIGLE Database

GL '93

Amsterdam

14 Dec 1993

Picture 2: Input countries



GREY LITERATURE AND THE DEVSIS-BOTSWANA PROJECT : THE CASE OF THE NATIONAL INSTITUTE OF DEVELOPMENT RESEARCH AND DOCUMENTATION.

Introduction

All over the world, practitioners and teachers in the field of information, have written a great deal about this baffling 'creature' we call 'grey literature.' The literature provides us with a suitable definition of grey literature, as being "the material which is not available through normal book selling channels. As well as being the subject of haphazard or specialised distribution arrangements. It also has a number of other distinguishing characteristics - small print runs, variable standards of editing and production, poor publicity, poor bibliographic control ... and poor availability in libraries. It has another characteristics; namely that it contains information likely to be of use to a considerable number of people. It is a costly public asset going largely to waste."¹

These documents, which include feasibility studies, survey results, consultancy reports, project documents, evaluation reports, minutes of meetings, conference papers and research findings do contain information which is vital in a nation's socio-economic planning and development.

Generally in Africa, the fact that several documents are not published can be attributed largely to the state of the publishing industry, which is still in its infancy. It is found that with the exception of South Africa, Zimbabwe, Kenya and Nigeria, there are very few large publishing companies in the continent. The publishing industry is still at the rudimentary stage, and it has not attained the level of sophistication which is exhibited in the developed world. Again, many of the publishing companies are not well organised to facilitate easy procurement of manuscripts. Therefore, authors who submit their manuscript for publication, often have to adhere to unnecessary and excessive formalities and even the terms offered to them are unattractive and unacceptable. It can be argued however, that African publishers also do face problems which impede the development of the industry. Very often, they do not have adequate capital to finance their businesses and they encounter difficulties in obtaining import licences for the importation of essential inputs, such as paper and machinery. The picture painted here, dismal though it may seem, makes the acquisition of documents in Africa generally, extremely difficult and frustrating.²

However, all these problems mentioned above, do not as pointed out, "negate their value as sources of useful information. On the contrary, studies have shown that a high proportion of unpublished reports are used in both basic and applied research. The mere fact that some materials have been published does not necessarily mean that they are more important than the

unpublished. They provide current and timely information in the sense that they are normally issued in the same year or month following the inception of the work reported.³

Indeed, the importance of grey literature has necessitated the various efforts being made by information handlers to have it bibliographically controlled to ensure its being effectively disseminated. This realisation, encouraged the National Institute of Development Research and Documentation of the University of Botswana, to establish within its framework an information system known as DEVSIS-Botswana, which is the main thrust of this paper.

The History of the National Institute of Development Research and Documentation (NIR)

The National Institute of Development Research and Documentation (NIR) was established in 1975 as a documentation centre at the University of Botswana. It developed into a full research Institute three years later. The Institute's objectives are three-fold and these are:

1. to promote, co-ordinate and conduct research on issues of socio-economic, environmental and cultural development affecting Botswana;
2. to develop the national research capacity within Botswana; and
3. to document, publish and disseminate the results of such research.

In order to accomplish these objectives, the Institute has been actively engaged in launching various research projects, organising seminars and conferences, mounting short training programmes and workshops with a view to increasing the research capacity of Botswana.

The Institute's research activities are focused on the major theme of rural development with special reference to :

1. Agriculture
2. Education
3. Environment
4. Health and Nutrition and
5. Gender issues.

In the field of documentation, the Institute's Documentation Unit is playing a leading role in providing information services to the researchers of the Institute and the University, and to other scholars both within and outside Botswana. It collects, processes, and stores information, mainly unpublished, about the

socio-economic development of Botswana, and disseminates it to public institutions, private organisations and interested individuals. It needs mentioning, that the Institute is part of a number of national and international networks which link together major research and documentation institutes dealing with problems of development.

Therefore, in attempt to improve the collection and dissemination of development literature on Botswana especially, the Institute initiated the Devsis-Botswana project.

The DEVSIS concept

The Development Sciences Information System (DEVSIIS) is a concept that dates back to the mid - 70's when various international agencies, including the International Development Research Centre (IDRC) came together to sponsor the establishment of a system that would help meet the information needs of planners and decision-makers responsible for economic and social development.

The concept was, never, however implemented as a global one that it had been envisaged to be. Instead, a number of national and regional development information systems evolved out of the programme.

DEVSIIS-Botswana is one example of the national information systems. At the regional level, and of immediate relevance to DEVSIIS-Botswana, is the Pan African Development Information System (PADIS), created under the aegis of the United Nations Economic Commission for Africa (ECA) in Addis Ababa, Ethiopia. PADIS is a development information system for Africa which was established to serve as a conduit for information and data for development, centred around national, sub-regional and regional networks, to which all ECA member states would voluntarily contribute information management experiences. The establishment of PADIS therefore necessitated the setting-up of national networks of which DEVSIIS-Botswana is one.⁴

The Origin of DEVSIIS-Botswana

In 1981/82, Botswana and the other members of the Southern African Coordinating Conference (SADCC), now called the Southern African Development Community (SADC), recognised the importance of information as a vital resource for achieving economic and social goals.

They decided to establish a regional development information network to further the strategic economic objectives of SADCC, to be called the Southern African Documentation and Information

System (SADIS). It was to put in place an organizational and technical structure at the regional and national levels that will aim at facilitating the sharing of information within and outside the region.

There was no doubt that the success of SADIS would depend on the extent to which each member state was able to develop the necessary infrastructure to facilitate its own national planning requirements as well as its full participation in the regional system. It happened that Botswana was the first country to take the necessary steps towards the establishment of a national infrastructure through the initiative of the National Institute of Development Research and Documentation. A project proposal was approved by the Ministry of Finance and Development Planning and submitted to the International Development Research Council (IDRC), which agreed to fund the project.

Objectives of the Project

The project agreement was signed in 1984 and it was to enable the Institute to organise the national economic and social development information in support of the planning process in Botswana, particularly with reference to the priority for development in the communal areas and to strengthen Botswana's capacity to participate in the regional PADIS network and in the proposed SADIS programme.

The specific objectives were:

1. to collect, organise and disseminate Botswana's national information and documentation related to its economic and social development;
2. to participate in the regional PADIS network and more specifically in the PADIS - DEV programme;
3. to train the Institute's staff in the organisation and operation of a specialised documentation centre ; and
4. to determine the computer equipment, staff and training that will be needed in order for the Institute to carry out its mandate as the primary national focal point for all information and documentation in the country and to prepare for it to participate in regional networks such as SADIS and PADIS.

Implementation of the DEVSIS-Botswana Project

a) The manual processes

In order for NIR to participate in the PADIS system as a national focal point, the PADIS methodologies of processing documents had to be adopted. This involved the use of a special cataloguing, indexing and abstracting worksheet designed by PADIS. It also involved the use of the OECD Macrothesaurus for indexing. NIR had hitherto used a system designed in-house. Each document could have any number of keywords. Normally, as well as producing two or more cards if the number of authors warranted, the practice was also to produce as many cards as there were keywords. A lot of time was spent producing these cards. There was neither time nor sufficient staff to carry this out. Backlog and space were key problems.

Staff at NIR were trained locally to use PADIS methodologies, with one member of staff being trained in Addis Ababa. After this training, NIR began processing and sending their worksheets to PADIS for inclusion in the PADIS-DEV database - which is a bibliographic reference database for economic, technological and social development information on Africa. This was done whilst at the same time maintaining the original NIR mode of processing documents. Two systems were actually being used side by side resulting in a lot of time being wasted, and ultimately, it was decided to use only the PADIS methodologies.

b) Computerisation

As noted, one of the objectives of the DEVSIS-Botswana project was to determine the computer equipment, staff and training needs for NIR to become an effective focal point for all information and documentation centres in the country and to prepare for it to participate in regional networks such as SADIS or PADIS. Having done that, the system would then be computerised to ensure that all the information collected was well organised and accessible.

The project proposal spelt out the type of national network that would be established as a result of the project. The network would be a fairly elaborate (in those days) affair. NIR as the national focal point, would be responsible for setting up and maintaining the national database. Other participants, such as government departments and libraries and information centres would contribute to the database and would have access to this database through terminals located at their offices.

Further to that, NIR was to be linked via satellite to the PADIS-DEV databases in Addis Ababa, so that PADIS would have access to data about Botswana, and Botswana would also have access to information about other parts of Africa.

Even though at the beginning, it appeared as if either PADIS or the IDRC was going to fund the computer equipment, it became clear during the first year that this was not to be the case. However, the provision made by IDRC within the project was to

train a database manager and to fund a consultancy that would look at the computer needs of the project.

Therefore, in 1986, an IDRC funded consultant was sent to NIR to determine the computer hardware and software needs of the project. Although this consultancy did not produce the expected results, it still was of benefit to the Institute since it provided technical advice in the management of a specialised documentation centre. The question of what software and hardware to use still remained unanswered.

The situation was further complicated by the fact that an IBM microcomputer had been acquired, and so any software identified had to run on that computer. As you all know, it is easier to identify software and then find hardware for it.

The microcomputer was the very first computer the Institute ever had. The major problem for the Documentation Unit was what software to use for its purposes, other than the generic software - wordprocessing, etc. that were available. At that time it was difficult to identify software that would be appropriate for a database as there was no information available about information storage and retrieval software. The initial idea in the project proposal had been to use MINISIS, a software used by IDRC and PADIS themselves. The only problem though was that the software could only run on a Hewlett Packard minicomputer, but the Institute had no funds to purchase a computer of that capacity.

A decision was made however to go ahead and use the computer and the DBASE III software that was available. Using DBASE was seen as a way of gaining experience in the use of a database management software which would stand us in good stead when we identified the appropriate software. Whilst DBASE could be used to provide a listing of the holdings of the Documentation Unit, it was found to be lacking in preparing indexes from a field that had more than one value. For example, every document at NIR is assigned a number of keywords which are used in retrieval. These keywords could be as many as twenty in number. DBASE could only index using the first keyword. The alternative was to define as many as twenty fields and to create an index from every one of those fields. It was decided not to use the software for the catalog but for other functions such as creating mailing lists and for developing a circulation system. The exercise was indeed important, since it prepared the staff for the real task that was to follow.

By 1986, the Unesco package CDS/ISIS which is an information storage and retrieval software for use by non-profit making institutions, had been identified and it was recommended for use since it was in a sense, similar to MINISIS. Computerisation at NIR then began in earnest in 1987. The first step taken was to ensure that the internal worksheet used for processing NIR documents was adapted to that used for PADIS methodologies. Prior to that, there was duplication in that the Unit was using two worksheets for each document. One worksheet was to be sent to

PADIS and the other was for internal purposes. The bibliographic information sent to PADIS was to be included in that Centre's database.

In 1987 NIR began to build its own database, issues of DEVINDEX-Botswana, which is an index to literature on economic and social development in Botswana, using the information available in the Institute's library, were produced. The first three issues of DEVINDEX-Botswana were to be produced by PADIS, until computerisation had taken off ground at NIR.⁵ In the end, however, PADIS and IDRC produced the first issue, and the rest were produced by NIR itself, using its computerised database.

Achievements

1. NIR staff were trained in the use of methodologies which would allow them to co-operate with other institutions in the region.
2. Indeed, the Institute's staff were trained in the organisation and operation of a specialised documentation centre.
3. As a result of the project a member of staff was sponsored for a Masters degree in Information Studies. She was able on her return, to start the computerisation aspect of the project. Other staff members also benefitted in that they were also exposed to the use of computers for documentation work.
4. A bibliographic database was built from 1987 which heralded a new and better method of storing and retrieving information. The card catalog is still available for use in retrieving materials processed before the period of computerisation.
5. After the production of the first DEVINDEX-Botswana by PADIS and IDRC, the NIR was able to take over the production using the computerised records. This endeavour is still continuing, and to date 5 issues have been produced.
6. The project had an impact on the rest of the Institute, in that it was the first attempt at computerisation, and it encouraged other Units to use computers too. Computers are now part and parcel of the work being done in the Institute.
7. Due to the successful implementation and organisation of the project coupled with the wealth of experience gained, requests are being received from both within and outside the country for the training of other librarians and documentalists.
8. There is no doubt that, DEVSIS-Botswana project being the first of its kind in the Southern African region has made its fair contribution towards the bibliographic control of economic and social development information in the region as a whole. Presently, the library has over 12,000 grey literature in its database.

Lessons to be learnt

1. The idea of collecting, organising and disseminating information focusing on communal areas was not met. It was not possible to make the trips to the communal areas as had been envisaged at the start of the project. Even locally, in Gaborone very little was collected. The concentration was mainly on NIR holdings. Also the project never developed to a stage where there was an active network within the country with NIR as the focal point. The problem was two-fold:

Firstly, there were manpower constraints - additional personnel that should have been hired were not. The problem was that the Institute had to rely on a centralised facility for recruiting staff. In other words, the University Administration handled the matter, and this exercise was beset by delays.

Secondly the project was largely seen as an NIR project. The envisaged computer network failed partly because of this and also because the plans made at that time were rather elaborate and no thought had been given to funding. Despite the last point, the project could still have involved the other players in the country through their contributing to the database, but that issue was never addressed, probably because getting the project off the ground itself at NIR was quite an involving task.

2. The project memorandum distributed at the beginning of the project was probably discussed and accepted by the heads of the various government ministries and departments that were consulted, but the word was not sufficiently passed on to the potential participants until a seminar was organised at the end of the project, so that information about it could be disseminated and DEVSIS-Botswana made a national, on-going collaborative activity.

3. In so far as the computerisation was concerned, one is of the feeling that it could have been better handled. Instead of frantically hunting for software, the staff should have considered first what they wanted from a computerised system and planned their database accordingly. This exercise was never done, and instead CDS/ISIS was used to merely transfer what had been done manually into computing. As the database was being developed the staff realised certain aspects that they could have done differently, if a requirement exercise had been carried out prior to computerisation.

4. Another major exercise to have been accomplished was to prune down the PADIS worksheet and to decide on fields that were more relevant to the services to be rendered. The day to day

management of the database and production of the Devindex-Botswana on a regular basis could have also been mapped out and agreed upon, and manuals could have been developed detailing how the system works.

5. The whole process was in itself a learning exercise. A lot still had to be learnt about the software. At the time, no-one else in the country was using CDS/ISIS and we had to work ourselves out of problem areas.

6. There was also a shortage of staff to do the data entry and other related functions, thus, there was always a back-log of documents to be processed.

7. As noted, during the life of the project, the members of staff were unable to make trips to the districts in order to acquire the relevant documents and this had direct implications on the aim to gauge the volume of socio-economic development information being generated in Botswana.

Conclusion

During the implementation of the DEVSIS-Botswana project, it was not possible to collect all the socio-economic documents being generated on or about Botswana each year. Thus, only an information system for the field of socio-economic development was established on the basis of the already existing information from within the Institute's information database. However, there is a wealth of information produced within the various government's agencies, development agencies, national societies, research institutions, district administration offices, libraries/information centres and individual subject specialists. It is envisaged that the establishment of a national information network through which all these sources of development information could be identified and linked together will go a long way towards the achievement of a bibliographic control of economic and social development literature in Botswana specifically, and the Southern African region as a whole.

The basis for a national network has been established, and thus the next step is to take this idea further. Of particular interest is that the initial ideal of the project proposal of computer networking can still be achieved. The FIDO system for data communication is one that can and has been used throughout Africa. Participating centres would only require a computer, a modem, a direct telephone line and the FIDO software in order to connect to the NIR database. This would make it possible for them to input their records into the database and to search for information from the same database.

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SPANISH CONTRIBUTION TO THE SIGLE SYSTEM

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The Centre for Scientific Information and Documentation (CINDOC), from the Spanish Council for Scientific Research (CSIC), is the main document supplier in Spain both by the amount of fulfilled requests, and by the number of users of its services. The CINDOC always showed a deep interest in overcoming the problems commonly associated with documents' acquisition in general, and specially the so-called grey literature. A direct consequence of this interest was the great deal of attention put over the SIGLE program from its very beginnings. Finally, in 1990 the CINDOC joined the EAGLE association as the Spanish National Member.

Even before joining SIGLE, the CINDOC had started some contacts with the objective of simplifying as much as possible the retrieval of Spanish grey literature. In this framework a joint strategy was developed together with the Interministerial Commission of Science and Technology (CICYT). This body provides funding for the organization of scientific meetings, congresses, symposia, etc. Applicants must of course fulfil some prerequisites and agree to a number of conditions defined in a yearly call published in the Spanish Official Bulletin. One of those requirements states that at least two copies of the final proceedings must be sent to the CICYT as soon as they get published. The aforementioned joint strategy between CINDOC and CICYT included an compromise in virtue of which the CINDOC will take over these copies for their inclusion in the SIGLE database. This set of documents has become one of the most important sources of grey literature used by the CINDOC to provide input in the SIGLE database.

Some arrangements are still to be closed which will greatly improve the effectiveness in locating and compiling the spanish grey literature in the most comprehensive basis, but important agreements have been made. Of special interest are those made with spanish universities for the obtention of Ph. dissertations and theses, but some other organizations have also been contacted.

In addition to giving up the proceedings from officially sponsored meetings and conferences, the CICYT also granted to the CINDOC the required economic aid to get the operative methodology working, and to back the journeys for the executive and technical committee meetings.

An introductory analysis of the spanish grey literature revealed it as both abundant and diverse in origin, with documents produced by a number of different institutions, most of them of governmental nature.

Most of the identified organizations were initially contacted, but currently only a couple of them were at the time predisposed to submitting documents to the CINDOC in a regular basis for its introduction in the SIGLE database.

With the aim on improving this situation an informative conference was organized by the CINDOC with the cooperation of the Spanish Society for Scientific Documentation (SEDIC), in April 1992, which also served for the introduction of the CD-ROM of the SIGLE database. This meeting reached a great deal of success, and ultimately was the base for some of the most solid agreements between CINDOC and other institutions concerning grey literature.

Up to late April 1993 a total of 993 documents were processed in the CINDOC, generating a total of 1090 SIGLE records, which are the subject of analysis in this communication. Aspects examined include document type, language of publication, subject classification, institutional origin and date of publication.

I-Document Type:

CINDOC records imputed to SIGLE can be classified according to the type of document that generated it (as defined by the SIGLE cataloguing rules). Their quantitative distribution is reflected in Table 1.

Table 1
Distribution by document type

Document Type	No.	%
Serials	157	14,4
Conference Proceedings	344	31,5
Theses	256	23,5
Technical Reports	148	13,6
Bibliographies	6	0,6
Translations	4	0,4
Standards	3	0,3
Other	172	15,8
Total	1.090	100,00

As can be clearly seen, the greater share of the documents belongs to the *Conference Proceedings* category; this is a consequence of the aforementioned agreement between the CINDOC and the CICYT. After *Proceedings* come the *Degree Theses*, *Serials*, and *Technical Reports* groups. There is also a small percentage of records which belongs to the *Bibliographies*, *Translations*, and *Standards* categories. Finally, a significant percentage (rounding the 16 %) of documents do not fit in the document's typification given in the SIGLE cataloguing rules (i.e. working papers). Those documents has been included in the *Other Types* class.

II-Language of publication:

Grey Literature produced in Spain is published in a several languages. The distribution of the documents by language of publication, is reflected in Table 2:

Table 2
Distribution by Language of Publication

Language	No.	%
Spanish	671	55,2
Catalonian	18	
Galician	8	2,2
Basque ¹	1	
English	296	24,4
French	42	3,5
German	7	
Italian	7	
Portuguese	3	1,5
Arab ²	1	
No language indicated	157	13,2

As could be expected, most of the documents are published in *spanish*, with a very small percentage of documents written in the other official languages of Spain (*catalonian*, *galician*, and *basque*)³. Second place in number of documents is for *english*, representing a near 25% of the documents, followed far behind by *french*, with a fairly smaller percentage (around 3,5%). A small set of documents (less than a 2%) are published in other languages (*german*, *italian*, *portuguese*, and *arab*).

Looking close to Table 2 it can be noted that the total number of documents is far higher than the 1090 referred at the beginning of this communication. The reason is that a high percentage of the document selected for inclusion in the SIGLE database are published in two or more languages. From those documents in which a language is indicated, 54 are published in two different languages, 18 in three, 9 in four, and there is even a single document published in 5 different languages.

II-Distribution by Subject:

When considering the subjects classification of the documents processed by CINDOC for inclusion in the SIGLE database, the distribution is as shown in Table 3.

¹The document included in the table was a degree theses, and had extensive abstracts both in english and spanish. All the footnotes and charts were also written in spanish.

²This single document was published in both Arab and Spanish.

³These documents usually have abstracts in spanish and/or english.

Table 3
Distribution by Subjects (attending to the SIGLE classification)

Classification	Subject	No.
01	Aeronautics	1
02	Agriculture & Veterinary	50
03	Environmental Pollution	9
05	Humanities and Social Sciences	459
06	Biology and Medicine	272
07	Chemistry	68
08	Earth and Atmosphere Sciences	55
09	Electric and Electronic Eng.	26
10	Energy	3
11	Material Science	9
12	Mathematics	226
13	Mechanical, Industrial and Civil Eng.	9
14	Methods and Equipment	15
17	Navigation, Communication, Detection...	2
20	Physics	27

Can be observed that the largest subject category (in number of documents) is 05 (*Humanities, Psychology and Social Sciences*). This can be broken down in *social sciences* (311 documents including 120 documents from *sociology*), and *economy* (103 documents). The *humanities* are comprised by *history* (40 documents) and *literature* (38).

The second larger group by subject category is the 06 (*biology and biomedicine*), being the greatest portion from *clinical medicine* (86 documents), followed by *biochemistry* (41), and *zoology* (35). Third comes *mathematics*, with 226 records.

If we collect these categories in larger groups, we will find the results showed in Graphic 1.

As Graphic 1 shows, most documents deal with *experimental sciences*, followed by *social sciences* and *biomedicine*. If we consider the "dual" distribution between *sciences* and *humanities-social sciences*, the 62,7% of the spanish documents deal with *sciences* (*hard, experimental and technological*), and only the 37,3% are from *social sciences/humanities*.

Graphic 1 also shows frequency of each of these wider groups in the whole of the SIGLE database. Is worth to note that the distribution of spanish records and that of whole database display some significant deviations:

-Spanish input shows a higher percentage of records in the *Social Sciences* and *Biology/Medicine* category than the whole SIGLE database, while the percentage of records classified as *Technology* are significantly smaller.

-The proportion of records included in the *Sciences* classification is exactly the same in both the spanish input and the complete SIGLE database.

IV-Date of publication:

Table 4 shows the distribution of the documents processed by CINDOC attending to the date of publication:

Table 4
Distribution by Date of Publication

Date of Publication	No.	%
1978	2	0,2
1980	4	0,4
1982	1	0,1
1984	1	0,1
1985	1	0,1
1987	3	0,3
1988	17	1,6
1989	100	9,2
1990	169	15,5
1991	369	33,8
1992	242	22,2
1993	23	2,1
No date expressed*	158	14,5

As might be expected, most documents date from the 1991-1992 period, and just a straight 12% comes from dates earlier than 1991, with the oldest document being from 1978. A small set of documents dates from 1993, but the number of records from this period is growing very fast.

V-Institutional Origin:

Corporate authors and organizations in which the personal authors develop their professional activity are quite diverse in the documents processed by the CINDOC. Table 5 shows the distribution of those organizations, arranged in wider categories.

As shown, the most important contributor (in the amount of documents supplied to SIGLE) is *University*. In this category are grouped a total of 37 spanish universities, plus a foreign one, generating a total of 558 documents. The single university which has supplied a greatest number of documents is the *Universidad de Santiago de Compostela*, with 73 records, close followed by the *Universidad de Oviedo* (71). The *Universidad Carlos III de Madrid* (61), and the Universities of *Cantabria* (46) and *Valladolid* (38) are far below. Finally, six universities are represented with just one record.

It could be worth to mention that none of the Centres represented with 35 or more records are counted between spanish most prominent Universities.

*This figure reflects the series records, which do not display date of publication as a individual field.

No 2
produced
= university

This fact is related to the disposition of the different centres to donate their documents, specially the degree theses. Is a common occurrence that these "small" universities are often more available than the bigger ones in the moment of supplying copies of those documents they have generated.

Table 5
Institutional Distribution

Corporate Entry	Amount of Documents	%
Universities	558	44,4
Official Research Centres	143	11,4
Scientific and Professional Assoc.	149	11,9
Governmental Organizations ⁵	110	8,8
Private Business ⁶	12	0,9
International and Foreign Bodies	15	1,2
No corporate entry included	269	21,4

In a second place by the number of records generated, are the *scientific and professional associations* with a total of 149 records. The single body of this group which has supplied a greater number of documents is the *Basque Association of Sociologists* (*Asociación Vasca de Sociólogos*), along with the *Federation of Sociologists Associations* (*Federación de Asociaciones de Sociólogos*) which are responsible of 26 records.

The third place is taken by the *Official research centres* category, with a total of 143 documents. The single body which has provided the greatest number of documents is the *Valencian Institute of Economic Research* (IVIM) with 56 documents. There are also 41 records from documents produced by research centres from the CSIC.

Fourth place is the *governmental organizations* category. In this single classification are grouped all those organizations which depend from any of the levels of the Spanish Administration; Central Government, Autonomous Administrations and Local Administration. The corporate body which has provided the greatest share of documents from this category is the *Town Council from Alcobendas*, with 64 documents. This figures can be surprisingly high bearing in mind that we are not speaking of a major city (Alcobendas is a satellite village from Madrid). Anyway, the Town Council has a notable Department of Sociological and Urban Research, and conducts a series of surveys not only in Alcobendas, but also in the whole of the Madrid Autonomous Community.

⁵Included in this category are bodies from the three levels of the spanish administration (i.e. national, autonomic and local).

⁶Also have been included in this category some government and joint bodies.

Collaboration between the Alcobendas' Town Council Documentation Service and CINDOC started after the meeting organized in 1992 to present the SIGLE service to official bodies from the different spanish administration levels, and has steady continued from then on.

An additional point to consider is the greater number of documents coming from departments and agencies from the Local and Autonomous Administrations (79) than from organisms and departments of the Central Administration (31).

1 Local
vs.
NAT. gov't
or Fed'l.

Finally, there are 15 documents coming from international organizations or foreign institutions, and 12 more coming from industrial companies.

The following statements summarise the final conclusions:

a) Spanish input to the SIGLE database is highly diverse when considering the types of document imputed.

b) As expected, most documents are published in spanish, but there is also a straight 30% of the documents published in other languages.

c) Distribution by subject is similar to that of the whole SIGLE database, with slightly higher figures from the *biology and biomedicine* and *social sciences* fields, and a significantly lower input from the *technological* fields.

d) Most of the documents are dated from the 1991 to 1992 period, with isolated exceptions, and the oldest document dating from 1978. About this point, is worth to remember that effective incorporation of Spain to the SIGLE system took place in 1992.

e) Universities and research centres are responsible of more than a 50% of the documents imputed, with a minimal contribution from the private sector.

Graphic 1

Coverage by Subject in the Spanish Input

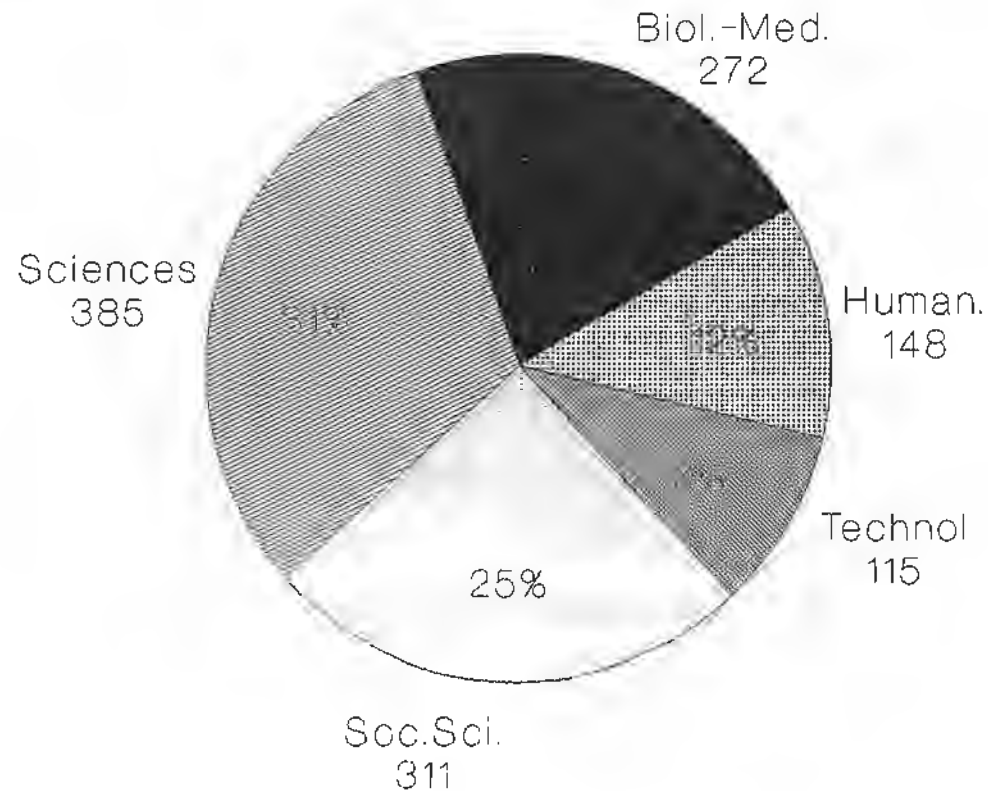
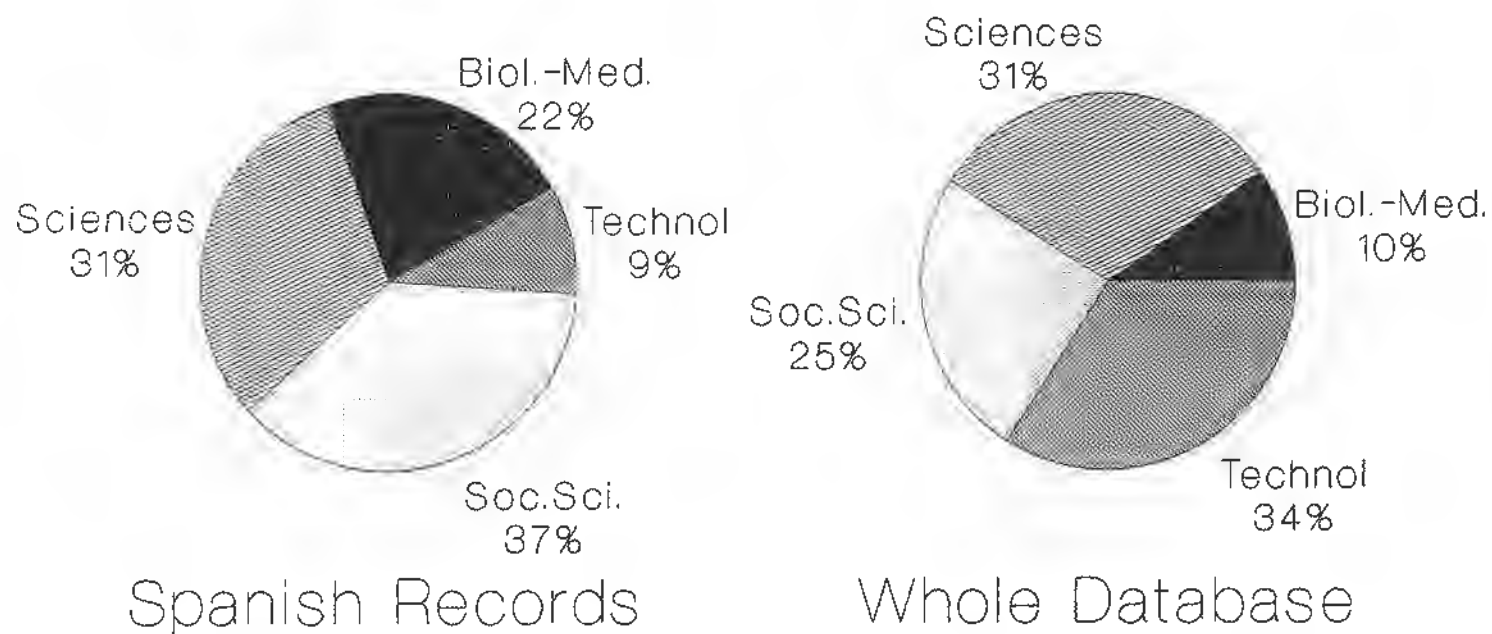


Table 2

Coverage by Subject



Concept of joining SIGLE by Hungarian libraries

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Abstract

Hungarian libraries with stocks of different types of grey literature make efforts for joining SIGLE. Through this database Hungarian documents as doctoral dissertations (theses) and other non-traditional -so-called grey - documents would become internationally and widely known.

Theses defended at the Hungarian Academy of Sciences, a collection in the Library of the Hungarian Academy of Sciences would be one part of the Hungarian database. The major part would constitute of the doctoral dissertations accepted at the Hungarian technical universities (Budapest, Miskolc, Veszprém), at the University of Economics (Budapest), perhaps later could be incorporated dissertations from the collections of other universities too.

The Hungarian regulations for obtaining a doctors degree in various technical and economical branches at the universities - similar to the Ph.D. - prescribe to present the dissertations only in three copies as a manuscript, not photocopied or published, either in microform nor printed.

There are no national bibliographies of dissertations, only some universities list their own dissertations periodically. Therefore the availability of these documents is limited and so they can be considered as grey literature.

The project to join SIGLE contains the work to archive a database, i.e. cataloguing, subject classification and English title translations of all items of dissertations in the collections in the format of the SIGLE system.

To enable this work we hope to get help from a project of the European Commission or of the PHARE program.

1. INTRODUCTION

1.1 Obtaining the doctors degree and presenting a doctoral dissertation (thesis)

In different countries there are different regulations for obtaining a doctors degree. After finished studies and passed examinations doctoral dissertations (theses) are to be prepared, presented and defended according to the prescriptions of the universities. After conferred the degree of doctor on somebody, the person is authorized to use the doctors degree, which is also marked differently with abbreviations, i.e. Ph.D., Dr.phil., Dr.-Ing., Dr.rer.nat., Dr.oec. etc.; in Hungarian: Dr. (for all kinds of branches of sciences).

The Hungarian technical and other universities got back in 1957 the right of awarding titles of doctors degrees. According to Hungarian regulations these university doctoral dissertations are to be presented in 3 copies from which one copy is to be kept in the library of the university.

I have to mention that in Hungary not only the universities have the right to qualify scientific research with a degree. The Hungarian Academy of Sciences awards for dissertations submitted to its Qualifications Committee the degree of Candidate or Doctor of Technical (Economical, Agricultural etc.) Sciences (CSc, DSc) - in the Hungarian scientific qualifications system for a higher degree than the university degree - which dissertations are also prepared as manuscripts as the university doctoral dissertations.

1.2 The dissertation as a type of document

Dissertations are considered also in foreign practice as

- grey or
- semi-published or
- not-published

literature although students have to present them in the form of

- microfiche or
- photocopy (xerocopy);

at several universities in 100 copies.

The form of a dissertation can be

- a book (photo-, xerocopied or printed) or
- a manuscript (typed) or
- a microfiche or
- a floppy disk (in the future).

Some of these forms are non-conventional, i.e. they belong to the category of grey literature. But all of these types have one thing common: they are monographs, i.e. a solution and report of one scientific problem.

Form of
GL (thesis)

Because of the different prescriptions concerning the number of copies, these documents are through commercial channels - bookshops - not available only those which are edited by a publisher or appear as a booklet of a series or report of an institute or of the department or faculty of the university.

1.3 Acquisition

The acquisition of dissertations is not an easy task for librarians. They are

- a./ not available:
 - in bookshops except if the text of a dissertation is presented in a published form as a book or a report,
- b./ available:
 - ba./ the university library gets one obligatory copy from the Rectors office or from the faculty deans free of charge,
 - bb./ the university library - if it has an adequate number of copies - distributes them among other libraries
 - in exchange or
 - as a gift.

In Hungary dissertations are to be collected in the university libraries, as I mentioned, as obligatory copies. So another university library can not get the dissertation if it would be of interest because of its subject. Also the Széchényi National Library doesn't get a copy of it because it is a manuscript.

The dissertations from universities abroad can be acquired from those university libraries mostly in the frame of international exchange which have copies for distributing.

Research institutes which are in connection with university libraries have also the opportunity to get them in exchange if they want to collect some of definite subjects - but only from universities abroad.

2. COLLECTIONS OF HUNGARIAN LIBRARIES

In Hungary - due to the type of dissertations mentioned above - dissertations are kept in special collections or as a separate part of the manuscript collection.

2.1 The Library of the Hungarian Academy of Sciences

The Librarys Manuscript Collection contains in its stock the dissertations submitted to the Academy. This collection has the only complete series of dissertations ever obtained for the degree of CSc and DSc, approximately 16 000 volumes.

2.2 University libraries

2.21 The Hungarian technical university libraries

The following technical university libraries are building up their collections since 1958:

- a. Technical University Budapest
Library and Information Centre
- b. University of Miskolc
Central Library
- c. University of Veszprém
Central Library
- d. University for Forestry and Wood Industry,
Sopron, Central Library

In all of these libraries dissertations are collected due to the subjects of their technical faculties. In the last 2-3 years there were new faculties established, i.e. economy, languages, law, humanities therefore the future will bring other than technical dissertations too to their collection.

The technical university dissertations collections have an amount approximately:

- a. 4300 volumes
- b. 750
- c. 750
- d. 350

2.22 Other university libraries

The Central Library of the Budapest University of Economic Sciences has a big collection, appr. 8000 volumes.

The Central Library of the University of Veterinary Science, Budapest has only some hundreds of dissertations, about 800 volumes.

The three traditional Hungarian universities have also their central libraries which collect the dissertations of the humanities and sciences:

- a. Budapest : Eötvös Loránd University
/the predecessor Pázmány Péter
University was founded in
1635/ /appr. 3500 vols./
- b. Debrecen : Kossuth Lajos University
/appr. 1850 vols./
- c. Szeged : József Attila University
/appr. 2450 vols./

3. AVAILABILITY

The holdings of the university libraries are available

- in the reading rooms /not circulated because of their one-copy-status as manuscript/
- titles are to be sought for in the conventional catalogues or
- in the own database on-line catalogue /if it exists/

The dissertations are not processed in the Hungarian National Bibliography nor exists a union dissertation bibliography as the German "Jahresverzeichnis der deutschen Hochschulschriften" etc.

Certain university libraries publish annually, bi-annually or five-years-lists of dissertations:

TU Budapest : "Guide to theses accepted by Hungarian technical universities for doctors' degrees" which contains annually the dissertations of the technical universities Budapest, Miskolc and Veszprém.

UF Sopron : "Dissertations, reports, diploma works..."

UE Budapest : "Doctoral dissertations, diploma works"

All of these lists are very important tools for information but they have all the same disadvantage: they are never up-to-date. Most of them appear only in the second or third year /or later/ after the universities had accepted the dissertations.

4. CONCEPT OF JOINING SIGLE BY HUNGARIAN LIBRARIES

4.1 Subject of the program

Hungarian libraries having in their stocks a collection of doctoral dissertations realized the necessity of joining the world-wide known database SIGLE for making the data of Hungarian dissertations available for researchers in foreign countries.

For this reason the Budapest University Association - a cooperation between the universities in Budapest mentioned before, except Eötvös Loránd University - has entered for a financial assistance in the frame of the PHARE program with the following subject:

Cooperation of the associated universities for establishing in Hungarian and in English a database of data of doctoral dissertations accepted by Hungarian universities; for passing the records at

the disposal of the international database SIGLE and for providing on-line and on CD-ROM the international data of dissertations.

4.2 Main objectives

The main objectives of the draft are the following:

- to provide the users in Hungary and abroad with the results of researches published in doctoral
- to promote cooperation in research,
- to promote the mutual use of information on the contents of the dissertations,
- to participate in the SIGLE international database which would include Hungarian research information in its Europe-wide coverage,
- to allow Hungary's admission in EAGLE with Technical University Budapest Library and Information Centre as national centre.

4.3 Immediate objectives

The immediate objective is to provide international access to the bibliographic data and English (translated) titles of the Hungarian dissertations by

- processing relevant information in a unified computerized system,
- providing access to the database through a network,
- managing the union catalogue of Hungarian doctoral dissertations processed separately by the universities,
- transferring the records of the unified database to SIGLE,
- promoting the on-line use of SIGLE database and subscription to SIGLE CD-ROM,
- ensuring the availability of the Hungarian titles - up to now presented only in form of lists - in English in the database for use by researchers abroad and through this promoting access to Hungarian research results,
- reduction and/or elimination of differences in this respect between Hungarian and foreign universities,
- establishing the computerized system, necessary for accessing information both on Hungarian and foreign dissertations, in particular the SIGLE database,

- the TUB Library and Information Centre as SIGLE-Centre of Hungary should be provided with appropriate personal and technical means for the coordination of the database processing work of the members of the Association and for transferring the data to SIGLE,
- preparing with DTP technique (Desk Top Publishing) periodically a publication on the Hungarian dissertations, making use of the database, including abstracts in Hungarian.

4.4 Some considerations

For the university staff, researchers and students is important in order to increase the efficiency of their work to have access to the relevant and valuable grey literature in their fields of activity.

The preservation of one copy of doctoral dissertations is obligatory, this task has been entrusted to the university libraries.

The development of the dissertation collections is about 100-200 titles/year/ university (at the University of Veterinary Science the half). The university is obliged to offer 1 copy to the university library, therefore the acquisition is free of charge. But cataloguing, computerized processing, translation of titles etc. are very expensive.

The development of the technical background is indispensable to the fulfilment of the project. ETHERNET, INTERNET, X.25., the fiber-optic network provide for the conditions of information exchange and search but a number of workstations are needed for librarians (cataloguing etc.) and for end-users.

5. CONDITIONS

5.1 Institutional background regarding libraries

The universities taking part in the cooperation have a central library and a library network each consisting of departmental, institutional, faculty libraries. The computer technology available allows the search in the databases. The coordinated development is indispensable in the field of establishing the dissertations workstations and the on-line and CD-ROM retrieval facilities.

5.2 Dissertation collections (holdings from 1980, volumes to calculate with, records for SIGLE till 1980 backwards)

- Technical University Budapest	3500	volumes (appr.)
- Budapest Univ. of Economic Sc.	2400	"
- Univ. of Veterinary Science	800	"
- Univ. Miskolc, Veszprém, Sopron	800	"
- Univ. Budapest, Debrecen, Szeged	3200	"
- Hungarian Academy of Sciences	7500	"

Accession/year

- Technical University Budapest	100-150	volumes
- Budapest Univ. of Economic Sciences	100-150	"
- Univ. of Veterinary Science	100-120	"
- Univ. Miskolc, Veszprém, Sopron	30- 50	"
- Univ. Budapest, Debrecen, Szeged	150-200	"
- Hungarian Academy of Sciences	400-500	"

5.3 Computer equipment

The cooperating libraries established a good foundation for the application of the computer technology in library and information work. The resources of the Budapest University Association available or ordered by the end of 1992 were the following:

- Technical University Budapest:

a VAX 6410 mainframe and a microVAX computer with ALEPH integrated library software and micro-CDS-ISIS for the processing of textual information, local ETHERNET network linked to X.25 and INTERNET.

- Budapest University of Economic Sciences:

a VAX 6410 mainframe and a microVAX computer with HUNGALIS integrated library software, local ETHERNET network linked to X.25 and INTERNET.

6. THE RECOMMENDED PROGRAM

The project to join SIGLE contains the work to achieve a database, i.e. cataloguing, subject classification and English title translations of all items of dissertations in the collections in the format of the SIGLE system.

The program contains the following:

- computer processing: acquisition, bibliographic description (cataloguing), classification, definition of keywords, title translation into English; shortening and stylistic corrections of the Hungarian abstract; from these records the retrospectiv and continuous achievement of the own database,

- sending of the own databases records through the TUB Library and Information Centre to SIGLE,
- providing the end-users with the on-line services of the Hungarian databases and the SIGLE database,
- subscription to the SIGLE CD-ROM and providing access for the users,
- participation in the general assembly of the EAGLE member countries and in SIGLE conferences as a new member of EAGLE.

7. PERIODS OF THE PROJECT

Our draft - which contains all the need of financial and personal assistance for the first period of work, i.e. processing the collections of the members of the Budapest University Association - was presented to the PHARE Committee, last month.

As second phase of the project it can be taken into consideration the financial assistance for achieving the database at the Library of the Hungarian Academy of Sciences, later at other university libraries.

The project has planned for the first three years a big amount of expenditures for manpower and hardware. We hope to get help from the PHARE program to enable the work for making Hungarian doctoral dissertations internationally and widely known and to make the use of the SIGLE database possible for Hungarian end-users.

For this reason we hope to get membership in EAGLE and promise that the Library and Information Centre of the Technical University Budapest will provide for the cooperation between Hungary and EAGLE as the National Centre for SIGLE in Hungary.

THE ACQUISITION OF GREY LITERATURE IN DEVELOPING COUNTRIES

INTRODUCTION

Before any attempt is made to discuss the procurement of grey literature in developing countries, it is proper that we endeavour to find out much about this literature. Just as there appears to be a lack of general understanding on what comprises the grey literature in the developed states, (1), (2) the same problem persists among professionals in the third world. Kibirige (3) considers this literature like Bloomfield, (4) as ephemera contrary to the view held by Line (5) who views grey literature as a totally different category of literature divorced from the ephemera. Ephemera according to Line constitutes that kind of literature that has no scholarly or research value. Such literature may comprise publishers' catalogues, publicity brochures, leaflets, etc. A number of writers in this part of the world rarely use the term "grey literature". This collection generally comprises cyclostyled materials produced by government ministries and departments, research institutions, conferences, etc. The difference in the definition of grey literature among professionals in this region does inevitably affect its procurement.

Grey literature in the third world is produced for a specific purpose. In this regard, only limited copies are made to be distributed to specific people. In the case of annual reports for instance, the materials may be confined to decision and policy makers in the government machinery. The producers rarely think of commercializing the literature. Furthermore, such

literature may be restricted from public consumption. Some organizations may produce limited copies on account of financial and other economic constraints.

A number of institutions are involved in the production of grey literature. Among them are government printers. Government printers are state owned concerns specially established to produce all sorts of grey literature for government ministries and departments varying from open to classified literature. Although limited titles may be available for sale, the majority are not sold. Research institutions within the public sector too, produce enormous literature pertaining to the many research programmes conducted in their area of speciality. While part of this collection may appear in the scientific and research journals in and outside the states, a great portion will remain unpublished and therefore inaccessible to the majority of the researchers. Universities, too, are involved in one kind of research or another. Both academic staff and postgraduate students write theses and dissertations as part of their research programmes. Much of this literature is deposited in University libraries and has recently become an excellent research resource. Learned societies and institutions also produce considerable volume of grey literature. Disciplines such as agriculture, medicine, law, library, engineering, veterinary, geology, architecture, etc have set up full fledged professional associations in their respective countries. The associations organize annual conferences, seminars, etc in which highly researched papers are produced. While a few of these may later

appear in form of proceedings, the majority are bound to disappear with the conference(6). In addition, a number of business concerns in the private sector conduct or commission researches in areas of their interest resulting in the production of exceedingly valuable reports. Unfortunately such reports are never disclosed to the public for fear of passing such information to potential rivals.

Procurement of Grey Literature

Acquisition of grey literature is carried out through a number of methods. Purchase is one such method. Since this collection is never stocked in bookshops, the best approach is to procure the materials direct from the producers. This means that the acquisition librarian must have a thorough knowledge of the producers. Since the majority of producers do not compile any bibliographies, the librarian must establish intimate relationship with them so that he is constantly alerted whenever a new title is produced. Acquisition trips may be the most ideal form of purchase of grey literature within states. Inter-state trips may not be feasible as few libraries can afford financing such ventures. However this method is practicable for libraries in developed states where funds are generously available. Both Frankfurt University Library and Frankfurt Main Municipal Library are known to apply this method to acquire materials produced in Africa with great success (7). Some Libraries opt to use acquisition agents. This arrangement requires each Library to appoint an agent in each state to collect and assemble all materials produced in a particular country. Such arrangement

requires the agent to have a thorough understanding of the type of materials sought by libraries in that country. Again, very few libraries in the third world opt for this arrangement on account of limited budgets and scarcity of foreign currency. It is however an ideal method for libraries in the developed states. It is less expensive compared to acquisition trips. Libraries in the US opt for this method.

Another possible option is exchange. This method is popular in both developed and developing countries. All what the acquisition librarian needs to do is to establish exchange agreements with libraries where the materials are sought. The arrangement may involve exchanging materials with libraries owned by the producing institution such as special or university libraries or, teaming up with a library in each country that has the financial and professional ability to acquire the materials produced in that country. The former method is popular in this region as the exchange library generally does not pay for the materials produced by the parent institution. To the contrary, such a practice is encouraged by the parent organization for the purpose of acquiring publications that are generally hard to come by way of purchase. The second option may hit a snag as it requires substantial financial investment on the part of a third world library (6). The exchange arrangement is extremely appropriate in this region where on account of financial constraints, libraries are not financially able to acquire materials from outside. The only important requirement is that the parent institution must have materials to offer in exchange.

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Donation

Donation constitutes another acquisition option although it has its own ups and downs. Since grey literature is not produced specifically for sale, some producers do not mind donating copies to libraries particularly those frequented by their staff. All acquisition librarians need to do is to contact the producing institution from time to time to ascertain whether there are any new materials for donation. Donations are effective only where the recipient library and the donors are in the same state. Inter-state arrangements are less popular on account of lack of patriotism.

Acquisition problems

Grey literature unlike the conventional literature poses serious procurement problems. One problem pertains to the limited imprints that characterise this literature. Materials such as annual reports, research reports, technical reports produced by government and quasi-government institutions are usually produced in limited numbers. Since such materials are destined for limited circulation, producers do not see the rationale of making extra copies for university libraries, national bibliographic agencies or even endeavouring to reserve a few for sale.

problem

Grey literature is characterised by total lack of publicity. An enormous amount of grey literature produced in the third world is never publicized in publications such as trade bulletins, specialist journals or local abstracting and indexing journals. Government press which produces a considerable portion of government publications in any one country rarely produce

catalogues of their materials. In Kenya for instance, the last time such a catalogue was produced was in 1977. In the absence of this vital information, the existence of such vital research materials is not known to the majority of potential users leave alone acquisition librarians.

The acquisition of grey literature in the third world is further compounded by the absence or ineffective bibliographic control programmes. Few states in this region have national bibliographic agencies. For those that do, their bibliographic control activities are far below expectations. Scarcity of funds and skilled manpower have seriously hampered acquisition and documentation programmes to the extent that the national bibliographies are not only demanding in terms of comprehensiveness, but have tended to play a greater role as retrospective rather than current bibliographies. Both Tanzania and Kenya which have endeavoured to publish the national bibliography, have so far managed to cover only upto mid 1980s. Lack of ineffective national bibliographies greatly affects any serious acquisition programmes as national bibliographies by virtue of their comprehensive coverage are considered a vital bibliographic tool for the acquisition of non-published literature.

The nature of the publishing industry too, has affected comprehensive collection of the literature. The industry in this region favours the publication and distribution of school books. Educational books are in greater demand compared to say, research

materials. This trend has encouraged book traders to invest heavily in school books. They consider non-published materials risky enterprises.

As regard materials emanating from other states in the region, their acquisition poses acute problems. Among them is the problem of tracing small private publishers particularly in Africa. The majority of these publishers do not highlight their addresses on the titles. As a result, tracing them can be a nightmare. This is so in instances where the materials are cyclostyled. Where attempts are made to trace them, they rarely respond to any trade inquiries.

Although exchange proves an ideal method of procuring non-published literature in the region, it has its own drawbacks. As stated, the programme requires an exchange library to have regular publications to act as the basis for exchange. Unfortunately, fewer institutions can sustain regular publication of their titles. For those institutions opting to purchase local materials to be used as exchange titles, such arrangements must be assured of substantial financial backing from the funders to save them from imminent collapse. Furthermore, the success of any exchange programme greatly depends on the commitment of the two bilateral exchange partners.

Proposed solutions

The best way to tackle the acquisition of grey literature in developing countries is to approach the issue from the national

point of view. Regional approach would not solve any problem as regional bodies have hardly any enforcement powers on national organizations or governments.

The establishment of a national policy on grey literature

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The most practical approach is the establishment of a clear government policy on grey literature by national governments. Such a policy is no doubt bound to compel producers to deposit copies of their work with gazetted repository institutions.

In fairly large states with substantial numbers of producers, it may be advisable to appoint more than one institution as repository centres while smaller states with less vigorous publishing programmes, one institution may suffice. In Kenya for instance, the government through a major government policy has appointed the Kenya National Archives and Documentation Service as a legal depository centre for materials emanating from government ministries and departments as well as parastatal organizations (9). Until this major decision was made, government publications were never deposited with any bibliographic agency as the Legal Deposit Act of Kenya exempts the government and its parastatal organizations from compulsory deposition of their literature.

Setting up or revitalising national bibliographic agencies

A number of states in the third world do not have national bibliographic agencies. In their absence, vast amount of the national literature output largely goes down to waste. In some

states, leading libraries such as university and public libraries have been appointed to act as national repositories. While these libraries have endeavoured to meet the objective, their performance have greatly been affected by lack of financial support from national governments. As a result, such libraries have not been able to secure sufficient funding and staffing resources to enable them to acquire, process and publicize much of this literature.

For the few states that boast of national libraries, their contributions are far below expectations. Funding again has been responsible for their undoing. It is therefore important that national governments endeavour to establish national bibliographic agencies where they have not been set up and avail them the necessary financial and legal support to enable them to acquire and access all the literature produced in the country including non-conventional literature. Where such agencies exist, all effort should be made by national governments to provide them adequate funding to enable them realize their statutory obligations.

The establishment of national documentation centres

The setting up of national documentation centres will no doubt go along way to contain all unpublished literature produced in a state. The national centres would endeavour to acquire, organize and disseminate information contained in among others, the grey literature which as already stated, takes a big chunk of national literature output. In Tanzania, the Tanzania Library

Service (TLS), has set up the Tanzania National Documentation Centre (TANDOC) to acquire and document both published and unpublished literature produced in the country (10). As part of its current awareness programme, TANDOC produces abstracts and indexing journals highlighting materials acquired during a specific period.

In Uganda, the Institute of Public Administration (IPA) in Kampala officially acts as a national documentation centre for Uganda and performs similar functions as TANDOC. Unfortunately, only a few states in the third world have any significant national documentation centres. It is therefore important that such institutions be created to supplement the work of national bibliographic agencies to enable the state to maintain a complete mastery of the national imprint.

The establishment of documentation centres in sectoral areas

While a proposal has already been made for the setting up of national documentation centres in the region, it is impossible for one national documentation centre in a state to acquire all the literature produced in one country. It is therefore felt that the establishment of national documentation centres in specialized fields such as agriculture, science and technology, medicine, social sciences, humanities, etc., will no doubt go along way to contain practically all the gray literature produced in a country. In Kenya, the establishment of specialized institutions such as the Kenya Agricultural Documentation Centre (KADOC) in agriculture; and the Kenya National Scientific

Information and Documentation Centre (KENSIDOC) in the area of science and technology is hoped to eventually document all the literature produced in the two disciplines. The creation of the Southern African Documentation and Information System (SADIS) hopes to document all literature produced in the member states of the Southern African Development Co-ordination Conference (SADCC) in the area of development information.

While the above proposals may sound appropriate, their implementation will very much depend on the enthusiasm governments in the third world attach to information. In states where information development is considered for all intents and purposes a luxury investment, such proposals will remain long distant dreams particularly at this time when states in Africa for instance, are pre-occupied fighting internal unrest, famine, diseases, ignorance and scarcity of shelter.

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EFFORTS TOWARDS THE BIBLIOGRAPHIC CONTROL
OF GREY LITERATURE IN GHANA

First International Conference on Grey Literature

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S U M M A R Y

Until very recently, little attention had been paid to grey literature (GL) in most developing countries including Ghana. Increasingly, however, GL is gaining importance all over the world and developing countries are also beginning to recognize their importance. The many varied features and sometimes unique characteristics of GL have rendered them rather problematic, even though some of the features favour the not very rich countries which cannot afford to procure all the material they require from foreign sources. Efforts in Ghana to effect national bibliographic control started very well but in the last two decades or so the situation has declined rather sharply. Attempts at complementing these efforts soon started with the establishment of the Central Reference and Research Library of the Council for Scientific and Industrial Research (CSIR). These have gained increasing support and some advancement has been made although there remains room for improvement, especially with regard to the identification and acquisition of GL. In handling GL in developing countries, the assertion is made that there need not be any sharp distinction between conventional and non-conventional literature since their total imprints are generally small, especially with regard to conventional literature, and also because the non-conventional type of GL tend to contain information that cannot be obtained from anywhere else. It is therefore recommended that developing country library and information centres should have a more global perception of information sources and adopt the strategy of networking and resource-sharing in solving their problems.

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Introduction

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The phenomenon of grey literature (GL) is a relatively recent one which has continued to attract attention during the last thirty years or so. In developing countries like Ghana, grey literature is also beginning to attract the concern of national libraries and national bibliographic centres where such centres exist. This is particularly the case in the developed countries where in the United States Library of Congress for example, there is an almost aggressive policy of collecting grey literature from developing countries. In Africa for example there is a centre in Nairobi, Kenya purposely set up to see to collect indigenous literature from the eastern, central and southern African countries. Similar concern exists in many European countries like Sweden and the Netherlands. This interest in African literature has arisen from the increasing interest in African studies which prevails in many universities and in their research programmes.

Until recently, the unique features and other characteristics of grey literature were hardly noticed. However, as a result of the increasing realisation of their importance, especially with regard to the value of information they often contain, grey literature have become a recognisable literature type which requires special treatment.

Features

Some of the main characteristics of grey literature have been identified to include the following:

- They tend to have rather specialised subject content or concentrate on subjects of only local interest;
- their specialised subject content or parochial limitation often renders them unattractive for publication in conventional forms;
- they therefore tend to be issued in rather limited editions or small print runs. This often results in their being issued in mimeograph;

- their non-conventional formats result in non-uniform or variable standards of editing and production;

- their non-uniform standards and unattractive forms make effective pricing, cost recovery and marketing difficult;

- the difficulty in pricing often results in their being distributed at no cost, an obvious advantage to poorly funded libraries in most developing countries;

the limited editions also result in poor availability, limited accessibility, poor distribution, poor publicity and ultimately, poor bibliographic control;

- one issue raised by their poor bibliographic control is that of their failure to provide bibliographic details like the imprint (place, publisher and year of publication), or the International Standard Book Number (ISBN);

- also because of their poor bibliographic control their output is difficult to estimate since they can emerge from the least expected sources, both institutional and individual, and are issued and distributed in a rather haphazard manner;

- their bibliographic control defies the concept of Universal Bibliographic Control (UBC) and consequently they make the idea of Universal Availability of Publications (UAP) seem an elusive mirage;

the question of non-uniform standards of production raises issues like the size, usually only a few pages, which makes them liable to be viewed as trivia;

if they get issued in non-paper media like microfilm or electronic media, they raise even more complex issues of compatibility, and they require special equipment to make them useable. The very fundamental issue as to whether they could or should be acceptable in manuscript form would require addressing;

- the advent of desktop publishing (dtp) has also boosted the ease and rate of production of grey literature and has helped in improving the quality of production;

- the various features which make them unattractive and complex to control and the relatively little value placed on them by libraries contribute to the difficulties associated with their identification, collection and use.

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S.2 | S.3

Some Pertinent Issues

The above features of grey literature which are by no means exhaustive create a situation of ambivalence, which developing countries could exploit to considerable advantage. It is ironical that even though libraries in developing countries lack foreign currency to procure the foreign literature which may not bear direct relevance to their local situations, they tend rather to look down on their own local grey literature which they can usually obtain free of charge. This attitude of libraries in developing countries may be attributed to a variety of causes.

One of these causes has been attributed to what has been termed the "made in there" syndrome, one of the typical vestiges of the colonial legacy, whereby practically everything produced locally is considered inferior in comparison to the imported type. Admittedly, books produced in the developed countries have a high standard of production, are more acceptable internationally and also command greater authority even though they are a great deal more expensive.

Aside from the subjective causes, there are also the clearly demonstrable negative features of grey literature generally, as already identified above. There is the general line of thinking that it is the unattractiveness, limited runs, poor and non-uniform standards of production, poor editing, small size, poor distribution and accessibility that make local grey literature tend to be undervalued by librarians in developing countries. Here also it must be admitted that even if they were attractively produced, some grey literature, for the reasons already given, do not create a strong enough attraction anyway.

Another cause of the lukewarm attitude of libraries in developing countries towards grey literature arises from the fact that most librarians tend to concentrate on books and journals and fail to have a broad perspective of other information resources. This arises from the traditional book oriented attitude of many librarians in developing countries.

Value
Poor production

Librarian's
attitude

Arising from the physical features and even the specialised content of grey literature, libraries in developing countries, because of their limited personnel in terms of both quantity and in cataloguing skills, as well as the general lack of expertise in handling such special material, the subject content of which may not be adequately catered for in the various classification schedules, or the cataloguing of which makes greater demands on the cataloguer, librarians are often not very keen to handle such material.

The flimsy or physical characteristics of grey literature also demand special storage equipment and facilities like pamphlet boxes or filing cabinets which are an additional drain on the limited financial resources of libraries in developing countries.

These libraries also have to contend with the issue of conservation arising from the poor durability of most grey literature which are often produced on poor quality paper, in mimeograph, and in simple binding using metal staple pins.

An important contributory factor to the indifferent attitude of libraries of developing countries to grey literature arises from their generally weak publishing and book development industries. There is ample documentation in Ghana of reasons for the weak book production and publishing industry. Chief among these are the poor infrastructure, weak financial base and lack of adequate incentives for authors and writers leading to poor output.

The weak infrastructure for a thriving book industry also partly contributes to the proliferation of grey literature in many developing countries. In Ghana it has been attributed partly to the spate of local workshops, seminars and conferences by the many emerging professional associations and societies, and the lack of resources and facilities to publish their proceedings. It is also attributable to the development of modern information technologies like dtp which facilitate production of grey literature.

From the Ghanaian experience and future plans, the approach of pooling resources and sharing the workload is recommended as one of the feasible means of bringing about effective bibliographic control of grey literature. Financial and other resources are getting more scarce and donor agencies are likely to support relatively less expensive but impact making projects. The Ghastinet Project is one such which could do with some outside assistance or collaborative effort with other outside agencies. We are ready to welcome any interested agency to talk with us to achieve our objective.

Finally, it is noted that this is the very first international conference ever to discuss the issue of grey literature and that both the developed and developing partners are mutual beneficiaries of the deliberations of this conference. It is therefore recommended that the conference should pay special attention to problems of the developing countries because of their peculiar situation and the potential contribution they can make to the development and growth of grey literature. In doing so it is recommended that the idea of further developing some already existing systems to serve as possible models which could be adapted if necessary, to suit other countries be given very serious consideration.

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Grey Literature in Russia: Acquisition, Access, Perspectives.

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Abstract

Publishing of grey literature in the countries of the former USSR has reduced to that of 1930 and libraries acquisitions decreased accordingly. To compensate the decrease our Library has established direct contacts with major institutes and organizations. Subject scope of grey literature has been transferred from fundamental science to practice. To facilitate access to the collections of grey literature Russian National Public Library for Science and Technology has been maintaining the Union Catalog, a bilingual database and has been developing telecommunication access. As a perspective we envisage the possibility of creating a full-text depository of grey literature stored on CD-ROMs, conversion of printed collections of the Library and development of retrieval and delivery system.

ACQUISITION

*"But there are many pressures to publish quantity,
fewer pressures to publish quality". [1, p.25]*

We would rather prefer to view the bright future of grey literature development from a hill top of the actual 1993 achievements of the kind. Unfortunately the viewpoint of Russian librarians is from the tunnel. The collapse ("perestroika" as it used to be called) of the economy and state management system, which has begun in the late eighties as a result of Michael Gorbachev's political reforms, is still going on. Therefore, on completion of a new series of political transformations in October 1993, Russia is still unable to get out of the economic crisis. And since there exists a close connection between the welfare of the country and the status of its libraries, the majority of libraries today are in a very complicated situation. The mentality of the people and its representatives in the Parliament is falling behind the changes in the state system: libraries are still the last of priorities as they used to be.

This somewhat pessimistic beginning may be illustrated by the situation in publishing. Fig. 1 presents the issuing of non-periodic publications (books, booklets) in Russia [4]. Having reached the level of 50 000 titles a year in the late 1950s - early 1960s, the country (it was precisely the country, since the publishing was performed and supported by the state) kept it stable till the second half of the 1980s. And then - the dramatic fall, the end of which we have not reached yet. It should be mentioned that this drop is a structural one: publishing of political literature reduced by 10 times, while the volume of reference publications remained at the same level. Publishing of children's literature and fiction increased in 1992 thanks to the new private publishing houses, but the dynamics of publishing books and booklets on science and technology (Fig. 2) fits in with the general situation.

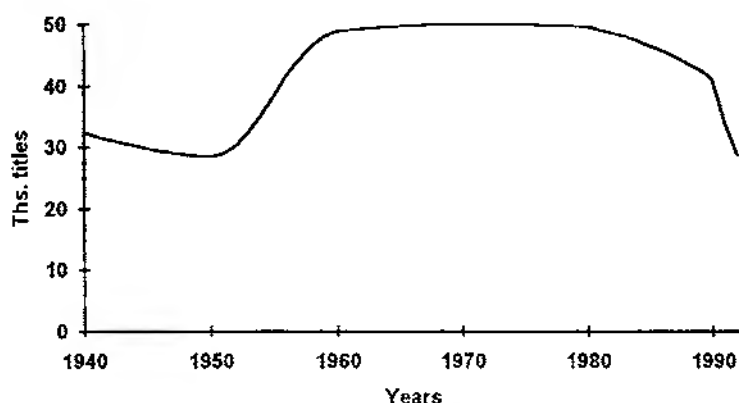


Fig. 1. Publishing of books and booklets in Russia, thousand titles

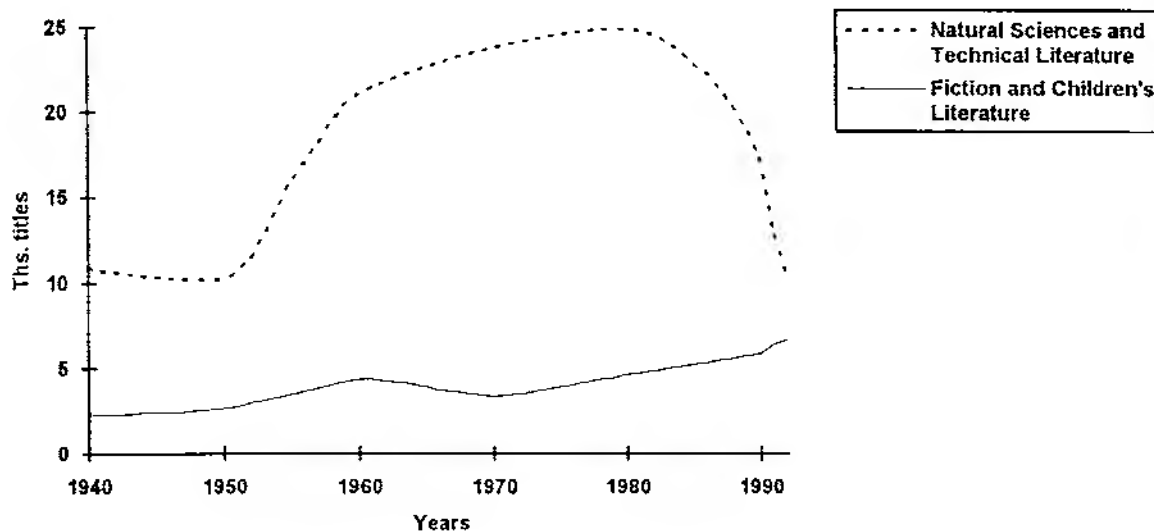


Fig. 2. Publishing of books and booklets in Russia, thousand titles

The change in the Library's acquisition of domestic literature [5] is shown on Fig. 3. The part of sci-tech publications, known as grey literature and reflecting the latests developments is also facing a crisis. We have analysed in detail the reasons for this decrease in our paper on the grey literature of limited circulation in the former Soviet Union [6]. In the conditions of the declining publications and increasing of their cost, libraries find it more and more difficult to meet the needs of their patrons in this type of information.

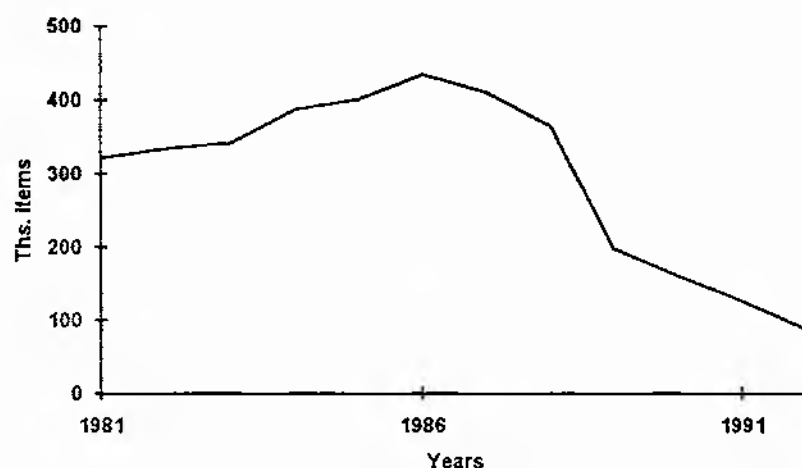


Fig. 3. Domestic literature acquisitions in NPLSaT, thous. items.

Many organizations do not register their publications in the Russian Book Chamber (The National Centre of Bibliography) and do not supply the mandatory copies. That is why our Library has established direct contacts with the major institutes and enterprises of Russia for the purchase of publications. We also conclude contracts on the acquisition of Russian language literature in the FSU countries using local libraries as mediators. This practice has allowed to increase our acquisition of grey literature by 25 percent.

ACCESS

"... switching information, not document" [1, p.13]

We are trying to compensate weakened acquisitions by the "shared resources" approach. The main tool of access to integrated collections is Union Catalog. Thanks to the Union Catalog libraries can develop their cooperation and inform patrons about the newly published literature.

Since 1987 the automated Union Catalog (UC) on domestic grey literature has been functioning in our Library. At present it is the Russian Union Catalog of grey literature, published in the Russian language. The bulk of 100

000 records (about 94 percent) is provided by the Russian libraries (Fig. 4), first of all by the major ones: Academy of Sciences Library, Russian State Library (former Lenin library), Saltykov-Shchedrin Russian National Library, National Public Library for Science and Technology of the Russian Academy of Sciences Siberian Branch, Natural Sciences Library, Central Scientific Agricultural Library. Libraries of the former Soviet Union are still contributing to the development of the Union Catalog: almost all of them took part in the UC in 1992; today, besides Russia, the four FSU republics supply data for the UC. Our contacts with the colleagues prove that many libraries of the FSU republics are willing to return into the integrated information space.

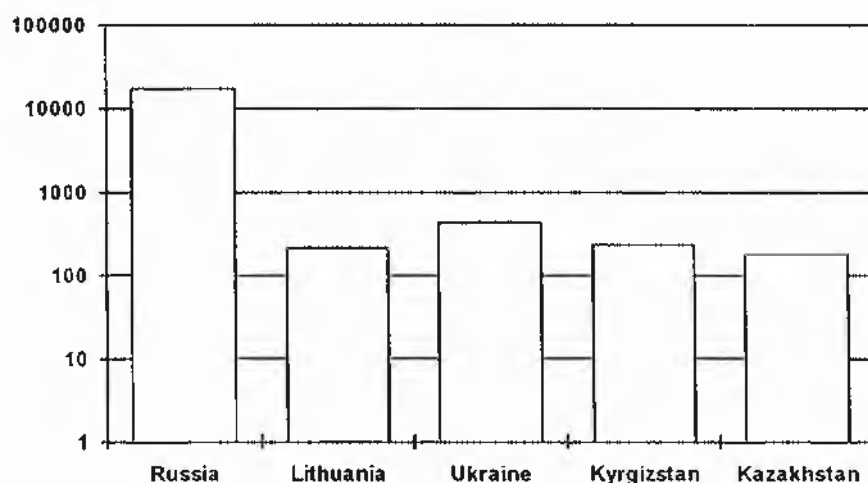


Fig. 4. Union Catalog entries from FSU republics, thous. entries.

The record of the Union Catalog contains the complete bibliographic data and elements of subject retrieval: headings of the State STI Classification System, UDC codes, subject headings, as well as codes of stock-holders. Publications are selected according to the subject (natural and applied sciences, engineering, technology, agriculture, medicine) and the number of printed copies (less than 1500 copies). The basic part of information the Library receives on magnetic tapes from the Russian Book Chamber and converts it in accordance with the system requirements. Being the UC holder, the Library is responsible for the development and maintenance of the database, preparation of the UC printed edition, user access to the database, user service and dissemination of information.

The automated Union Catalog ensures the supply of information by the libraries on current publications available. This very information is the basis for providing users with data on the distributed collections of the country. A substantial decrease in the flow (Fig. 5) has been observed lately. Nevertheless the situation is changing for the better (the main drop in the flow was recorded in 1992) and now a trend towards the increase of information

transfer is observed. This fact requires special attention. If our Library together with other libraries manage to develop this tendency, grey literature users will be able to get more information on the collections.

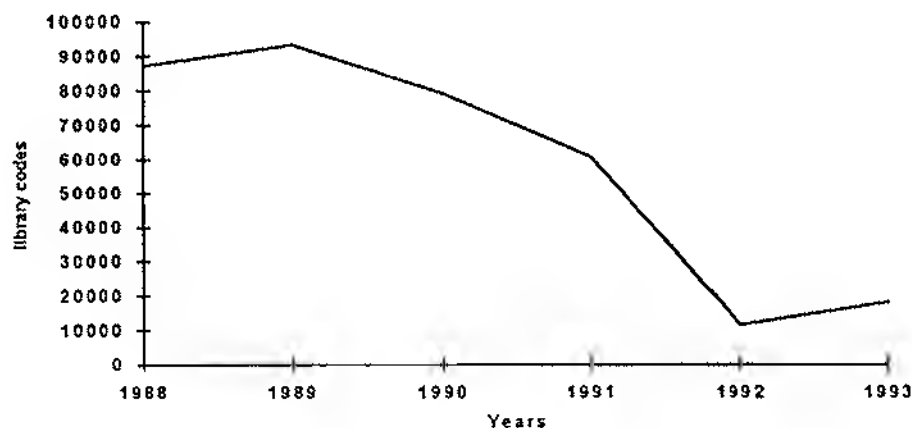


Fig. 5. Entries of library codes to Union Catalog.

The change of grey literature subject scope in the UC is illustrated on Fig. 6. If physics, agriculture, economics and medicine were the key subjects before 1993, physics, computer science, electronics and mechanical engineering are the subjects prevailing today.

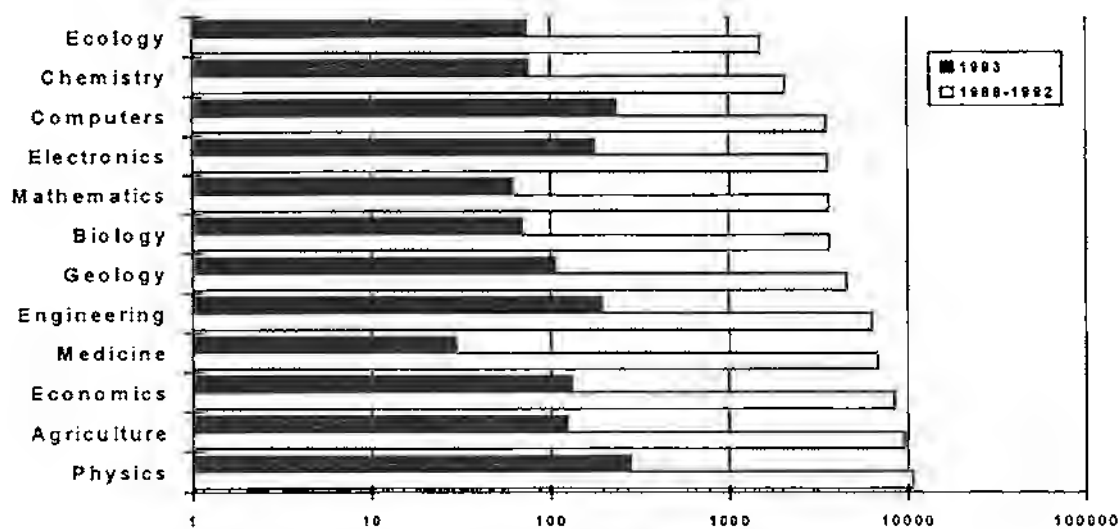


Fig. 6. Subjects in UC.

Since 1991, in order to facilitate the access to foreign users, the Library has been maintaining a grey literature database (8 thousands records). It is based on the Library's collections and presents a value-added part of the automated Union Catalog. It differs from the Union Catalog in the following way:

1) besides the basic elements of a bibliographic description the record includes an abstracts or the contents, which gives more information on the publication;

2) an English version of the database is available, requiring no drivers for cyrillic alphabet. A record contains the English translation of the title, subject headings, corporate authors and an abstract/contents as well as transliterated family names of the authors, place of publication, name of the publishing house;

3) database or its fragments are supplied in MARC format and ISO 2709 standard.

The main information source of the database (preprints, conference proceedings, institutes transactions, scientific reports, etc.) are acquired in one copy. Fig. 7 gives the distribution of editions according to their types. The literature is classified in accordance with the List of Subject Headings of the Russian National Public Library for Science and Technology.

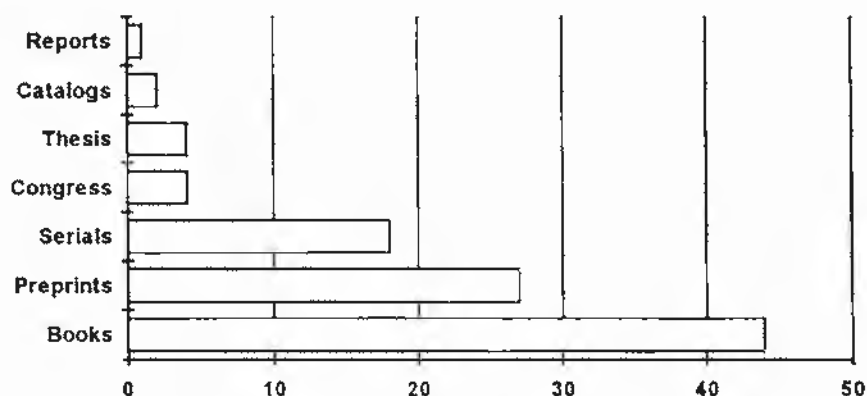


Fig. 7. Forms of publications in DB.

Subject search in the database is conducted by the subject headings, UDC codes in the local and telecommunication modes with the PC Anywhere software. Each database record is supported by a document and user can order a hard copy or microform of the required publication or its English translation. The database is maintained in the CDS/ISIS/M software package environment in the PC LAN.

GL not
in Union
Catalog
but a
separate
Catalog

ISO

Fields list is as follows:

- 08 a - date entered in file
- 15 a - national (Russian) bibl. number (translit)
- 245 a - title (translated), n - number of part, k- form
- 260 a - place of publication (translit), b - publisher (translit),
c - date of publication
- 300 a - page, c - dimension (translit)
- 80 a - UDC
- 650 a - topical term (translated)
- 700 a - personal name (translit)
- 710 a - corporate (translated)
- 711 a - meeting name (translated)
- 520 a - abstract (translated)

The list of the record elements is quite necessary and sufficient for the bibliographic identification of a document and its subject determination. On user request the list of fields may be expanded and the output information presented as a text file in the required format. There is a possibility of a subject analysis and using the results for correction of additional acquisition policy. According to the statistics physics constitutes 45 percent of the database publications.

The Authority File of institutes and organizations whose transactions and publications are reflected in the database enables to find the needed one. The greatest amount of publications is issued by institutes dealing with physical and nuclear research problems and given in Table 1.

Table 1

Acquisitions from organizations

Organization name	Quantity of acquisitions
Institute of Theoretical Physics (Moscow)	100
Institute for High-Energy Physics (Protvino)	152
Research Institute of Solid-State Physics (S-Petersb.)	103
Joint Institute for Nuclear Research (Dubna)	686
P. N. Lebedev Physical Institute (Moscow)	124

The database analysis as to the place of publication shows principal cities in which leading institutes and enterprises are located (see Fig. 8). This distribution could be compared with the extracted (by V.E. Vaskovsky) from Science Citation Index list of Russian science-active cities [7]. The largest number of references is on the studies performed during 1992 in: 1 - Moscow, 2 - S-Petersb., 3 - Kiev, 4 - Novosibirsk, 5 - Minsk, 6 - Kharkov, 7 - Ekaterinburg.

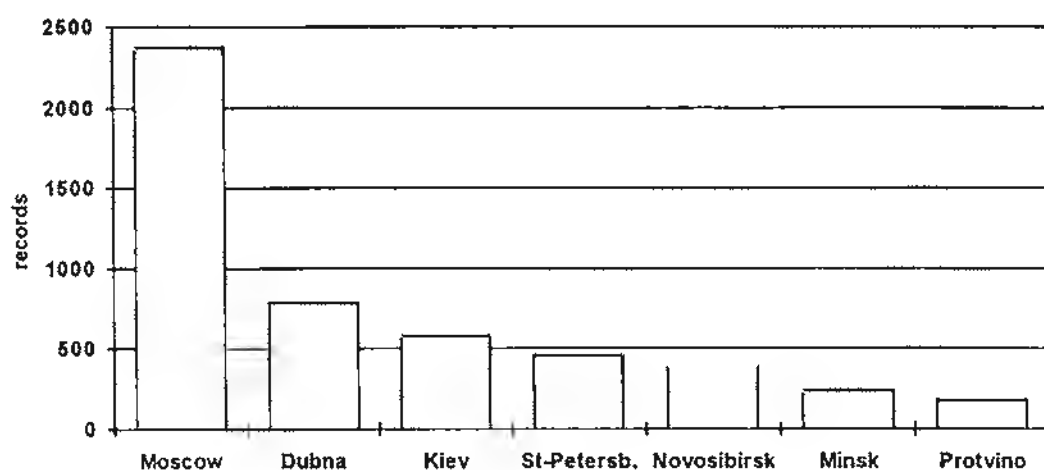


Fig. 8. Place of publications.

The amount of Interlibrary Loan requests for domestic books is presented in Fig. 9. No comments.

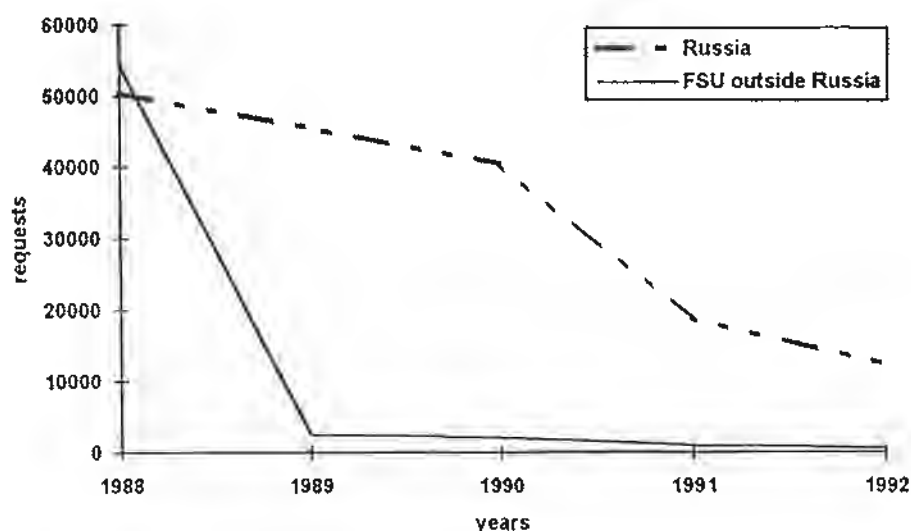


Fig. 9. ILL requests on domestic books.

PERSPECTIVES

"The technical publishing business may gradually be transformed into the information handling business in which the printing press as a means of mass production of identical documents no longer plays a dominant role". [1, p.21]

The present-day information technologies are mainly based on printed publications or microforms. In addition to multiple positive qualities they have some drawbacks. They have a large time gap between the detection of a fact and its publication, they are not quite suitable for information retrieval, for long-term (depository) storing and for fast full-text document delivery. The increased paper consumption provokes the resistance of ecologists. Problems of paper physical conservation as well as loss of control of giant collections are a challenge to major depository libraries.

Experience accumulated in the practical use of databases on magnetic and optical carriers, remote transmission of large information arrays leads to the abandonment of a printed form of publications, employing electronic recording.

In order to provide specialists with the opportunity of rapidly searching for required information and gaining full-text documents we suggest the creation of an electronic depository of grey full-text documents (on compact disks) as well as document retrieval and delivery system.

Compact disk technology provides:

a) machine readability, an efficient search for required information, exchange via telecommunication channels, automatic conversion of full texts as well as production of hard copies;

b) large information capacity allowing to reduce the area occupied by collections a thousand times or so. The reduction of the area, in its turn, makes it possible to form full-valued collections in inexpensive library buildings or to cancel running costs by 30-40% in existing buildings. One can create alternate depositories as well as to completely automate the service;

c) information preservation reliability due to contactless recording;

d) worldwide adherence to international standards;

e) relative cheapness of this technology, that is the lower cost of the recorded information unit compared to other carriers (printed publications, microforms, magnetic disks and tapes).

Offered technology:

1. Source information collection.

Here 2 techniques are used in parallel:

a) electronic files collection, which are generated during desk top publishing;

b) scanning and conversion of printed publications.

2. Bibliographic full-text file processing and text formatting, master-files preparation.

3. In house files recording on compact disks.

4. CD collection storage.

5. User service in the library and via remote access to the collection; establishment of a document delivery system.

All above-mentioned procedures and techniques are already tested and relevant juridical, mathematical, linguistic and technological tasks are outlined. The most challenging problems are: Copyright, OCR for cyrillic texts, full scale scanning of bindings.

Problems
of
CD-ROM

We suppose that development of experimental operation techniques, will take 1 year and 100 000 USD.

Expected results:

- access to full texts of Russian grey literature for specialists of Russia, FSU and Eastern European countries; information support to specialists living abroad (not in Russia and the FSU) by providing them with necessary Russian-language literature;

- modeling of a scheme giving equal access to knowledge, for developing countries.

- generation of a technological base for an integrated, fully automated system of translating Russian sci-tech texts into European languages, as well as for providing the blind, weak-eyed and disadvantaged people with full-valued information in a suitable form.

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HISTORY OF US STI AND SUBJECT CATEGORIES

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The paper pays attention to the history of NTIS, DTIC, NASA and COSATI. The development of the TEST Thesaurus and the COSATI Subject Categories is described and attention is given to Subject Categories for Scientific and Technical Information (STI) and Research in Progress (RIP) and the need for Standardization of Subject Categories and Thesauri.

1. HISTORY OF US STI

The first part of this paper is partly based on the report "Chronology of Selected Literature, Reports, Policy Instruments, and significant Events Affecting Federal Scientific and Technical Information (STI) in the United States", which was published as report nr 11 of the NASA/DoD Aerospace Knowledge Diffusion research project of Thomas Pinelli (PINE 92), and on the report "Helping America compete. The Role of Federal Scientific & Technical Information", which contains more recent information about the STI policy in the US (WOOD 90).

1.1 WEINBERG AND OTHER REPORTS : CENTRALIZED OR MISSION ORIENTED

In 1950 the National Science Foundation (NSF) was created. Its mission included the responsibility for the exchange of STI among scientists in the US. The Department of Commerce was directed to establish a central clearinghouse to make results of R&D available, for a fee, to industry, the public, all levels of government and the military. In 1957 the Sputnik 1 started "the space race" between the US and the Soviet Union and spurred debate on the value of centralized information services like VINITY in Russia and was responsible for Federal funding of a number of STI programs. In 1958 an Office of Science Information Services in NSF was recommended (BAKE 58). In 1962 a NSF report concluded that the Federal systems used to disseminate government technical reports were ineffective and in some cases wasteful and recommended a coordinated government wide policy for technical report documentation and dissemination (O'DO 62).

In 1963 the Committee On Scientific And Technical Information (COSATI) reported about the handling of STI by Federal Agencies to the House Select Committee on Government Research. In 1963 the WEINBERG report asserted that the Federal Government has overall responsibility for the health of the Nation's scientific communication system and recommended that each Federal Agency should disseminate information about Research in Progress (RIP) as well as research completed (STI) (WEIN 63). In 1965 the Defense Documentation Center (DDC) developed the Work Unit Information System (WUIS) for Research in Progress.

In 1963 a NFAIS report gave a systems and economic study of secondary STI products and services. It proposed Organisation "X" to act as a buffer between discipline and mission-oriented abstracting and indexing services and recommended greater cooperation between services (HELL 63). And in 1963 Mortimer Taube, the inventor of Uniterms, proposed a Government Corporation to serve as a central collection, storage and distribution center for STI from NASA, AEC and DoD. The American Library Association (ALA) explored the impact that advances in technology were apt to have on information systems and conceptualized the nature of future electronic libraries and information centers that would operate as part of vast regional information networks (ALA 63). In 1963 a NSF report concluded that a large centralized facility could probably achieve the provision of an effective, exhaustive document retrieval capability (LITT 63). The basis of this report was an operational analysis which could be used in formulating a government policy on centralization of such facilities. In 1964 a NSF report concluded that virtual no empirical work had been conducted to determine the effectiveness of US government technical reports; agencies producing these reports should develop methods to test their effectiveness and should develop experimental formats to determine their effectiveness as communication devices (RONC 64).

In 1964 Frederick Jonker advocated the creation of discipline- and mission oriented networks that would interact through a National Information Retrieval Network Coordination Center, to serve as a central depository and clearinghouse for all STI; Technical and financial aspects of a model information retrieval network were also described (JONK 64). In 1965 a conceptual framework was developed for improved national network of STI, including management and system requirements and need for planning, development, education and policy-making (KNOX 65). In 1966 COSATI and NSF reported the findings of a survey of selected abstracting and indexing organisations in the US and presented recommendations for immediate actions by the Federal Government. 5 appendices reviewed the assumptions and requirements already developed by COSATI for a national document handling system, previous system studies, user studies, advanced technology, and cooperation among abstracting and indexing organisations (SDC 66).

In 1968 COSATI and FCST appraised the role of the technical report in S&T communication and concluded that both the S&T journal and Technical Report are essential in the S&T communication process. Federal technical report producing agencies should demand full and high quality reporting of Government-funded research (COSA 68). In 1970 a NSF report was published, giving 125 recommendations from 4 COSATI studies and one study performed by SATCOM of NAS-NAE. Part I presented recommendations concerning the roles and responsibilities of organisations generating information for the scientific and technical community (COSA 70).

In 1979 the Government Accounting Office (GAO) discussed the management of scientific and technical bibliographic databases by the Federal Government, the existence of overlapping and duplicate bibliographic information services and the application of cost-recovery principles to bibliographic information services. GAO concluded that although the Federal Government spent billions of dollars to create, collect and disseminate scientific and technical information, it paid little attention to information policies of how information activities were managed (GAO 79).

In 1984 Andrew A. Aines detailed the failures and weaknesses of Federal STI policy for the previous 20 years and stated that STI policy in the US had been virtually nonexistent since the demise of COSATI in 1972 (AINE 84). In 196 Col. Aines had been involved in the NSF/COSI/SSIE Common Vocabulary study (HAMM 63) and in 1972 he was the last acting COSATI chairman). NSF sponsored studies about technical information transfer (BIKS 84)(BALL 86).

In 1988 the Office of Technology Assessment (OTA) published a report "Informing the Nation; Federal Information Dissemination in an Electronic Age" which includes opportunities and challenges for NTIS, outlined strategies for GPO Deposit Library Program and NTIS (WOOD 88).

In 1989 the US National Academy of Sciences published a report about the user's view in the application of information technology to support the "global research enterprise", examining data collection and analysis, communication and collaboration, information storage and retrieval. Donald Langenberg writes in the preface that there is a revolution occurring in the creation and dissemination of information, knowledge and ultimately understanding. Increased possibilities for information exchange, collegial dialogue, collaboration and access to remote resources exist as high-speed networks, powerful workstations and large multiuser computational facilities are more frequently linked and commonly available (NAS 89).

In 1990 OTA published a report "Helping America compete. The Role of Federal Scientific and Technical Information", which contains information about the STI policy in the US, the philosophy of OMB regarding contracting out and the insistence of OMB on privatization of NTIS (WOOD 90). In this report a decentralized nature of STI is advocated, because centralizing all STI in one databank is neither cost-effective nor technically feasible at this time, could slow innovation and limit opportunities for improving efficiency in the agencies.

In 1991 the GPO Sales Program was discussed. There is a dual distribution policy for government publications. Very often the same publications being sold to the public by the Superintendent of Documents through the GPO Sales Program (by mail or in 23 government bookstores) are simultaneously distributed, free of charge, to the public by, in most cases, the agency/publisher. For 11 publications the government was giving away 2.2 million copies, while at the same time trying to sell 157,000 copies. 50 % of the 14,000 GPO titles sell for under 3 \$, while the average handling cost is 4.51 \$ (FOSS 91). GPO also distributes Government documents without charge to some 1405 depository libraries under the Depository Library Program.

In 1991 "GPO/2001: Vision for a new Millenium" was published (GPO 91) and the GPO Wide Information Network Data Online (WINDO) Act HR 2772 was proposed, to establish in GPO a single point of online public access to Federal databases containing Public Information. Government Information should remain equal available to all (ROSE 92). June 8 President Clinton signed it to Public Law 103-40, but unfortunately the Congress did not authorize funding for this program.

1.2 FROM COSATI TO CENDI AND OMB

In 1947 the Interdepartmental Committee on Scientific R&D (ICSRD) was authorized by president Truman to coordinate Federal R&D activities, including STI transfer, and the Office of Scientific Research and Development (OSRD) of Vannevar Bush was terminated. During the war Bush had been president Roosevelt's Science Advisor and since 1941 OSRD had coordinated the activities of 6000 scientists doing Defense R&D.

In 1945 Bush had published the article "As we may think", in which he described the MEMEX machine, a combination of microfilm and photocells (BUSH 45). The MEMEX machine should improve the access to scientific information generated during the war (the roots of report literature) and has influenced Hypertext projects such as Augment (Douglas Engelbart, 1963) and Xanadu (Theodor Nelson, 1967). In the report "Science: The Endless Frontier" Bush proposed a model for the creation of a National Research Foundation (BUSH 45).

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managing

In 1959 the Federal Advisory Council on Science Information (FACSI) was established, to advise the Office of Science Information Services (OSIS) of the National Science Foundation (NSF), sponsored by NSF. In 1959 the Federal Council for Science and Technology (FCST) was authorized to promote closer cooperation among Federal Agencies, and ICSRD was abolished. In 1961 the Committee on Scientific Information (COSI) was established in FCST and FACSI abolished.

COSATI

In 1964 the Committee On Scientific And Technical Information (COSATI) was formed by FCST, by extending the scope of COSI to technical information services. COSATI provided leadership for the following 10 years. The Office of Science and Technology (OST) and COSATI of the Federal Council of Science and Technology carry responsibilities for program coordination and standardization that are exercised through 7 panels, 6 task groups, and ad-hoc working groups. The scope and magnitude of COSATI's concern, responsibilities, and breadth of membership were given in the COSATI 1969 annual report.

12 agencies have membership on the Committee; some 16 additional agencies were represented by observers (PARK 71).

In 1960 the Armed Services Technical Information Agency (ASTIA) published the ASTIA Thesaurus, which was the first Thesaurus in the USA and which led to the development of Thesauri by other Departments. The proliferation of retrieval languages (Thesauri) in the face of the growing need for worldwide cooperation between information systems raised the question : Is there still the possibility of developing a standard language for general use.

COSATI proposed to create a kind of generic superstructure of terms that will subsume a group of thesauri, or other types of vocabularies, in diverse subject fields. This approach was first proposed as a means of interconnecting several vocabularies used by government agencies in the US. The "common subsumption scheme" was developed under the auspices of COSATI and published in 1964 as the COSATI Subject Category List "SCL" (COSA 64).

The list was used to arrange the Government Reports Announcements of NTIS. It has been used to "partition" the terms in several Thesauri (e.g. the TEST) into broad subject categories. (LANC 86)

In 1966 COSATI created a standard for cataloging Government technical reports; followed by major Federal Agencies responsible for technical report processing (COSA 66). The latest revision, reflecting technological developments, was published in 1985 (CEND 85). In 1967 US GPO published the COSATI Guidelines for the development of information retrieval thesauri (COSA 67). In 1968 COSATI originated guidelines concerning a Report Documentation Page (RDP), which were included in the ANSI standard Z39.18 : Scientific and Technical Reports: Organisation, Preparation and Production.

In 1968 COSATI and FCST appraised the role of the technical report in S&T communication and concluded that both the S&T journal and Technical Report are essential in the S&T communication process. Federal technical report producing agencies should demand full and high quality reporting of Government-funded research (COSA 68).

In 1971 NASA, NTIS and DDC agreed to implement the National Microfilm Association 24:1 microfiche reduction standard, based on COSATI-developed standards. In 1971 COSATI and FLC sponsored a Conference on Federal Information Resources, the second conference for information and research library communities (COSA 71).

With a change of administration COSATI was transferred from the Office of Science and Technology to NSF in 1971 and abolished in 1972. The Office of Science and Technology itself was abolished in 1973.

The leadership for STI went to international organisations such as UNESCO, ICSU, ICSTI, EUSIDIC and AGARD-TIP. In 1971 UNESCO and ICSU published the first UNISIST report concerning the feasibility of a World Science Information System (UNIS 71). Later on NASA and NTIS (1976) started to collect foreign reports. In 1985 the UNISIST Guidelines on National Information Policy: (Scope, Formulation and Implementation) were published.

AGARD-TIP, the Technical Information Panel of the Advisory Group for Aerospace R&D of NATO, also published several landmark STI studies.

CENDI

In 1976 the Office of Science and Technology Policy (OSTP) was created, with a Federal Coordinating Council for Science, Engineering and Technology (FCCSET). Neither OSTP nor FCCSET has given much attention to the dissemination of STI documents or databases.

The lack of an equivalent to COSATI, or a formal FCCSET advisory body on STI, in part led to the creation of an informal interagency group CENDI in 1983, to coordinate STI activities of member organisations including DoC, DoE, NASA and DoD. The CENDI agencies represent over 90 % of the Federal R&D budget. CENDI supports a strong OSTP and FCCSET role in STI (WOOD 90). In 1985 the CENDI charter was signed by the member organisations.

CENDI also sponsored revision of the COSATI guidelines for Descriptive Cataloging which were published in 1985 (CEND 85) and defined a common standard report documentation page (RDP) to streamline exchange between the CENDI agencies. In 1986 CENDI was institutionalized by a formal Memorandum of Understanding (MOU) among participants DoC, DoE, NASA, DoD and NLM. During a CENDI meeting of Dec 12, 1989, Andrew A. Aines, former Acting Chairman of COSATI, stated that the last time that various STI constituencies collaborated for ideas, feedback and dialog was in the 1960s. In 1990 CENDI initiated an effort to shift from disciplinary and mission-oriented systems to decision support systems and personalized information systems by the Interagency Working Group on Data Management for Global Change (IAWGDMGC). Five federal agencies DoC, DoE, NASA, NLM and DoD are trying to integrate their information management systems to mobilize national resources in a coordinated manner, to move the nation into the next generation of information support systems (COTT 90).

OMB

The low profile of OSTP with respect to government-wide STI policy ceded the dominant executive branch policy role to the Office of Management and Budget (OMB). Under the Paperwork Reduction Act of 1980 an Office of Information and Regulatory Affairs (OIRA) was formed within OMB, to minimize the cost and maximize the usefulness of information collected, maintained and disseminated by the Federal Government. In 1985 OMB published circular A-130 on "Management of Federal Information Resources", emphasizing that Federal Agencies place maximum feasible reliance on the private sector for information dissemination and that cost be recovered through user charges where appropriate. In 1986 the Act was amended to explicitly include information dissemination within its scope. In 1989 some STI agencies, notably NTIS and various agency information clearinghouses and libraries, had to defend their programs against privatization proposals (WOOD 90). The Reagan and Bush administrations have thought of information as a commodity first. An Improvement of Information Access Act HR 3459 has been proposed.

A new National Science & Technology Council which consolidates the Space Council, FCCSET and the Critical Materials Council was proposed in the study "Reinventing Government" (GORE 93).

The new body will be given greater authority to set priorities, to direct policies and to participate in the budget process in areas such as high performance computing.

2. HISTORY OF NTIS, DTIC AND NASA

- 2.1 NTIS : 1945 : Publications Board (PB)
- 1946 : Office of Technical Services (OTS)
- 1965 : Clearinghouse for Federal Scientific and Technical Information (CFSTI)
- 1970 : National Technical Information Service (NTIS)

In 1945 the Publications Board (PB) was founded by President Truman, replacing the Office of Scientific R&D (OSRD) of Vannevar Bush. The Publications Board was authorized to disseminate technical reports to Industry. In 1945 the Office of Declassification and Technical Services of DoC combines the activities of the Publications Board, National Inventors Board and the Committee on the Release of Scientific Information (CORSI).

In 1946 the Publications Board was renamed the Office of Technical Services (OTS) of the Department of Commerce, that started publishing the "Bibliography of Scientific and Technical Reports". In this bibliography the reports were given PB-numbers as accession numbers.

In 1950 OTS was authorized to establish a central clearinghouse for STI, and in 1954 dissemination of STI through OTS became official DoC policy. Since 1963 unclassified reports about DoD R&D (50 % of all DoD reports) were processed by OTS and included in the Bibliography of Scientific and Technical Reports. The Defense Documentation Center also provided data processing services on a reimbursable basis till OTS/CFSTI in 1968 acquired its own IBM computer.

In 1964 indexing for database was changed to conform to COSATI Descriptive Cataloging of Government STI and a Selective Research In Microfiche (SRIM) was started.

In 1965 OTS was renamed Clearinghouse for Federal Scientific and Technical Information (CFSTI), created in the National Bureau of Standardization (NBS). Input from NASA, DoD and CFSTI was merged to issue a Government-wide consolidated index of Federal scientific and technical reports, the US Government R&D Reports (USGRDR).

In 1970 CFSTI was renamed National Technical Information Service (NTIS), designed to be largely self-supporting. NTIS was established by the US Department of Commerce to simplify and increase public access to federal publications and data files of interest to the business, scientific, and technical communities. The Clearinghouse for Scientific and Technical Information in the National Bureau of Standards was transferred to the NTIS; its functions merge with a broader mission for NTIS (PARK 71). The Government Reports Announcements (GRA) was published.

In 1976 NTIS initiated its international cooperative program.

In 1984 NTIS joined the Commerce, Energy, NASA and Defence Scientific and Technical Information Group (CENDI), to improve productivity of Federal R&D through efficient and responsive technical information cooperation.

In 1986 NTIS initiates computer-aided cataloging and drops COSATI subject categories in processing and announcing technical reports. In 1988 the Office of Technology Assessment (OTA) published "Informing the Nation - Federal Information Dissemination in an Electronic Age" which includes opportunities and challenges for NTIS, outlined strategies for GPO Deposit Library Program and NTIS (WOOD 88).

The NTIS database has an annual growth of some 60.000 reports. See table page 17.

<u>Department</u>	<u>Annual growth</u>	<u>Accession number</u>	<u>Thesaurus terms</u>	<u>Original Subject Categories</u>
DoD	14.500	AD-A	DTIC	DTIC
DoE	12.000	DE	Energy	
Education	800	ED	ERIC	
NASA	7.500	N	NASA	
NTIS	20.000	PB		SRIM

The NTIS database contains Accession nrs of the cooperating Departments.

PB numbers are being given to reports indexed by NTIS,

AD numbers to reports indexed by DTIC,

N numbers to reports indexed by NASA,

The NTIS database gives online access to 1,6 million items, 80 % of the 2 million titles collection. The NTIS database was one of the first databases that came online, in 1972 at Lockheed/Dialog. The NTIS database was also one of the first databases that came available on CD-ROM in 1985 (Silver-Platter, now Dialog too).

Since 1971 NTIS, NASA and DTIC are using 24:1 microfiches for the distribution of reports. Because NTIS has agreements with document supply centers all around the world which stock microfiches of NTIS reports, it is easy to obtain microfiches of reports after searching the NTIS database. NTIS users can also subscribe to Selective Research In Microfiche (SRIM), which allows them to automatically receive microfiches of all reports of a certain SRIM Subject Category (modified COSATI).

NTIS must operate its clearinghouse on a break-even basis with no appropriated funds. NTIS uses revenues from brokerage fees and services to other agencies, along with product-line pricing, to offset the losses that would otherwise occur due to the many NTIS documents that register no or very low sales volumes. NTIS ships about 3 million items each year, but in the past the maximum has been 6 million items each year. NTIS sales of paper or microfiche documents continue to decline. The average total demand for NTIS documents is 50 copies over the life of a document, and one-quarter to one-third of the documents never sell a copy.

From 1981 to 1991 the share of revenue from electronic products increased from 6 % to 28 %, while the share for printed products fell from 73 % to 59 %, and for microfiche products fell from 21 % to 13 %.

In 1989 NTIS had to defend its programs against a privatization proposal of OMB. After years of declining demand for paper and microfiche products and the debate over privatization, Congress has directed NTIS to modernize. But OMB insistence on privatization - which was overruled by Congress -, might have resulted in a 2-3 year delay in the modernization of NTIS (WOOD 90).

NTIS has developed a preliminary plan to increase its use of electronic formats, including CD-ROM, electronic bulletin boards, and ultimately, an electronic document system that could accept input from the source agencies and support electronic printing-on-demand.

To be successful, NTIS will need to reduce per-unit costs, decrease time delays between the existence of a document and its availability via NTIS, and increase user awareness of NTIS services (WOOD 90). In 1991 a feasibility study for FEDLINE, a Government Information Locator system at NTIS, was proposed in HR 1989.

Microfiche
SRIM =
SDI =

Down
use

Note *

6 28 - Electron Product
73 59 - Paper
21 13 - FICHE

5.2

In 1984 NTIS began a quality management program. Order fulfillment time decreased from 14 days in 1989 to 6,4 days in 1991. In 1992 the NTIS Total Quality Management (TQM) Initiative led to such a good response that the latest success stories about 99,9 % accuracy and Super Duper Rush Emergency document delivery by FAX within one hour were published in summer 1993. A catalog of Federal TQM documents is available free for the asking as PR-893.

FEDRIP

In 1949 the Science Information Exchange was created by 6 government agencies and departments engaged in medical research, to serve as a clearinghouse for in-progress scientific research in the medical and allied fields. In 1958 the Office of Science Information Service (OSIS) was recommended (BAKE 58) and created in NSF. In 1960 the Bio Sciences Information Exchange (BSIE) of the Smithsonian Institute was expanded to include Physical and Social Sciences, which made possible a Current Federal R&D information exchange. In 1962 the National Referral Center for Science and Technology (NRCST) of the Library of Congress was established to give information about who is working on what. In 1963 the director of OST asked NSF to continue BSIE as the Smithsonian Science Information Exchange (SSIE).

In 1981 the tasks of the SSIE went to NTIS. SSIE was replaced by the FEDRIP (FEDeral Research In Progress) database, that came available online at Dialog in 1983. The FEDRIP database has information about 100,000 projects and should prevent duplication of effort. Annually some 9,000 new projects are added. The projects are obtained from organisations such as NIST, NASA and DoE.

2.2 DTIC : 1950 : Armed Services Technical Information Agency (ASTIA)
at Wright Patterson AFB. 1958 : Arlington
1963 : Defense Documentation Center of DSA, Alexandria (DDC)
1979 : Defense Technical Information Center of DLA (DTIC)

In 1945 the Library of Congress was funded to collect, process and disseminate Scientific reports for the Navy (later Army too), this was called the LC Sci Tech project. In 1947 the Central Air Documentation Office (CADO) was created from the (WWII) Air Documents Division.

In 1950 the Armed Services Technical Information Agency (ASTIA) was established, to coordinate DoD STI activities. ASTIA absorbed the activities of the LC Technical Information Division (TID) and CADO. In 1953 ASTIA started publication of the Title Announcement Bulletin, by merging the Technical Information Pilot of LC and the Technical Data Digest (TDD) published by ASTIA (Technical News Service existed since 1926, TDD since 1932). In 1957 the title became Technical Abstract Bulletin (TAB).

In 1952 ASTIA published the ASTIA Subject Headings and in 1960 ASTIA published the ASTIA Thesaurus. The first ASTIA Thesaurus was the authority used to translate the subject heading assignment of all AD documents beginning with AD 1 (february 1953) (KLIN 64). After more than 200,000 documents had been indexed a thorough revision was accomplished with the assistance from many Federal Government organizations and representatives from more than 100 industrial, educational, and research organisations. The second edition was published in December 1962 (GILL 61)(ASTI 62)(WALL 62). The Thesaurus contains 5 parts: A Scope Note Index, Descriptor Groups with Descriptors, Descriptor Fields with Descriptor Groups, Descriptor Fields, Generic Charts. An interim DDC Thesaurus was published in 1966.

In 1959 ASTIA libraries were automated using IBM solid state 90 for search formulation. In 1963 ASTIA was renamed Defense Documentation Center (DDC) of the Defense Supply Agency (DSA), and used UNIVAC 1107 direct file batch processing for bibliographic printouts. Since 1963 15.000 unclassified DDC reports were annually integrated in the Bibliography of Scientific and Technical Reports of OTS, with an ASTIA document nr (AD-number) as accession number.

In 1965 the Research and Technology Work Unit Information System (WUIS) was established, which contains research management information and descriptions of R&D efforts at the work unit level currently being performed by DoD or DoD contractors.

In 1966 the Division/Section method of subject categorization of DDC was converted to the Field/Group structure of the COSATI Subject Category List, DoD Extended, AD 624 000, to make all DoD databases compatible by subject area; response to a need for uniformity (COSA 66).

The Thesaurus of ASTIA descriptors was named Thesaurus of DDC descriptors (AD 950 016), which later was renamed to DDC Retrieval and Indexing Terminology (DRIT, AD 773 000).

In 1970 the Current Awareness Bulletin (CAB) service was started. CAB is a customized automated subscription bibliography based on the Subject Category needs. When DDC started using microfiche in 1971, the Automatic Dissemination of Documents (ADD) service was started. Under the ADD program, users automatically receive microfiche copies of newly acquired reports which match their interests, twice a month. ADD is also based on the DDC Subject Categories.

In 1972 the Defense RDT&E Online System (DROLS) became operational, which is being used for input, search, retrieval and ordering of documents. The TR bibliographic database now contains nearly 1,5 million citations to technical reports, and about 30.000 new items are added annually.

The WUIS database contains information about ongoing DoD research and technology efforts : what, where, when, how, at what costs, by whom, and under which sponsorship research is being performed. The file contains more than 200.000 records, of which about 27.000 new records are added each year. Because formerly DD Form 1498 has been used for data-entry, the WUIS database is frequently referred to as the 1498 database. Presently work unit data is submitted in machine-readable form, and easy used PC software packages (type dBase IV) are available for inputting data to WUIS. In 1972 the Independent Research and Development (IR&D) database was also established, which contains research management information descriptions of Defense contractors' present R&D efforts that are funded independently by industrial organizations in order to compete for future DoD contracts. The file contains more than 124.000 records, of which about 7.500 new records are added each year. In 1981 Canada got access to DROLS.

In 1974 the Report Documentation Page (RDP) was introduced for data-entry of the TR bibliographic database, using DD Form 1473 which was based on the COSATI Guidelines that later led to ANSI standard Z39.18. Presently form SF 298 is being used. Each technical publication is required to have a completed SF 298, (NSN 7540-01-280-5500), preferably placed at the front of the publication. In block 14 of the form subject terms should be mentioned, terms from the DTIC Thesaurus and locally assigned ones.

In 1979 DDC became the Defense Technical Information Center (DTIC) of the Defense Logistics Agency (DLA). In 1980 the Information Analysis Centers (IACs) of DoD became part of the DTIC mission. In 1986 the Technical Reports Awareness Circular (TRAC), an unclassified publication without subject index, replaced the Technical Abstract Bulletin (TAB). Because the lack of an subject index caused a significant drop in subscriptions, TRAC was abolished at the end of 1989.

In 1986 DTIC published a new DTIC Subject Categorization Guide for Defense Science and Technology AD-A172 650. The separate DTIC Thesaurus AD-A226 000 was published in 1990. Annual updates of the DTIC Thesaurus are published in october. The DTIC Thesaurus on Diskette is available for \$49.

In 1987 DTIC published the STINET report, which describes several related development projects such as the DGIS Gateway, the Local Automation Model (LAM), the Directory of Resources, the Common Command Language, and the SearchMAESTRO/Easynet end-user interface (COTT 87). The Local Automation Model led to the development of the STILAS software by SIRSI, based on a combination of BRS/Search for retrieval and Unicorn for Library collection management. Simultaneous access of local files and databases on Dialog and BRS was made possible by the Retrieval Interface Manager (RIM). The Department of Defense Gateway Information System (DGIS) offers convenient access to DROLS, other major US Government databases, and commercial databases. In addition to gateway access, DGIS also offers electronic mail, downloading of search results, and post-processing features such as merging, editing, and sorting. In 1988 a STINET bibliography was compiled (KUHN 88).

In 1991 DTIC was transferred from the control of DLA to that of the Office of the Under Secretary of Defense (Acquisition). 1992 brought a reorganisation and an increased movement toward fee for service, necessitated by the Defense Business Operations Fund (DBOF) : \$100 registration fee for the use of DROLS and fees for CAB.

In 1993 DTIC became very much involved with the DoD Corporate Information Management (CIM) Initiative, which charges DoD functional managers (IAC's) with the execution of process modeling and Activity Based Costing (ABC). DTIC is the focal point for the exchange of CIM information and a help desk service assists those interested in CIM. Ordering DTIC products via E-mail (Internet) became available in 1993.

In 1991 DTIC produced a CD-ROM of the TR database. The two-disk set, which is updated quarterly, contains unclassified citations to technical documents entered into DTIC's collection since January 1970. In 1992 the Department of the Navy has produced a CD-ROM product containing all unclassified WUIS records and all Navy patents. January 1991 DTIC began accepting non-print products : Video-recordings, computer diskettes, and CD-ROMs. A Report Documentation Page (RDP) for non-print media was introduced.

Microfilm/Microfiche From 1960 to 1970 Microfilm has been used by DDC. Since 1971 DDC is using Microfiche, which made possible the ADD service. TDCK has DDC Microfilms from 1960 (AD 205 855) to 1964 (AD 438 825) TDCK has DDC Microfiches from 1966 (AD 485 455) to 1971 (AD 866 486)

2.3 NASA

The history of international aerospace information system development has paralleled that of national aerospace research and development (R&D) programs. The US, a major and early entrant into aerospace R&D, created a national focus in the National Advisory Committee on Aeronautics (NACA) in 1917, when the early library system made extensive efforts to acquire documents from worldwide sources that related to NACA programs. (COTT 92)

In 1945 the National Advisory Committee for Aeronautics (NACA) was founded in Langley Laboratory, which was engaged in R&D for Guided Missiles. In 1955 NACA was authorized to construct certain research facilities at the Langley Aeronautical Library, the Ames Aeronautical Library, the Lewis Aeronautical Library, and the Pilotless Aircraft Station.

After the Russian Sputnik Affair in 1957, NASA was founded in 1958. In October 1958 the Pioneer 1 Space Probe was launched and by July 1969 NASA had amazed the world by landing the first men on the Moon.

From NASA's conception the need for and role of a centralized scientific and technical information system was recognized. NASA's enabling legislation requires NASA to "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof" and to "continue to contribute materially to cooperation by the US with other nations and groups of nations in work pursuant to the Act and in the peaceful application of the results thereof" (COTT 92).

In 1960 NASA gave birth to the NASA Office of Scientific and Technical Information (NASA OSTI), which now is called the NASA Scientific and Technical Information (STI) Program. In 1962 the NASA Scientific and Technical Information Facility (NASA STIF) was founded, a Government-owned, Contractor-operated facility, which now is called the Center for Aerospace Information (CASI). In 1962 NASA started a cooperation with the American Institute of Aeronautics and Astronautics (AIAA). In 1963 NASA started the production of the Scientific and Technical Aerospace Reports (STAR), an abstract bibliography. H.P. Luhn of IBM developed the concept of SDI, and SDI-5 was designed and installed for NASA (HOLM 68). In 1964 NASA actively participated in COSATI. In 1967 the NASA Thesaurus was constructed (INFO 71)

In 1969 the RECON database was developed, providing access to the largest collection of aeronautical and space science STI in the world. The retrieval engine for this STI database, developed by Lockheed, was the first of its kind and was used as the basis for developing the Dialog Information Retrieval Service and other US and foreign government agency retrieval systems. When this infrastructure was developed, it placed NASA as a leader in STI processing from the mid 1960s to late 1970.

In 1984 a system was developed for automatically converting sets of terms assigned by DoD indexers to sets of NASA's authorized terms, which matches concepts rather than words, because 20 % of the report literature added to the NASA database is previously cataloged and indexed by DTIC (KLIN 84). In 1993 this Subject Switching system was improved into an operational online interactive machine-aided indexing tool (KLIN 93).

DTIC

NASA

administrative personnel
aircraft; drones

management, personnel
drone aircraft

In 1988 Thomas Pinelli of Langley Research Center wrote a Doctoral Thesis "Role of the US Government Technical Report in Aeronautics: An Exploratory Study". In this study attention was given to the extent to which the selection of an information source is influenced by the factors of accessibility, expense, relevance, timeliness and comprehensiveness; to the attitudes of aeronautical engineers and scientists toward information technology and toward scientific and technical libraries (PINE 88). This thesis led to the NASA/DoD Aerospace Knowledge Diffusion Research Project, with some 25 reports and papers about the value of STI, the role of Information Intermediaries, the diffusion of technology etc. In 1992 Pinelli mentions Active Diffusion and Intelligent Databases to improve Technology Transfer, coordinated by a body similar to the defunct COSATI (PINE 92).

The NASA STI program is currently pursuing a modernization effort that applies new technology to current processes, to provide near-term benefits to the user. In conjunction with this activity a long-term modernization strategy is being designed to transition the program to a "multimedia global library without walls". Critical pieces of this long-term strategy include streamlining access to sources of STI by using advances in computer networking and graphical user interfaces; creating and disseminating technical information in various electronic media including optical disks, video and full-text electronic publishing (COTT 93).

The NASA Access Mechanism (NAM) prototype graphical user interface (GUI) provides access to remote heterogeneous and distributed information in a manner adaptable to both casual and expert users. Additionally, the NAM provides access to many INTERNET-based services such as Electronic Mail, the Wide Area Information Servers (WAIS) system, Peer Locating tools and electronic Bulletin Boards. The NAM is being developed in a multi-vendor platform environment and the screen formats are X-Windows based. The OSF/Motif toolkit is used for the GUI and SQL is used for database functions. The communications toolkit is TCP/IP based (HUNT 93).

NASA has exchange agreements with other US organisations such as the DTIC and the Department of Energy, Office of Scientific and Technical Information (DoE/OSTI). International exchange agreements consisting of Bilateral Document exchanges (39 with UK, 24 with Japan, 14 with France, 14 with Germany, 13 with Canada and 12 with the Netherlands), NASA/ESA tripartite exchanges and National level agreements are in place.

The NASA Aerospace database contains 2.252.000 English language research summaries covering 1962 to present. Approximately 27 % of the NASA database is made up of R&D results originally published outside the US. This percentage is increasing, in 1990 it was 36 %, as a result of better acquisition processes as well as an increased proportion of the aerospace knowledge base being developed abroad. Material from 34 foreign languages is translated, SYSTRAN automatic translation.

As the aerospace programs of other nations grew, particularly in Europe with the creation of the European Space Agency (ESA), NASA found a natural partner for the cooperation in both its technical and its information programs. More recently in Europe we have seen the emergence of a European Aerospace Database (EAD) concept and an initiative for a Japanese Aerospace Information Reference System (AIRS). Because there is a desire for international cooperation, NASA and ESA have undertaken a survey concerning issues and opportunities for the future of information exchange, e.g. by unification of international aerospace database efforts toward a cooperative international aerospace database (IAD) initiative. The NASA STI program is working with its current exchange partners such as ESA to determine if there is enough support for an IAD to set up an advisory group in 1993 (COTT 92).

As a member of CENDI, NASA in 1990 became involved in the Inter Agency Working Group on Data Management for Global Change (LAWGDMGC). Because no one information center can hope to collect all the relevant text, bibliographic, numeric and visual data about Global Change, the inhabitants of the earth must be informed caretakers and form a coalition, North and South, to collect and provide access to disparate, multidisciplinary sources of information. Standardized tools for documenting and manipulating this data and information should be developed. Emerging information technologies can be utilized to build such decision support systems and personalized information systems. Outlines of some cooperative North/South strategies have been given (COTT 93).

The Continuous Improvements Program at CASI is the foundation for Total Quality Management (TQM) in NASA STI products and services. Four projects have been described (ERWI 93).

3. TEST THESAURUS AND COSATI SUBJECT CATEGORIES

In 1960 the Armed Services Technical Information Agency (ASTIA) published the ASTIA Thesaurus, which was the first Thesaurus in the USA and which led to the development of other Thesauri (VICK 60). In 1961 the American Institute of Chemical Engineers (AIChE) published the Chemical Engineering Thesaurus. By 1963, thesauri were cropping up on many fronts, especially in the fields of scientific research and development. The proliferation of retrieval languages (Thesauri) in the face of the growing need for worldwide cooperation between information systems raised the question: Is there still the possibility of developing a standard language for general use.

In 1963 Hammond, Klingbiel, Aines and SSIE studied a common vocabulary approach for government STI and proposed a single common subsumption scheme (HAMM 63).

In 1964 Klingbiel proposed a National Thesaurus from which selected subsets would be drawn (microthesaurus for specialized subject area's) (KLIN 64).

COSATI proposed to create a kind of generic superstructure of terms that will subsume a group of thesauri, or other types of vocabularies, in diverse subject fields. This approach was first proposed as a means of interconnecting several vocabularies used by government agencies in the US. The "common subsumption scheme" was developed under the auspices of COSATI by a sub-panel headed by Paul Jaske of CFSTI and was published in december 1964 as the COSATI Subject Category List "SCL", having 22 major scientific and technical "fields" in Alphabetic order, subdivided into 178 "groups": 200 Subject Categories (COSA 64). The list was used to arrange the Government Reports Announcements of NTIS. It has been used to "partition" the terms in several Thesauri (e.g. the TEST) into broad subject categories. (LANC 86). COSATI also created the COSATI Guidelines for the development of information retrieval thesauri (COSA 67).

TEST THESAURUS

In order to ease the communication in the field of Engineering, the Engineers Joint Council (EJC), New York, started the building of a "Thesaurus of Engineering Terms" in 1962 (WALL 62) (WALL 63). With funding by NSF this Thesaurus was printed in 1964. Sales of the publication had been quite successful and it could be foreseen that a second edition would be self-sustaining. Simultaneously the US Department of Defense began its so-called "Project LEX" for the development of a DoD-Wide Technical Thesaurus, an official DoD standardization project MISC-0359 with the same purpose (HEAL 67). In a memorandum of 12 October 1965 the Office of Naval Research (ONR) was designated as the Assigned Responsible Agent by John Foster Jr of DDRE.

Both institutions decided later to work jointly on the same project. In the Foster memorandum a requirement of 910 man-weeks (17,5 man-years) of civil service employee time was established. The project used 876 man-weeks. 329 individual engineers and scientists participated an average of 5 days in panel/category sessions led by Eugene Wall. EJC provided the initial computer input, which was merged with terms from an additional 23 source vocabularies (DDC, NASA, NLM, VOLVO). All DDC terms had previously been categorized by DDC's modified version of the COSATI Subject Categories. The cooperation led to the "Thesaurus of Engineering and Scientific Terms" (TEST), which was published by GPO using the new Linotron equipment in December 1967. The costs of building the TEST amounted US \$ 500.000 (SCHO 70). The TEST contains 4 parts : Thesaurus of Terms (430 pages), Permuted Index, Subject Category Index (50 pages), Hierarchical Index. The Fields and Groups of the Subject Category Index are nearly identical with the Subject Category List "SCL" of COSATI. The TEST contains 17.810 descriptors and 5.554 USE terms.

Director of the ONR project LEX was J. Heston Heald, who had some 10 lexicographers and 4 administrative staff on the project. Computer operations were led by W. Hammond (ARIES). Thesaurus rules and conventions were prepared by a Task Group of the Engineering Vocabulary Panel. Members of this Task Group were :
David M. Liston, Batelle Memorial Institution, Chairman
Margaret Hicks, CFSTI, assigned to Project LEX
Jack W. Hilf, Bureau of Reclamation, Dept of the Interior
Terry Gillum, DDC, assigned to Project LEX
Eugene Wall, consultant to Project LEX (through the ARIES contract)

The complete terminology was made available to EJC and DDC on magnetic tape and to NASA on paper. DDC also received 10.000 paper copies. In 1967 DDC assumed responsibility for the continued surveillance and maintenance of TEST, as recommended by ONR to DDRE&E.

Although US DoD had invested much money in the development of the TEST Thesaurus, DDC continued to use the DDC thesaurus for indexing of DoD reports, maybe because the terminology of the DDC Thesaurus and the terminology of the TEST were not quite the same and because DDC did not want to reindex old reports again (they had done that already in 1960). In 1969 Paul Klingbiel of DDC, who had participated in the NSF/COSI/SSIE Vocabulary Study (HAMM 63) and who had been DDC focal point of the project LEX (HEAL 67), reported about Machine-Aided Indexing (KLIN 69). In 1970 he stated that machine-aided indexing of natural language is within the state of the art, and that highly structured controlled vocabularies are obsolete for indexing and retrieval (KLIN 70). In 1971 a planned revised TEST was not made.

But in Australia and Europe the TEST Thesaurus had a big impact. A study was undertaken by ASLIB to compare existing general classification systems and Thesauri. Comparisons were made of 4 general classification schemes (Dewey/DDC, UDC, Bliss and Colon) many special schemes, and some major Thesauri (TEST, MeSH, and Euratom). The study concluded that no existing general scheme would be a satisfactory source for specialist uses and considered at what level standardization might be attempted (ASLI 69). In 1971 Scibor mentioned experiments of ASlib-Cranfield, TDCK and VINITI concerning indexing with UDC and descriptors from TEST (SCIB 71), while Wellisch wrote about a concordance between UDC and TEST (WELL 71).

In Australia the DEFTEST Thesaurus was developed, which is the Defence version of the TEST Thesaurus. Prior to 1984 American spelling was used, English spelling is used from 1984 onwards. The DEFTEST Thesaurus is being used for indexing 2500 items annually which are entered in the Cumulative Abstracts of Defence READings (CADRE) database of Defence Central Library. In 1988 a second edition of the DEFTEST Thesaurus was printed in 2 volumes by the Department of Defence, Canberra, Defence Reports Section.
DEFTEST Volume 1 A-L : AD-A198 267, DEFTEST Volume 2 M-Z : AD-A198 268.

In Europe the TEST Thesaurus was adopted by NATO-PCO for the NATO-PCO database on ESA, by PML-TNO in the Netherlands, by CDIFA in Portugal. A German TEST Thesaurus was published, which was the basis of the Thesaurus of DOKFiz Bw.

NATO THESAURUS

From 1987-1991 the bilingual NATO Thesaurus was developed, which is based on an integrated combination of the DTIC Thesaurus with the DTIC Subject Categories (ZIJL 91). Because the DTIC Subject Categories are based on the COSATI Subject Categories of the TEST Thesaurus, the NATO Thesaurus combines the structure of the TEST Thesaurus with the DTIC terminology.

This means that there is no need for reindexing DTIC reports.

Because the AVOCON module of the Inquire software only allowed 4 digits for Subject Category Codes, the 6 digit codes of the DTIC Subject Categories had to be converted to 4 digit codes : 01.01.02 became 01AB, just as in the 1966 DDC Thesaurus (that also had a TEST structure).

New terminology to be included should be taken from other Thesauri, to promote compatibility with specialist databases such as INSPEC (electronics), NASA (aeronautics), or should be taken from NATO Glossaries, the Federal Supply Code (FSC), the IHS Technical Thesaurus, the International Military Dictionary.

The NATO Thesaurus has to be used as a common core for other NATO specialist databases such as the NIMIC database, because the NATO Thesaurus is not specific enough for the NATO Insensitive Munitions Information Center (NIMIC). The NIMIC vocabulary contains some 10.000 terms, of which at least 1.000 terms could come from the common core. In this case the NATO Thesaurus might develop into the Unified "Total Thesaurus" (SOER 74) or the Superthesaurus.

In 1992 the development of the NATO Thesaurus on the mainframe unfortunately came to a standstill, because NATO started downsizing to minicomputers with ORACLE Rdbms for data and TOPIC retrieval software for text. TOPIC has no Thesaurus management module.

Proposals are being discussed for building a Thesaurus management module in ORACLE.

4. SUBJECT CATEGORIES, CLASSIFICATION CODES AND HEADINGS

BOOKS

In 1815 Thomas Jefferson sold his 6.487 volume personal library to the Library of Congress for \$ 23.950, because the Library of Congress had lost most of its books when the Capitol, then home of the Library, was severely burned. The classification system that Jefferson had adopted for his collection, which accompanied the sale, was drawn from Francis Bacon's division of the sciences into 44 categories or chapters. The classification worked so well that the Library used it until the 1890s (LAMO 93).

In 1876 Melvil Dewey published the Dewey Decimal Classification (DDC) which is being used for shelf-classification of books. In 1892 the Des Moines Public Library was one of the first users. In 1979 the 19th edition was published. The print version of DDC is used by some 200.000 libraries.

The Library of Congress and the British Library are assigning DDC-numbers to English books. Since 1992 DDC 20 is available on CD-ROM (Electronic Dewey) containing the full schedules, tables and index as well as related LC subject headings, which can be used during online cataloging. Because Dewey didn't want to include the amendments that were proposed by the Library of Congress, Hanson and Martel from 1989-1991 developed the Library of Congress Classification (LCC), which was published in 1991. The LCC has some 340.000 LC class numbers and is being used by the libraries of the Vrije Universiteit of Amsterdam and the Rijksuniversiteit Limburg in Maastricht.

LC Class	Class Caption	
QA76	Electronic data processing	A : General
T385	Computer graphics	Q : Science
Z678.9	Libraries	T : Technology
Z699	Information storage and retrievals	U : Military Science
		V : Naval Science
		Z : Bibliography and Library Science

The national french subject headings authority list "Repertoire d'Autorite Matieres Encyclopediques et Alphabetique (RAMEAU) is based on the LCSH subject headings (JOUG 89) and the RVM list of Laval University of Quebec (DESC 92). RAMEAU consists of 122.456 authority records and is available as public file to libraries via SUNIST, the national university network for STI.

In 1905 Paul Otlet and Henri Lafontaine published the Universal Decimal Classification (UDC), which can have up to 200.000 categories and allows for precoordination. For books a mini-UDC of 1000 categories is used in the library of Antwerp University.

In 1957 the SISO classification was published, which is related to UDC and is being used by public libraries in the Netherlands. 1980 : 4th edition.

In 1990 several Dutch libraries that participate in the PICA shared cataloging system have developed a tool for shared indexing, the Gemeenschappelijk Onderwerps Ontsluiting (GOO). The GOO is based on a classification and a separate Thesaurus with 40.000 keywords. The Nederlandse Basis Classificatie (NBC) contains 2000 categories like the mini-UDC.

	UDC	NBC
Medicine	61	44
Economy	33	83

JOURNAL ARTICLES

The Universal Decimal Classification (UDC) of Otlet and Lafontaine became very popular in Europe before the second World War for "deep" indexing of Journal articles. The UDC is even being used by VINITI in Russia and in the Netherlands by KUB/Tilburg, PUDOC/Wageningen, and TDCK.

In Engineering Science the CAL Classification Codes are being used by the Compendex database and Engineering Index Monthly. CAL code

Transportation	430
Automotive Engineering	660

EQUIPMENT

The Federal Supply Classification (FSC) is a Logistics tool being used by DoD for the classification of systems and materials. The FSC contains some 70 groups and 700 class numbers. The FSC code is a part of the NATO Stock Number (NSN), which is used for identification.

Group

10 Weapons	
11 Nuclear Ordnance	
12 Fire Control Eqpt	
13 Ammunition & Explosives	
14 Guided Missiles	
15 Aircraft & Airframe Structural Cmpts	
16 Aircraft Cmpts & Accessories	
17 Aircraft Launching Ldng & Gnd Hdlg Eqpt	
18 Space Vehicles	
19 Ships, SM Craft, Pontoons, & Fltng Dock	
20 Ship & Marine Eqpt	2305 Ground Effect Vehicles
22 Railway Equipment	2310 Passenger Motor Vehicles
23 Motor Veh, Trlrs & Cycles -----	2320 Trucks, Truck Tractors
24 Tractors	2330 Trailers
25 Vehicular Eqpt Cmpts	2340 Motorcycles
26 Tires & Tubes	2350 Combat Vehicles, tracked
28 Engines, Turbines & Components	
29 Engine Accessories	
30 Mechanical Power Transmission Eqpt	
31 Bearings	
32 Woodworking Mchy & Eqpt	
34 Metalworking Machinery	
35 Service & Trade Eqpt	
36 Special Industry Mchy	
37 Agricultural Mchy & Equipment	
38 Cnstn, Mining, Excvtng & Hwy Maint Eqpt	
59 Elctrl & Elctrc Eqpt Components	
67 Photographic Eqpt	
72 Hshld & Commercial Frnshgs & Applncs	
74 Off Mach, Txt Proc Sys & Vis Rcd Eqpt	
75 Offc Supys & Dvcs	
7510 Office Supplies	
7520 Office Devices & Accessories	
7530 Stationery & Record Forms	
7540 Standard Forms	

RDP : NSN 7540-01-280-5500

STANDARDS

The British Standards Institute (BSI) has developed the ROOT Thesaurus to prepare and maintain databases of collections of standards. The subject display of the ROOT is as follows :

A General section
 B Measurement, testing and instruments
 C Science
 D Chemistry
 F Medical Sciences
 G Environmental and safety engineering
 H Agriculture, forestry and fisheries
 I Food technology and tobacco
 J Energy technology
 K Electrotechnology
 L Communication
 M Control and Computer technology
 N Mechanical engineering
 O Military technology
 P Production engineering
 Q Transport engineering -----
 R Construction
 S Mineral extraction technology
 T Materials
 U Metallurgy
 V Chemical technology
 W Wood, paper and textiles
 X Consumer goods and services
 Y Administrative sciences
 Z Social sciences and humanities

QB	Transportation
QBV	Vehicles
QC	Road vehicle engineering
QE	Railway engineering
QF	Water transport engineering
QG	Hovercraft engineering
QI	Air transport engineering
QIC.IC	Aircraft engines
QIC.ICE	Aircraft petrol engines

In 1992 the International Classification for Standards (ICS) was published by ISO, the ISO/INFCO Consultative Group for Classification (CGC) being responsible for updating. A german version was published in 1993, which shows the following fields :

01 Allgemeines, Terminologie, Normung, Dokumentation
 03 Soziologie, Dienstleistungen, Betriebswirtschaft, Verwaltung, Verkehr
 07 Mathematik, Naturwissenschaften
 11 Medizintechnik
 13 Umweltschutz, Gesundheitswesen, Sicherheit
 17 Metrologie, Messwesen
 19 Profwesen
 21 Mechanische Systeme
 23 Fluidsysteme
 25 Maschinenbau
 27 Energie und Wärme übertragungstechnik
 29 Elektrotechnik
 31 Elektronik
 33 Telekommunikation
 35 Informationstechnik
 37 Abbildungstechnik
 39 Feinmechanik
 43 Kraftfahrzeugtechnik -----
 45 Eisenbahntechnik
 47 Schiffbau und Meerestechnik
 49 Luft und Raumfahrttechnik
 53 Fordermittel
 55 Verpackung
 59 Textilindustrie, Lederindustrie
 65 Landwirtschaft
 67 Lebensmitteltechnologie
 71 Chemische Verfahrenstechnik
 77 Metallurgie
 85 Papierindustrie
 93 Ingenieurbau
 95 Wehrtechnik

43.060	Verbrennungsmotore
43.080	Nutzkraftfahrzeuge
43.100	Personenkraftwagen
43.120	Elektrofahrzeuge
43.140	Motorrader
43.160	Spezialfahrzeuge
43.180	Prüfausrüstung

PATENTS

Although Patent organisations in the US, UK and Japan are using their own patent classifications, the patent organisations of most other countries are using the International Patent Classification (IPC). The IPC contains 8 sections, symbolized by a capital letter of the Roman alphabet, 20 subsections, 118 classes, 616 subclasses and over 64.000 groups.

A Human Necessities	B 60 Vehicles in general
B Performing Operations; Transportation -----	B 61 Railways
C Chemistry; Metallurgy	B 62 Land vehicles
D Textiles; Paper	B 63 Ships- B 63 GSubmarines
E Fixed Constructions	B 76 HMarine propulsion
F Mechanical Engineering; Lighting; Heating; Weapons;	
G Physics	
H Electricity	

TECHNOLOGY TRANSFER

In 1992 Technology Classification Codes have been developed by TII, Luxemburg, to classify technology offers and requests within the framework of the Technology Response Network (TRN) service. Because no appropriate classification could be found despite a quite intensive search, TII developed a new classification covering all areas of technology and manageable in size : 500 codes.

1 Biology, Biotechnology		
2 Energy Technologies		
3 Environmental Technologies		
4 Information Technologies, Telecommunications		
5 Basic Industrial Technologies		
6 Sectoral Industrial Technologies - 69 Transport -	692	Motor Vehicles
7 Materials Production and Processing	693	Rail
	694	Road
	695	Shipbuilding

INDUSTRIES

For the Corporate America CD-ROM the US Government Standard Industrial Classification (SIC) product code is being used to describe the line of Business. SIC is used in many databases.

DATABASES : UDC

Now that there are several thousands of databases publicly available online, the inexperienced user needs help in selecting those appropriate to his needs. The basic criterion of selection must be of subject content, and some hosts already provide aid - e.g. DIALINDEX (Dialog), QUESTINDEX (ESA) - as does Easynet with its SMARTSCAN facility (VICK 93).

These help systems are based on Thesauri of databases, and hosts specific.

To help users select online and CD-ROM databases of different vendors other systems are being used. In the Netherlands at Katholieke Universiteit Brabant (KUB) the UDC is being used, in combination with the Nederlandse Basis Classificatie (NBC), for describing databases in the KUB Knowledge Navigator that was developed by Thomas Place.

The class numbers of the UDC are also being used in the EDOR system, which accepts natural language search queries. EDOR asks the user for an initial input, and scans it word by word. For example, the word "brass" is found to index a classnumber whose descriptor is : Copper alloys, Bronzes. Brass.

When a new term "corrosion" is entered, a classnumber is found for the descriptor : Physical and chemical influences. Corrosion. When this descriptor is too general, then "Chemical corrosion" can be chosen from a menu, and then EDOR would search in an appropriate database for the UDC numbers of these subjects (VICK 93).

R&D REPORTS : COSATI CATEGORIES

In Europe several databases that contain report information are using Subject Categories that have been based on the COSATI Subject Categories :

NATO-PCO, SIGLE (European Report Literature), World Translations Index.

In the USA NTIS and DTIC are also using Subject Categories that have been based or are related to COSATI Subject Categories. Although the Subject Category Codes of NTIS and DTIC are different, the Subject Headings of the Categories still have much in common. (See table page 17).

R&D PROJECTS : MANY CLASSIFICATIONS

The 275 DTIC Subject categories that are assigned each year to 30.000 R&D reports for the DROLS Technical Reports database, are also assigned to the 27.000 R&D projects for the WUIS database of on-going research. So DTIC users can easily find information about published R&D reports and ongoing/current Research in Progress projects, using the same Subject category code.

In the US the FEDIX online information service, supported by DoE, ONR and NASA, provides information about Federal R&D opportunities for colleges, universities and research organisations. The FEDIX service is using the Keyword Thesaurus as a classification system for research opportunities. The Keyword Thesaurus has some 2500 Subject Headings and Codes.

010 Geographic Terms	070 Health/Safety/Medical Sciences
020 Agriculture/Food	080 Law
030 Arts/Humanities	090 Management/Commerce
040 Behavioral/Social Sciences	100 Science and Technology
050 Education	110 Other
060 Engineering	120 Energy

In Europe the COMMUNITY Research and Development Information System (CORDIS) describes R&D projects of the ESPRIT, IMPACT and other programmes of the European Community. Several classifications are being used for the subfiles RTD projects, RTD Results, and RTD Publications.

	RTD projects SIC code	RTD results Subject code	RTD Publications Subject code
Aerospace	AER		
Food	FOO	A18	020
Medicine	MED	A26	508
Telecommunication	TEL	D04	730
Transport	TRA	C28	314

In 1975 UNESCO published UNISIST Guidelines on the development of national information systems for current research and organised a symposium. In 1977 an informal meeting was organised about "the state of the art of on-going research information systems and services" : centralized national systems. In Europe the Comité pour la Recherche Scientifique et Technique (CREST) in 1978 preferred mission-oriented information systems.

In the Netherlands in 1977-1978 2 classifications were tested, the International Standard Nomenclature for fields of science and technology (ISN) of UNESCO, and the Nomenclature pour l'Analyse et la comparaison des programmes et Budgets (NABS) of the European Communities.

In 1980 the BSO classification and the NABS classification were chosen for the CILO database, which later became the NOD database of the Netherlands Bureau voor Onderzoek Informatie (NBOI), which contains descriptions of ongoing R&D at NL universities and laboratories :

Humanities/Social Sciences : NBOI classification
 Technical Sciences : BSO classification of Eric Coates
 Applications : NABS classification of European Community

Presently NBOI is using new Discipline Codes (DC), while Universities are still using ISN Codes.

	UDC	NBC	ISN	DC Publ	RTD	FEDIX	BSO	NABS
Physics			22				210	
Chemistry			23				230	
Medicine	61	44		23	508	0785	420	
Psychology			61			0414	450	
Economy	33	83		43				B Air transport
Economic Science			53					C Road transport
Economics						0408	580	D Railways
Transport technology					314		740	67-E Ships

In 1992 the french department of Research and Technology published a report about Research in Progress (RIP) databases (FUNC 92). In 1992 Cuneke Tukker made a survey of Research in Progress databases (TUKK 92). The report mentions the IDEAS project (KEIT 89) and the activities of the European Community concerning the Common European Research Information Format (CERIF) (WOEN 88). The CERIF Format was published in 1991.

Cuneke Tukker and Laurens de Lavieter also designed a model (format) for the comparison of RIP databases. The model has the following fields : name, availability (online or offline), subject area, name and address of host, producer, conditions, participating organisations, fields of the database, language, coverage by country, update-frequency, costs, purpose and motives (TUKK 93). Unfortunately they don't mention a good standard classification to be used for describing the subject area of the RIP databases.

December 2-4 1993 a congress concerning Research in Progress databases was organised in Amsterdam by NBOI. Much attention was given to standardization of RIP databases

5. STANDARDIZATION OF SUBJECT CATEGORIES AND TERMINOLOGY

The uncoordinated growth of databases is an impediment to online searching. Standardization and coordination are required if users are to be able to fully exploit the capabilities of online systems (FIDE 88). Standardization and improvement in Subject Access to recorded information worldwide must be accomplished before Expert systems can be truly useful for Information Retrieval (ALBE 90). Now that there are several thousands of databases publicly available online, the inexperienced user needs help in selecting those appropriate to his needs (VICK 93). An ICSTI report also mentions the need for greater standardization in building databases (WEIS 93). What we need is a harmonized and standardized access to RIP databases and STI databases. This standardization can take place at different levels,

<u>Level</u>	<u>Example</u>	<u>Application</u>
25 Fields Missions	Medicine Defense	Dialog Blue-sheets
250 Groups Sciences		COSATI Subject Categories
2500		FEDIX keyword thesaurus
25000 Things Activities	Equipment	Descriptors
250000 Facets		Patent classes

Standardization at the 25 level isn't very useful,
and standardization at the 25000 level might be difficult.
Standardization might be easier at the 250 or 2500 levels.

5.1 STANDARDIZATION AT THE 250 LEVEL : COSATI

Many databases having classifications at the 250 level began using the COSATI Subject Categories that were developed in 1964 as a "common subsumption scheme" for interconnecting thesauri used by government agencies in the US. In 1967 the TEST Thesaurus was based on a revised COSATI Subject Category List "SCL", having 22 Fields (Disciplines/Missions such as : Aeronautics, Agriculture, Defence/Military, Medicine, Space) in Alphabetic order, each Field having some 10 Groups in Alphabetic order.

Because there was no custodian for the maintenance of the SCL since the demise of COSATI in 1972, there now are many modified Subject Category Lists. In the US NTIS and DTIC both are using more (NTIS) or less (DTIC) modified COSATI Subject Categories. In Europe several databases are also using COSATI Subject Categories and modified COSATI Subject Categories : FIESTA, NATO-PCO, SIGLE, World Translations Index.

<u>Terminology</u>	<u>Number of Subject Categories</u>	<u>Number of Terms</u>
SCL	200 (COSATI)	
DEFTEST	225 (TEST)	
Meeting Agenda	225 (TEST)	
NATO-PCO	225 (TEST)	17.000
WTI	225 (TEST)	
SIGLE	246 modified COSATI	
NATO	275 modified COSATI	13.500
FIESTA/NST	400 modified COSATI	
NTIS/SRIM	400 modified COSATI	

COSATI Subject Categories have numeric codes : 01.01 to 22.09. Although the Category Codes are different, many Subject Headings of NTIS are similar to Headings of DTIC categories (see table).

S.3
Standard.
system

TABLE

The SRIM Categories of NTIS are more or less closely related to the Subject Categories of COSATI and SRIM, but have different Category Codes (see below).

Users of the ADD and CAB services of DTIC have to subscribe to microfiches and abstracts based on DTIC Subject Categories and receive 824 reports about Aviation Technology in one year.

NTIS users of the SRIM service have to subscribe based on SRIM Subject Categories and receive 2616 reports about Aviation Technology in one year.

DTIC COSATI	NTIS SRIM	DoD AD	DoE DE	NASA N	COM PB	TOTAL
01 Aviation Technology	(51)	824	70	1184	295	2616
02 Agriculture	(98)	44	228	49	1348	1984
03 Astronomy and Astrophysics	(54)	82	292	701	122	1236
04 Atmospheric Sciences	(55)	441	359	435	404	1761
Administration and Management	(70)	1083	246	88	1380	2926
05 Behavioural and Social Sciences	(92)	1188	147	88	1241	3312
Business and Economics	(96)	112	113	11	1711	2023
Library and Information Science	(88)	231	242	107	3022	3968
06 Biological and Medical Sciences	(57)	1964	1854	116	4121	8526
Biomedical and Human Factors	(95)	385	80	184	362	1080
Health Care	(44)	172	34	0	1282	1515
07 Chemistry	(99)	1680	2666	254	1816	6901
08 Earth Sciences and Oceanography	(48)	463	1392	432	2531	5465
09 Electrotechnology and Fluidics	(49)	1049	631	410	669	3025
Power Propulsion and						
10 Energy	(97)	208	5519	288	1046	7916
11 Materials	(71)	1034	2091	609	1662	6058
12 Mathematical and Computer Science	(72)	600	374	355	284	1659
	(62)	1631	517	769	1440	4684
13 Building Industry Technology	(89)	167	622	54	695	1762
Civil Engineering	(50)	326	132	12	931	1504
13 Mechanical and Industrial Eng	(94)	564	776	553	1269	3621
Manufacturing Technology	(41)	629	643	571	1378	3568
Marine Engineering etc	(47)	670	160	97	873	1929
Surface Transportation	(85)	237	227	160	1008	1889
14 Test Equipment						
15 Military Sciences	(74)	2755	263	19	1386	4442
16 Guided Missile Technology	(75)					210
17 Navigation,	(76)					275
Detection	(63)					827
18 Nuclear Science and Technology	(77)	77	6057	77	265	7282
19 Ordnance	(79)	492	236	23	109	887
20 Physics	(46)	2357	6252	1681	1512	12687
21 Propulsion						
22 Space Technology	(84)	231	118	1812	105	2424
23 Biotechnology						
24 Environmental Pollution	(68)	396	3069	132	4909	9226
25 Communications	(45)	448	43	375	501	1558

The SIGLE Subject Categories for European reports have been based on the COSATI Subject Categories of the 1967 TEST Thesaurus. Because this list dates from 1967 and had to be adapted to allow for new developments, SIGLE tried to cooperate with NTIS for the development of an Unified List. When this wasn't possible, SIGLE modified the COSATI/TEST list.

The DTIC Subject Categorization Guide of 1986 has 22 + 3 new fields. Some groups have been further divided : 01.01.02 etc. To help you select a category for an ADD or CAB subscription, the DTIC Subject Categorization Guide gives you the category codes of some 10.000 keywords from the DTIC Thesaurus.

The Subject Category Codes of the NATO Thesaurus have 4 digits : 01.01.02 became 01AB.

The SRIM Categories of NTIS have different Category Codes for similar Subject Headings. The SRIM Categories has 40 Fields, with Codes 40-90 (see Table), and 360 Groups

All agencies that are using (modified) COSATI Subject Categories for their Research in Progress (RIP) and Scientific and Technical Information (STI) databases should merge their Subject Categories and produce a standardized international Unified Subject Categories List "USCL" with some 500 Subject Categories.

When this "USCL" would be used by NTIS, SIGLE, WTI and other agencies such as EC/DGXIII (CORDIS RIP database), INIST, JICST, TH, this would really help inexperienced users and online information specialist, and enable easy SDI profiling and downloading, easy comparing databases, easy monitoring of trends etc.

Because many subject categories of STI databases are still related to the 250 COSATI subject categories, it is possible to develop a new standard Unified Subject Categories List "USCL" at the 250-500 level, when the Custodian uses the "USCL" for his own database.

R&D PROJECTS	R&D REPORTS	ARTICLES	BOOKS
DTIC/WUIS	DTIC/TR NTIS/SRIM SIGLE	WTI FIESTA/NST	NATO-PCO

5.2 STANDARDIZATION AT THE 2500 LEVEL : METADATA

Another approach might be the development of an universal METADATA level of 2500 terms for describing databases, projects, reports and books. There are several classifications which could be used for developing this level.

R&D PROJECTS	R&D REPORTS	EQUIPMENT	BOOKS
FEDIX CORDIS	CORDIS	FSC TH	DDC UDC NBC

In 1991 Eric de Grolier expressed his personal opinion that a new classification is needed in 1995 for the free access collections of the Bibliotheque de France, but also for university and public libraries. When Hanson and Martel could develop the LCC from 1898 to 1901, it would not be impossible for a French team to develop a new classification, with examples to draw upon as Bliss, DDC, LCC (GROL 91). If this French team should come available, they could start with merging FSC, DDC, UDC, NBC Categories and FEDIX into a new METADATA classification, that can also be used to describe databases that are related to the CALS standardization initiative.

5.3 STANDARDIZATION AT THE 25000 LEVEL : DESCRIPTORS

In 1964 Paul Klingbiel of DDC proposed a National Thesaurus. And in 1965 DoD and the Engineers Joint Council started working a common Thesaurus. But when the TEST Thesaurus became available in 1967, it was not used by DDC.

In 1974 Dagobert Soergel proposed an Unified "Total Thesaurus" based on a minimal set of general descriptors called an "Umbrella Classification".

The general descriptors that are used by all participating institutions are presented as the inner circle (Core) of the total thesaurus, while the outer circle contains all the specialist descriptors that are used by any participating institution. So the total thesaurus can also be used as a "Source Thesaurus" (SOER 72). This inner circle might be the 2500 level.

In 1975 Brian Vickery proposed a common set of search keys (descriptors) from a single generic (faceted) Thesaurus, to avoid the translation step between systems (VICK 75)

Standard-
ization
is being
von
end-used

In 1989 Marcia Bates proposed to expand and enrich the TERM database of the BRS hostcomputer (which contains merged Thesauri from several fields) with an enormous variety of useful entry terms with all sorts of guidance to decide on the best term for a given search. In this case a Superthesaurus could be developed (BATE 89)

Databases such as CAB, AGRIS and AGRICOLA give access to agricultural information. The CAB thesaurus (50.000 Descriptors) is used for CAB and AGRICOLA, the AGROVOC thesaurus (15.000 Descriptors) is used for AGRIS. In 1989 Information Specialists from NAL and PUDOC proposed to merge the CAB thesaurus and the AGROVOC thesaurus into the Unified Agricultural Thesaurus "UAT". A FAO Concordance list is available which maps CAB Descriptors with the corresponding AGROVOC Descriptors. The CAB and AGROVOC Descriptors and Subject Categories of AGRICOLA and AGRIS are knowledge bases of the AGRIRES expert system that is being developed by PUDOC and ZADI to assist retrieval from agricultural databases (KOEN 92). Presently CABI, FAO, NAL, PUDOC and ZADI are developing the "UAT".

The ERIC thesaurus is used for the ERIC database of the US Educational Resources Information Center, which annually grows with some 30.000 records, and also by a new Commonwealth Education database. This allows Dialog to produce the "International ERIC" Ondisc with separate databases of the Australian Education Index, the Canadian ERIC and the British Education Index. But for the small European Documentation and Information System for Education (EUDISED) database, which annually grows with 1000 records of R&D projects, the very European EUDISED thesaurus has to be used.

A good international Thesaurus might be developed by the combination and integration of a good Subject Category Classification (NTIS/SRIM) with good Descriptors (JICST).

SUMMARY

	25 level	250 level <u>COSATI</u>	2500 level <u>METADATA</u>	25000 level <u>DESCRIPTORS</u>	250000 level
	Missions Fields	Sciences Groups		Things Activities	Facets
R&D Opportunity Project Report Paper		DTIC CORDIS DTIC NTIS DTIC	FEDIX	JICST	
Journal Article		FIESTA	Mini-UDC	UDC	UDC
Book		NATO-PCO	NBC	DDC	
Equipment			FSC		
Patent					IPC

6. CONCLUSIONS AND RECOMMENDATIONS

1. Inexperienced users and information specialists want harmonized and standardized access to mission-oriented and multidisciplinary RIP databases and STI databases
2. For mission-oriented databases in Aerospace, Agriculture, Education Unified Thesauri should be used : NASA UAT ERIC
3. For multidisciplinary databases the easiest way to obtain standardization is the combination and integration of the 400 SRIM Subject Categories of NTIS with the 50.000 Descriptors of JICST. NTIS could start by indexing foreign reports (PB numbers) with JICST terms. After 10.000 reports (6 months) a combination might be developed by using the ZOOM and HYPERLINE commands of ESA. NTIS and JICST : custodians and users.
4. An Unified Subject Category List "USCL" should be developed by an international COSATI organisation with members such as : NTIS, JICST, SIGLE, CORDIS, The "USCL" should be used for multidisciplinary databases, Current Content databases etc.
4. "USCL" and JICST terms could be combined to a new International Thesaurus.
5. A METADATA level classification could be obtained by merging FEDIX, FSC, NBC

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Grey literature and the author/respondant relationship / H. Artus

Introduction

Grey literature is usually supposed to be a medium for informal scientific communication. Research reports are being copied and distributed to other research institutes or research units, to colleagues and friends or to anybody in the scientific scene whose interest shall be attracted to one's own research and research findings.

This idea of grey literature as a medium of informal communication is based on three assumptions:

1. Grey literature is still incomplete and preliminary, thus requiring criticism, discussion and communication.
2. The researcher or author is interested in deciding who receives his reports and preprints and who doesn't thus controlling the structures of information, awareness and communication himself; so he creates exactly the public he supposes to be the most adequate or the best for his findings or ideas.
3. On the other side, the recipients are interested in discussing the papers they receive thus taking their chance of being involved in informal communication about the latest results and helping improve them.

So the idea of informal communication presupposes a *reciprocity*, a commonly shared interest in a pre-discussion of recent results before they enter the (public) discourse of the scientific community. The social roles are different - researcher or author on one side, critic or referee on the other -, but the reciprocity of attitudes and expectations guarantees the stabilization of this interactive system: next time the same game and the same people, but with reverse roles. (The expectation of this reciprocity, one could expect, controls the process of criticism: Since the critic expects the author to be his critic next time, he shall be somewhat cautious in his judgement and criticism.) And it is by this reciprocity or mutuality that the whole connexion of informal communication with its structures is stabilized in the course of time.

So we have to do with the assumption that is is a small circle, nearly a sort of *private scientific community*, consisting of friends and well-known and competent colleagues who discuss new results and ideas in secluded circles before they are formally presented to a wider, heterogeneous and - most of all - uncontrolled scientific public, the scientific community itself.

I think, the common attitudes about scientific communication cannot be expressed shorter and more precisely than *William Garvey* did. That is why I quote his description. Please note that we

have not to do with Garvey's private ideas, but that he is only the one who formulates the wide and undoubted consensus of the scientific community:

"When the scientist is clear enough about his research question to plan his investigation, he interacts with his immediate colleagues, usually to formulate his research problem more precisely..."

"During the first 12-18 months - from the time the work begins until the researcher believes he can give a complete and defensible report of it to colleagues working in the same subject-matter area - the scientist is relatively uncommunicative about his work. Exceptions ... are the casual ... discussions with immediate colleagues."

"Very shortly after the researcher feels he can report his work, he begins to disseminate his findings, a process that continues for many months, usually until he has submitted a manuscript reporting his findings to a journal. Usually the first reports are informal ones, presented to small, relatively sympathetic audiences at gatherings such as colloquia within the scientist's own institution. Next, the researcher launches out into broader territory, perhaps responding to a request that he present his work at a conference sponsored by the agency funding his research..."

"Up to this point, the scientist's dissemination of information on his work is minor and primarily concerns persons who are already aware of the areas or problems he is working on and who may need only the briefest communication to understand what he has accomplished. If all has gone well, the scientist, having tested his findings and their interpretation on fellow workers, is now ready to disseminate his work to larger and larger segments of the scientific community."

"Within a few months, about one productive scientist in four will report his work to a fairly large audience at a meeting of a state, regional, or national professional society. ... (This happens) about 15-18 months prior to journal publication of the contents of most of the papers presented" there¹.

This is a very elegant and convincing description. Nevertheless, I shall try to prove that all these assumptions, hypotheses and interpretations are wrong or can at least be doubted. None of them can be corroborated in such an unequivocal way.

1 William D. Garvey: Communication: the essence of science: facilitating information exchange among librarians, scientists, engineers and students, Oxford, New York et al. 1979, p. 134f; all emphasizes added by me; HMA.

The data presented here are from an empirical survey with 1,600 Social Scientists in (West-) Germany, Austria, and Switzerland.² Please note that not only the data, but the conclusions as well do only hold for the area of the Social Sciences and cannot be generalized to other disciplines or even to Science at all. This would deserve further experience and empirical surveys.

I The data

1. Dissemination behaviour

Let us at first have a look at the genesis of grey literature in the context of the research process.

Explicitely or implicitly I always refer to the assumptions or hypothesis cited above. One of them says that it needs some time until the empirical data are gathered and at least partially analysed so that the first research report can be written and distributed. After this, it still takes some more time for informal communication, for re-writing and improving the manuscripts etc., so that - if a publication is intended that early stage at all - it takes place a considerable time after the first research report.

Production of literature in the course of research projects

In fact, the amount of grey literature as well as of formal publications grows nearly monotonously in the course of time (as table 1 indicates). It is interesting, however, that from the very beginning, there is a considerable number of formal publications, even during the first year of a research project:

2 A list of all grey and 'white' literature from this project is given in the appendix.

Table 1
Production of literature in the course of research projects:
number of (grey and white) documents per research project

Duration time of pro- ject until now (in months)	number of grey documents (μ)	<u>Literature:</u>		number of pro- jects docu- ments	
		number of published documents (μ)	grey plus publ. doc. (μ)		
1-12	1.5	0.4	1.8	72	133
13-24	2.7	1.3	3.6	99	358
25-36	4.6	0.6	5.1	63	322
37-48	3.9	1.8	5.4	35	190
49-60	8.1	1.9	9.3	12	112
>60	5.6	1.5	5.8	22	127
Total:	3.4	1.0	4.1	303	1,242

***) Some notes:**

- The values of this column are not exact sums of the preceding ones. The reason is that in some cases we were given values for grey *and* 'white' literature, in others only for grey *or* white, and in some cases we were given no information at all.
- Please note that the values are *not cumulated*. So the data show the real amount of grey and 'white' documents at different stages of research projects.

The reason, I think, has not so much to do with communication behaviour or the like, but with completely different things. Although empirical research necessarily has to assume the shape of a project - i.e.: a temporary organisation, consisting of a number of people dedicated to a well defined goal - in order to raise research grants, the real research questions, the topics and theories and everything of personal intellectual interest for the researchers go far beyond any such formalisation. Usually, scientists are working in the same field for years and years, so that their *continuous* activities are only arbitrarily segmented by formally defined projects. And so it is no wonder that already at the beginning of such projects there are not only research reports but formal publications as well.

The same holds for papers read at conferences of different kinds. The high rates of papers *already read or to be read in the next time* cannot be explained by the 'dynamics' of the research project itself, I think, but only with regard to such continuities trespassing the borderlines of any formal organisation and definition:

Table 2
Conference papers in the temporal course of research projects³

Project duration time until now (months)	Congress lecture is...				Total (100%)
	already performed	planned*	undecided yet	neither performed nor planned	
	%	%	%	%	
1-12	27.0	22.6	19.0	31.4	23.4
13-24	30.6	30.6	21.5	17.2	31.7
25-36	37.1	22.4	21.6	19.0	19.8
37-48	50.0	25.0	13.3	11.7	10.2
49-60	56.1	26.8	4.9	12.2	7.0
>60	52.2	6.5	10.9	30.4	7.8

N=586

V=0.16154

Missing:176

One could argue that these data were still in accordance with the hypotheses mentioned at the beginning. But actually they are not. The analysis of different types of conferences proves that there is not such a movement from the inside to the outside, from local or regional conferences to national and eventually international ones. Quite in contrary, the researchers seem to take each chance for reading a paper - where and when ever, be it a small session in a regional research committee, a regional or national conference or an international congress. The reason is quite simple: Most projects have a duration time of two or three years. Since conferences dealing with special topics do not take place regularly or periodically, no researcher can accept the risk to miss one of these rare opportunities. So the reason for offering a paper is by no means the idea of ideal scientific communication but quite a pragmatic one.) - - -

Another important question for the real usage and function of grey literature is the number of copies produced and distributed. Table 3 presents the absolute number of copies:

³ All tables present *row percentages* unless something else is explicitly mentioned.

Table 3
Number of copies of grey literature

Number of copies	abs.	percent
< 10	13	10.8
10 - 20	17	14.2
21 - 50	28	23.3
51 - 100	27	22.5
101 - 200	11	9.2
201 - 1000	18	15.0
> 1000	6	5.0
Total:	120	100.0

Additionally, there were 16 cases indicating "more than 100 copies", but without further specification. The highest edition was 30,000 copies!

This distribution, I think, is very interesting. It shows clearly that in most cases the task cannot - or at least: not only - be communication. Twenty percent of all papers had an edition that is hardly equalled by some formal (social) scientific publications!⁴ By the way, the number of copies disseminated by the authors has obviously nothing to do with the size of the research team. The percentages are exactly the same for one-man-projects and for research groups of two or more.⁵

Actually, only one fourth of the copies is distributed to friends and colleagues personally acquainted with the author:

4 It could be interesting that there is a clear connexion between the *duration of research projects* and the number of copies of research reports:

Duration time until now (in months)	Number of copies (average) μ	Number of cases	
		abs.	%
1 - 12	48	22	25.6
13 - 24	66	22	25.6
25 - 36	109	20	23.3
>36	96	22	25.6
Total:	79	86	100.1

5 Theoretical considerations as well as empirical data show that the decisive difference is that between teams of *one* and *more-than-one* researchers. The precise number is rather irrelevant. The researchers' academic degrees, however, have a certain importance. In nearly all cases informal communication is the better (the more 'ideal') the higher the (average) academic degree of the research team is.

Table 4
Recipients of grey literature I

Number of copies given...

	Number of copies total	%
...to colleagues the author is personally acquainted with	1.740	26.4
...to colleagues not personally acquainted with	2.090	31.8
... to others	2.750	41.8
Total:	6.580	100.0

14 researchers said they did not distribute any copies, yet.

Consequently, the percentage of friends and colleagues personally acquainted with the authors decreases with the total number of copies: The more copies, the less personal friends among the recipients:

Table 5
Recipients of grey literature II
(column percentages!)

Grey literature was given to colleagues the author is personally acquainted with:

Number of copies	Yes		No		Other		Number of recipients	
	abs.	%	abs.	%	abs.	%	abs.	%
up to 10	53	51.0	21	38.2	13	30.2	29	26.4
11-20	30	28.9	8	14.6	7	16.3	18	16.4
21-30	4	3.8	4	7.3	9	20.9	7	6.4
31-50	10	9.6	11	20.0	2	4.7	20	18.2
51-100	7	6.7	7	12.7	3	7.0	19	17.3
101-200	-	-	2	3.6	2	4.7	7	6.4
>200	-	-	2	3.6	7	16.3	10	9.1
Total: (100%) N=240	104		55		43		110	

Since multiple answers were allowed, the values of right column are *not* the sums of the preceding ones!

Additionally, we received answers without a numerical specification:

	15	6	17	25
Total (abs.):	119	61	60	135
N= 240				

So far the data dealing with the production of grey literature and its dissemination among colleagues. *In toto* we can say that the dissemination behaviour of researchers does not exclude the attitude of informal communication, but that the number of copies as well as the manners of dissemination point out to goals going far beyond this. We should keep this in mind when dealing with response behaviour of colleagues and eventually with the impact of such communicative feedback.

2. Feedback by recipients

The distribution of responses to grey literature, I think, is very interesting. Remember that I mentioned that the high number of copies pointed out to goals other than informal communication. My argument was that there is only a relatively small number of colleagues who are as well competent for communication as personally acquainted with the author, thus being suitable for informal communication by grey literature.

Table 6 shows quite clearly that the number of colleagues fulfilling these two requirements cannot be enlarged arbitrarily. Up to 20 copies, the percentages of responses remain the same. Any attempt to enforce more responses turns out to be a failure: The more copies, the lower the response rate in percent.

Table 6
Responses to grey literature

Copies distributed by author	Number of responses					Total %
	0 %	1-10 %	11-20 %	21-30 %	31-50 %	
1-10	37.0	63.0	--	--	--	26.5
11-20	38.9	61.1	--	--	--	17.6
>20	47.4	40.3	7.0	3.5	1.8	55.9
column-percent:	43.1	50.0	3.9	2.0	1.0	100.0

N=102

Missing: 51

As if there was a kind of natural law, in nearly all cases (93%) the number of responses is 0 or 1-10. When I constructed my questionnaire, I was unfortunately still a believer of the "official" attitude of grey literature as a medium of informal communication. So I expected lots and lots of responses. That is why I did not specify the range from 1 to 10. If I had, I am sure, most of the answers would read "just 1 or 2 responses".

Not even personal acquaintance really influences the response behaviour, as is proved by table 7. The response rates remain the same no matter whether author and respondent know each other or do not:

Table 7
Personal acquaintance and response to grey literature

Colleague personally acquainted?	Response				Total (100%)
	yes %	yes abs.	no %	no abs.	
yes	60.7	(71)	39.3	(46)	66.1% (117)
no	61.7	(37)	38.3	(23)	33.9% (60)

N=177

Missing: 39

The only factor with a real impact is the *professional age*: researchers being on the scientific scene for more than ten years receive 40 percent more responses than the 'youngsters'. Scientists, one could argue, do not only build up more but also qualitatively different relations to their colleagues in the course of their professional career, among them contacts that provide for informal interaction including communication. This, I think, is a clear remark that *social* factors or relations could be as important as *cognitive* ones. In this case the distribution of grey literature as well as the feedback to it could turn out to be part of quite another game than that of informal communication.

There is another set of data indicating the same connexion. Looking at the temporal course of research projects, I found that the response rate grows monotonously from year to year. Projects running more than 36 months report 50 percent more responses as compared to those running up to one year:

Table 8
Responses to grey literature in the course of the research project

Duration time of pro- ject until now (in months)	Number of responses						Total (100%)
	0		1-10		>10		
	%	abs.	%	abs.	%	abs.	
1-12	57.7	(15)	30.8	(8)	11.5	(3)	24.1% (26)
13-24	40.7	(11)	44.4	(12)	14.8	(4)	25.0% (27)
25-36	29.2	(7)	50.0	(12)	20.9	(5)	22.2% (24)
>36	38.7	(12)	51.6	(16)	9.7	(3)	28.7% (31)

N=108

Missing: 28

Please note that the values in table 8 are not cumulated. So the trends are not trivial in that they were just products of a mathematical operation (addition).

Just to complete this chapter, I would like to mention the projects' *methodological orientation* as a factor influencing the response rates:

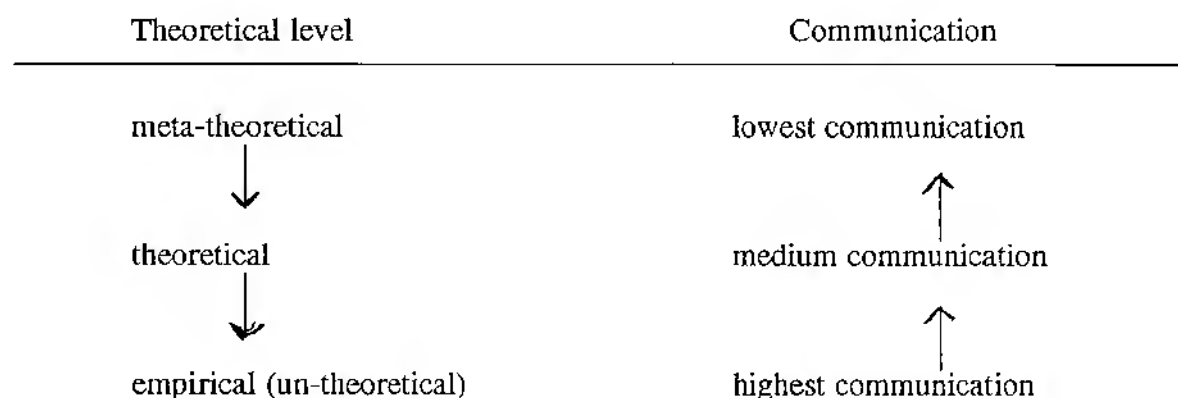
Table 9
Projects' methodological orientation and the response rate

Method	Feedback by colleagues				Total (100%)
	yes %	abs.	no %	abs.	
empirical	55.6	(70)	44.4	(56)	98.4% (126)
theoretical	44.0	(11)	56.0	(14)	19.5% (25)
methodological, statistical etc.	39.1	(9)	60.9	(14)	18.0% (23)

N=128 (Multiple responses were allowed, so that we received percentages more than 100)

Missing:30

This would allow for a convincing model:



which means that the higher the theoretical degree the lower the degree of informal communication and *vice versa*.

This looks very nice, but I have to make two limitations: *Firstly*, the absolute numbers are relatively small (N=128), and *secondly* I cannot give a convincing explanation for these observations - at least not a simple one...

3. Impact of feedback on reworking/re-writing the papers

a) Planning formal publications

One common idea about grey literature is that it is a preliminary version of a following publication, so that the informal communication is a process aiming at criticism and improvement of the unpublished papers.

Actually, in most cases a formal publication is planned by the authors:

Table 10
Publication of grey literature

Already formally published	18.5%	(53)
Accepted for publication	12.9%	(37)
Publication intended	39.5%	(113)
Undecided, yet	12.6%	(36)
Publication not intended	16.4%	(47)
Total:	99.9%	(286)

Note: All answers concerning distribution and responses, number of copies, processes of reworking and publication etc. refer to documents sent in along with the questionnaires. This is a special feature of our survey: We asked for the grey documents themselves so that we could analyse them as well; and so we were able to ask for the real 'publication career' of exactly these documents. On the other hand, this procedure sometimes spoils the sample sizes.

Although in many cases we have to do with intentions, not with facts, the direction is clear: The authors want to have their papers published, be it as a book (25%), as a journal article (31%), as an article in an omnibus volume (20%), or something else: part or chapter of a book, more than one article etc. (14%); just 16 percent do *not* intend a formal publication at all. (In the temporal course of the project, the percentage of those not intending a formal publication at all decreases from 25% (first year) to 10% (third year), after that time, however, going up again to 17%.⁶)

6 This is an effect that could be observed all over the data of my survey: Projects with a long or even 'super long' duration time were somewhat different in nearly all respects. The projects themselves resp. their social settings seem to be of a different kind. For those interested in this topic cf. *Artus, Helmut M.*: Graue Literatur: zum informellen Kommunikationssystem der Sozialwissenschaften..., op. cit.

b) Processes of reworking grey literature

The assumption quoted above turned out to be true: Actually most unpublished papers undergo severe (??)/ < tiefgreifende > changes of any kind. Only about one third of them is not subject to considerable processes of reworking:

Table 11

Reworking of grey literature for formal publication, case I: Literature already published

Cannot tell because more than one papers were put together		26.3 %	(45)
No considerable difference		31.6 %	(54)
Considerable changes*	total:	42.1 %	(72)
- text	100.0 %		(72)
- data/tables	44.4 %		(32)
- appendix/documentation etc.	22.2 %		(16)
Total:		100.0 %	(171)

*) Multiple responses were allowed. The basis for the percentuation of changes was N=72, although only a certain (but unknown) part of the reports really included data and appendices/ documentations. That is why we have to assume that the percentages in these two rows are too small.

Just for comparison, I add the data for the other case, where we asked for the *intention* of reworking and publication. Obviously, the data are quite similar:

Table 12

Reworking of grey literature for formal publication, case II: Publication still planned

Considerable difference	38.5 %	(74)
No considerable difference	42.2 %	(81)
Undecidable, yet	19.3 %	(37)
Total:	100.0 %	(192)

The following table 12 shows the incredible variety of changes made in any part of the papers and in any respect. There are changes of any kind and of any importance. Texts are enlarged or abridged, they are subject to stylistic polishing or to theoretical improvement, the data are aggregated - or disaggregated (or even dropped at all). And so on, and so on. There is only one trend: No trends!

Just in order to illustrate this situation, I present the different cases and the absolute data in the following table:

Table 13

Reworking grey literature - the details

a) *Changes concerning the paper's text:*

The text was...	
... considerably abridged	19
... considerably enlarged	14
... stylistically polished	15
... presented in a more theoretical manner	14
... changed in other ways	8
Additional references given	17
Not pertinent since no text at all	--

b) *Changed concerning data/tables:*

Data/tables were...	
... considerably abridged	13
... considerably enlarged	16
... completely deleted	1
Stronger aggregation of data	6
Other changes	4
Not pertinent	4

c) *Appendices, documentations (questionnaires, documents, computer programs etc.)*

Appendix etc. was...	
... considerably abridged	9
... considerably enlarged	14
... completely deleted	7
... changed in other way	1
Not pertinent	7

*) Multiple responses were allowed - as well *within* the different 'chapters' (a to c), as *between* them.

c) **Impact of responses**

Summarising, we can describe the situation as follows:

- *Firstly*, from the very beginning of their research projects, scientists produce a considerable number of unpublished reports. Usually, the number of copies is 50 or (much) more, and in most cases, the authors of such reports distribute a considerable number of copies to collea-

gues personally known or unknown. That means that researchers make considerable efforts towards disseminating their papers.

- *Secondly*, the number of responses, however, is very small. In most cases there is not even 1 response.
- *Thirdly*, the authors make tremendous efforts towards reworking their papers and preparing them for formal publication.

So one should assume, that the few responses the authors have got from their colleagues are very precious and valuable. The hypothesis is that important, if not decisive impulses for improvement or changes of any kind are given by the colleagues critical feedback.

The reality, however, is quite different.

Table 14
Impact of responses on reworking of grey literature

Number of responses	No or only little impact		Undecidable, yet		Considerable impact		Total (100%)
	%	abs.	%	abs.	%	abs.	
1-10	48.2	(27)	39.3	(22)	12.5	(7)	77.8% (56)
>10	37.5	(6)	50.0	(8)	12.5	(2)	22.2% (16)

N=72

Missing:65

Only 12.5% of the authors report a considerable influence of the responses on the reworking of papers and the process of their preparation for formal publication. The percentages are somewhat higher with researchers with higher academic degrees and in research teams, but they never exceed 25 percent. Just 57 percent of the authors report any response at all, and of these 57 percent just 12 percent really make use of them.

One could argue that there are 40 or even 50 percent of *undecided* cases. It is true that in these cases the authors *could* decide to use the criticism, the suggestions and proposals made by the responding colleagues. But there are good reasons not to believe in this possibility: We asked another question referring to the past. Researchers who had read papers at conferences of any kind were asked for the impact of the discussion following the paper's presentation:

Table 15

Conference papers: impact of discussion

There was no discussion at all	3.6% (7)
There was a discussion but no reason for considerable changes	86.0% (166)
Discussion leading to considerable changes	10.4% (20)
Total:	100.0% (193)

My conclusion is that in most *undecided* cases the authors will decide against impact. They will put lots and lots of work and labour in the reworking of their papers - but they will hardly give way to "external" criticism, proposals or the like. *Informal communication? Oh, yes! But only with myself!*

II Conclusions

So far the empirical part of my paper. Now we have to ask what all this means and how it can be explained.

After all the empirical data I have presented above, we can say that what Garvey describes is *not reality as it is*, but *as it should be*. It is not an empirical *description* but rather a normative *prescription*. The picture of informal communication he draws is not completely wrong, but *idealised* by far. At least in the Social Sciences we do not find the researcher acting according to the rules (or laws) which Garvey postulates. His model of communication starting from the focus (where research work is done) and then, step by step, going from the inner to the outer circle - this model of informal communication is brilliant and fascinating, but unfortunately it is wrong.

The empirical data are showing a rather strange and contradictory situation: Although there are strong efforts towards the dissemination of grey literature, there is only very little feedback by the recipients of the papers no matter whether they are personally acquainted with the author or not. The strangest result, however, is that the authors hardly make any use of this feedback, of critical remarks or suggestions, although they make strong efforts towards reworking their papers for subsequent formal publications. They change each and everything - text, data/ tables, appendices etc. -, but communication does not seem to have any remarkable influence.

So, what is the production and dissemination of grey literature for? What are the reasons and expectations of authors disseminating their papers (and ignoring the rare responses)? And what are the normative orientations of the receivers responding or - usually - not responding to the litera-

ture? Are there perhaps orientations completely different from those that are suggested by our theories?

My *first conclusion* is that we possibly did not understand the process of reworking and formally publishing grey literature correctly, yet. The data show rather clearly that at least in a multitude of cases we cannot speak of the *formal publication of a certain grey paper* because two or more papers are compiled and worked in into just one single publication; or just the other way round, one grey paper is cannibalized for two or more publications. And there is quite a lot of cases reporting so tremendous changes in all parts of the papers (i.e. text, data, appendices) that we can hardly speak of simple reworking but rather of completely different versions of such papers. This means that the *process of reworking and publishing* is rather different from what we usually suppose.

My *second conclusion* is that as a consequence the *process of (informal) communication* is different as well. At least at times where authors are preparing their papers for publication, it seems, they are looking for anything but communication. The reason may be that the whole paper - its argumentation, its formal and logical structure, the interpretation of quantitative data etc. - is an unstable equilibrium that could be disturbed by any external influence. So at this time the author wants to be quite alone with his thoughts and his paper. This does not mean that the rare informal communication has no impact at all - but not now and not upon the publication prepared at the moment.

My *third conclusion* is that it is not the eager and communicative colleagues who understood the rules of the game but exactly those who do not respond, not those who communicate but those who refuse to communication.

Maybe our theoretical model of producing and publishing knowledge resp. papers is too simple and 'mechanistic'. Actually, we have to do with *steady* processes, with a continuous cognitive process and progress going on for years, not with *discrete* events like 'producing a research report', 'having it discussed', 'reworking it' and finally 'publishing it'. These are the different logical stages, but in fact they do not help understand what is really going on but cover it with a smoke-screen instead. Following such a conceptual segmentation, we cannot understand the process of research and knowledge creation as a continuous intellectual effort.

If my data and explications help make this a little clearer, my paper was not quite in vain.

APPENDIX

Literature from the project on grey literature, performed by the Informationszentrum Sozialwissenschaften (Bonn, Germany)

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Value and use of grey literature: the implications of networked publishing

J.S. Mackenzie Owen

Abstract

Digital information networks provide an opportunity for grey literature to become an important type of electronic publication. The concept of 'grey' literature itself will disappear as it evolves into a new concept of networked institutional publishing. This development will greatly increase the value of grey literature and lead to qualitative and quantitative changes in its use.

This paper discusses the underlying developments, the necessary steps in moving from grey literature to networked publishing, and the expected benefits in terms of added value and utility.

1. The value of information

Our society is often called the 'information society'. That does not necessarily mean that information is more readily available than in other societies. On the contrary, the concept of an information society seems to mean that we need an ever increasing amount of information in order to function in a normal way. Information is not a contribution to our society, it is a prerequisite for survival.

Information is a valuable commodity. It has economic, social and cultural values. I believe nobody would wish to challenge this statement. Enormous amounts of money are spent on creating, distributing, processing and using information. A large number of organizations and individuals can make a living out of the commercial value of published information. In most countries, diminishing library budgets are more than offset by investments in new technologies for networked distribution and retrieval of information. Without information, business activities become far more difficult; teaching, research and development become almost impossible, and society at large would come to a standstill. Information is of great value indeed.

Many institutions find it important to make information available in printed or electronic form - often with no intention of making a profit out of it. This is what we call 'grey literature'. It is institutional

information, in many cases with no commercial value to the producer. Nevertheless, there must be intangible values involved. Why else would people produce and disseminate grey literature, and others spend great effort in acquiring and it and making it available to end-users? Why else are there end-users for such publications? Why else do we spend a number of days in Amsterdam to discuss the subject of grey literature?

Information is a strange commodity, if a commodity at all. Let us look at some of its characteristics (Mackenzie Owen, 1992):

- Information has no *intrinsic* value. Information only acquires value in the context within which it is used. One can never tell *a priori* what the value of a piece of information is. The value of information is a *potential* value.
- In an economic sense, information has a '*value-in-use*' when it adds value to the process in which it plays a role. The extent to which value is added through the use of information does not depend on the value of the information alone. It also depends on the quality of the information system (which determines what information is available when and in which way to whom), and on the ability of the user to obtain maximum benefit from the information he or she acquires.
- Information systems (i.e. the organizational and technical infrastructure through which information is acquired), have an added value if they contribute to obtaining maximum benefit from the potential value of information.
- The value of information is not unambiguously related to its use or to the passing of time. Sometimes the value increases in time, as more and more people become informed. This is especially the case with public information. In other situations (e.g. commercial information), the value of information diminishes both in time and by use. This is especially true of information which can provide a strategic benefit in relation to others (e.g. competitors).
- Information cannot be quantified. There is no measure or unit to express the amount of information in relation to its value. In many cases, increasing the amount of information diminishes its value.

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- The relationship between cost and value of information is unpredictable. It is no more than a statistical concept. Many information-based activities cost money but do not result in measurable benefits. On the other hand, there are many (but unpredictable) cases where the cost of information is but a fraction of the value obtained from its use.
- Much information (e.g. scientific knowledge) is produced with public funds. It hardly ever happens that the full cost of production is expressed in its market price. This leaves both the producer and the user of information with no sense of the real cost of information.
- When one acquires information, neither the seller nor the buyer have any certainty that its price will have a relationship to its value. People buy information (subscriptions) even before it exists.
- Having knowledge of information equals owning it. Therefore, suppliers of information usually do not tell what they are selling. Purchasers of information, for that reason, usually do not know what they are buying.
- The cost of acquiring and storing superfluous information is usually much lower than the cost of not having essential information (Feldman & March, 1981). This leads to over-production and over-consumption of information.

One of the major problems in discussing the value of information stems from the fact that we have no common language for describing information resources. In a recent study by F.W. Horton (1993), the existing systems of definition, measurement and classification have been identified as barriers to understanding and exploiting the role of information resources in an economy. There is a great need for further work on the role of information in the economy, involving many partners at an international level. It is unfortunate that NCLIS - who requested the preparation of the report by Woody Horton - has had to postpone further work in this area.

The type of information we are discussing here, and the information systems we use to distribute, store and retrieve such information, are of a rather specific kind. The main reason that the value of such information and information systems cannot be determined beforehand,

is not too difficult to understand. The reason lies in the fact that there is no direct relationship between the information as produced, and the tasks or problems for which it is used. This is nicely expressed by Taylor (1982, 1985) in the following way:

'All long term information systems - those that acquire, process, store and disseminate messages - are essentially a gamble that in the next minute, day or year these messages will be useful.'

'There is no simple, reliable, generally accepted means of measuring the value of information, particularly *ex ante*. - There are no accepted or standardized ways of assessing value. In fact, consensus on a basic definition of value does not exist.'

It is now clear that we have no generally accepted way of measuring the value of information to society. This is strange indeed. Why do we spend money on something which has no measurable value? Why invest in information and information technology if we do not understand its role? Why put an effort in something which can never guarantee to recover its cost? Why do we disseminate information without wanting to get paid for it? These are intriguing questions which deserve separate deliberation, rather than a superficial discussion here. So we shall now move away from the intriguing subject of *information* to the more tangible subject of *information systems*.

2. The value of the information infrastructure

It is important to emphasize the distinction between information and information systems. Taylor has argued that the value of an information system (and in general the *infrastructure* for providing information) is derived from the value of the information as such. The more value the information has for the organization, the more value will be added by the information system.

However, the added value of the information infrastructure also has a significance of its own. Information only acquires value when it is used in a meaningful way within a certain context. As long as information resides in the information system, it has only potential value. Any system or infrastructure which makes this potential value accessible and helps to realize its practical value, adds value to the process. Information systems achieve this by signaling the potential value of information and relating it to the needs of a specific environment.

distinction
between
info and system

Taylor's work is of particular interest, because he describes a number of ways in which information systems can increase the value of information to users. These are related to issues such as user friendliness, noise reduction, information quality, adaptability of the system, and savings in time and money. In addition, he argues that end-users should be allowed to choose the level of added value themselves. The system's interface should offer such choices, while the processes which provide added value would, of course, have to be implemented in the system.

In order to use this approach in the development of information systems, one needs both insight into the organizational context and the psychological aspects of information use. In other words: one has to understand the tasks and problems for which information is needed, as well as the way users acquire and apply information. In addition, users will have to have a sufficient understanding of the role of information in order to cope with the value-choices offered by the system. This includes an understanding of the cost and benefits of these choices. Unfortunately, we know very little about the relationship between cost and value of information, and most users understand even less of it.

In general, the following can be said with respect to the added value of the information infrastructure. An information system can never provide more value than the information it makes accessible. However, the quality of the information system - or information infrastructure at large - determines to a high degree if, how and to which extent the potential value of the information is realized. The cost of the information infrastructure proportionally decreases the value of the information. In order to assess the value of an information service, separate cost-benefit analyses is needed for the information provided and the information system to be used. The value of the information service as a whole is determined by the combination of both factors.

3. The information infrastructure for grey literature

An important conclusion can be drawn from the preceding discussion of the value of information. That is that the value of grey literature can be increased by improving the quality of the information infrastructure. There are many contributions that the information infrastructure can make. Networked publishing provides an important opportunity to do this.

In recent years, one of the most important applications of information technology has been in the area of communication networks for science, government and business. Local networks within institutions, national and specialized networks, and the almost global combination of these, the Internet, are rapidly becoming the principal communications highway. It is through the network that scientists inform each other about their work. The network is also a means for obtaining all kinds of published and unpublished information. In many ways - and increasingly so in years to come - the network is becoming a substitute for traditional information media such as published journals, libraries and online databases.

Networked publishing - using electronic networks for the dissemination of documents - can significantly improve the quality of information services and therefore enhance the value of information. This is especially true for information which is not readily available through traditional publishing channels. There are many potential benefits, including the following:

- Networks can be a cost-effective way of making information available. Expensive printing, binding and physical distribution become unnecessary.
- The cost of acquiring networked information is usually very low, both in terms of resource cost and in terms of time spent on obtaining the information.
- Electronic networks make information available immediately and without geographic restrictions. This can provide users with a much greater variety and timeliness of information.
- Electronic networks can potentially offer sophisticated retrieval mechanisms which enable end-users to directly access information relevant to their tasks and problems. This can reduce the effort spent on finding relevant information and prevent resources being spent on acquiring and processing irrelevant information.
- Much information acquired by end-users has to be processed, stored, integrated and re-used. Having information available in electronic form greatly improves the possibilities of doing so in an easy and cost-effective way.

THE END

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Electronic Publ.
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4. The future of grey literature in networked publishing

The amount of documents available through electronic networks is increasing in a spectacular fashion. To give just one example: the universities in the Netherlands, in cooperation with the national research network, are already making internal documents (theses, research reports, image collections etc.) available on the network through document servers. It is highly likely that in future, more and more organizations will use the network as a distribution channel for their publications. Increasingly, the problem of grey literature will become a problem of networked publications.

The end-users of the future will acquire all their information through integrated desk-top systems, providing access to information resources world-wide. Working in such an environment, people may not be prepared to go to a library to acquire grey literature in paper form. Networked publishing therefore provides direct access to the future end-user environment. Official publishers already understand this. Although they are sometimes frightened by the many uncertainties involved, many publishers are already experimenting with networked distribution of their publications. Once this takes on, grey literature will have to follow.

The main problem with grey literature is that of *control* (hence the term 'grey'). Traditional or 'official' publishers have set up a distribution system which provides optimal control and access within the constraints of the technology and medium (paper) used. What we should try to do, now that grey literature is moving into the area of networked publishing, is to create an infrastructure which provides at least a similar level of control and access. There are two benefits in doing so. First, the value of grey literature to society will be greatly enhanced. Second, networked publishing will become an attractive and cost-effective alternative to traditional publishing.

If one extrapolates the present developments in information networking, two major trends become apparent. One is that the network is rapidly becoming a cost-effective publishing channel. Many mechanisms are being put in place (e.g. document servers, navigation systems) which enhance the attractiveness of the network for disseminating publications from a wide variety of organizations. One can expect a major increase in the use of networks for this purpose in the next decade. It is even

conceivable that in certain areas, e.g. in scientific communication, networked publishing will become the predominant mode. In that case, authors will not turn to official publishers any more, but disseminate their publications through the network.

The second trend is that networked publishing will lead to a much higher level of use of many publications which we now think of as 'grey' literature. If networked dissemination of institutional publications is organized well, access to such information will become much easier. Dissemination will become more rapid. Information acquired will be re-usable. Feedback to the author will be easy. These are all things that can enhance the value and usefulness of grey literature. This will all lead to an increased role of grey literature in relation to official publications.

The view that grey literature will transform into networked publishing, to the benefit of the end-user, is, of course, an optimistic one. A great deal of work still remains to be done before this can become feasible. To give a few examples:

- The main network for dissemination of electronic publications is the Internet. This is in fact the global *academic* network. In order to use Internet for networked publishing, it will have to become much more open and accessible to non-academic and commercial organizations. In fact, this is already happening, but developments are still very slow and diffuse.
- A proliferation of publications on the network and of organizations and *document servers* offering them, creates difficult problems in the area of retrievability. There is a need for improved access and *navigation systems* which help users to find the documents they need. Already, a number of such systems exist (e.g. Gopher, Veronica, Archie, WAIS, WWW - cf. Foster ea., 1993) but are in need of improvement.
- Access systems in general do little more than provide pointers to documents available on the network. In order to do this in an unambiguous way, there is a need for some equivalent of 'standard book numbers' and 'shelf marks'. Work is already being done on so-called *Uniform Resource Identifiers* which serve this purpose.
- Using the network is a bewildering experience for many users. There is a need for user-friendly desktop environments which

S. 2
www
navigation systems

S. 3
Standard identifiers

provide transparent access to networked information resources and integration with local resources and applications.

Environments such as X-Mosaic and Cello are examples of a first approach to this issue.

- Document distribution on the network is still predominantly text-based. For networked publishing there is a great need for *multimedia* capabilities in order to disseminate more sophisticated types of documents (cf. Adie, 1993).
- Although a certain proportion of grey literature is provided free of cost, many organizations need to recover cost or even create some profit from their publications. In order to achieve this on the network, there is a need for *cost recovery mechanisms* which allow some kind of payment to be transferred from the end-user (or his organization) to the originator of the publication.
- Electronic document distribution poses many problems in the area of *copyright* which cannot be resolved by applying existing legislation. This is - in conjunction with the issue of cost recovery - one of the major barriers to the development of networks as a medium for publishing (cf. Crews, 1992; Publisher's Association, 1993).
- A great deal of work still remains to be done on standardization for electronic document distribution. This work includes aspects such as bibliographic descriptions, resource identifiers, document formats and retrieval mechanisms (e.g. the Z39.50 and ISO-10162/3 protocols), among many others (cf. Dempsey ea., 1993; Dillon ea., 1993).
- In order to prevent a confusing proliferation of document providers on the network, a certain amount of *coordination* will be necessary. A solution may be to have National Document Distribution Centres which can act as clearing houses for networked publications.
- Finally, networked publishing and its value to users would benefit greatly from some kind of mechanism for quality control. Several options come to mind, such as linking user-feedback to access systems, and - at the institutional level - editorial boards (e.g. at universities and larger institutions).

It is clear that networked publishing can have an impact on both the producers and the users of grey literature. But what about intermediary organizations such as libraries? Here too, an impact can be expected:

- Networked publishing will accelerate the already visible shift from collection-based to access-based libraries. Once information is available on the network, there is less reason to retain it at the physical library location. The role of the library therefore shifts to that of a linking-pin: helping users obtain access to networked resources in a user friendly and cost-effective way.
- In order to obtain this new role, librarians will have to acquire specific network skills, both in a technical sense and as regards knowledge of 'gopher-space', i.e. being entirely familiar with the network resources available and their value to end-users.
- Libraries will also have to become involved in the further development of the network, with the development of access and navigation systems, and with standardization.

Effect of networked publishing on human resources

5. Conclusions

Using electronic networks for the dissemination of grey literature has potential benefits which increase the value of institutional publications both to the end-user and to the institution itself. If networked publishing continues to develop, it will lead to an increase in both the production and use of grey literature. It is not unlikely that networked publishing will indeed become the predominant way of disseminating institutional publications. For that reason, networked publishing and grey literature may provide significant competition to official publishers. However, if the world of grey literature does not make the transition to networked publishing, they will miss the link to the future end-user environment. In that case, the value of grey literature will diminish significantly.

The networked future of grey literature will stimulate the transformation of libraries from collection-based to access-based institutions. Libraries will have to acquire new skills in order to make this change, and will have to become involved in the major developments in the field of networked information resources.

Finally, a great deal of work still remains to be done in order to obtain maximum benefit from electronic networks for the distribution of grey literature. This includes issues such as commercial access to the Internet, development of access and navigation tools, uniform resource identifiers, multimedia, cost recovery, copyright, standardization, coordination at the national level, and quality control.

The developments described in this paper point to an important message for organizations involved in the dissemination of grey literature. It is not their mission to collect, store, index and provide documents, and in future there may even be no need for those functions. People involved in grey literature have a more important responsibility, which is *to make the potential value of grey literature available to society*. They should use information technology to do just that. Therefore, the strategy to be followed is to stimulate the use of electronic networks for the distribution of grey literature by the organizations that produce such literature. That strategy will increase the value of grey literature.

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The U.S. Government Technical Report and Aerospace Knowledge Diffusion: Results of an On-Going Investigation

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Abstract

The U.S. government technical report is a primary means by which the results of federally funded research and development (R&D) are transferred to the U.S. aerospace industry. However, little is known about this information product in terms of its actual use, importance, and value in the transfer of federally funded (U.S.) R&D. To help establish a body of knowledge, the U.S. government technical report is being investigated as part of the *NASA/DoD Aerospace Knowledge Diffusion Research Project*. In this paper, we summarize the literature on technical reports and provide a model that depicts the transfer of federally funded aerospace R&D via the U.S. government technical report. We present results from two surveys (one of five studies) of our investigation of aerospace knowledge diffusion vis-à-vis the U.S. government technical report and close with a brief overview of on-going research into the use of the U.S. government technical report as a rhetorical device for transferring federally funded (U.S.) aerospace R&D.

1. INTRODUCTION

NASA and DoD maintain scientific and technical information (STI) systems for acquiring, processing, announcing, publishing, and transferring the results of government-performed and government-sponsored research. Within both the NASA and DoD STI systems, the U.S. government technical report is considered a primary mechanism for transferring the results of this research to the U.S. aerospace community. However, McClure (1988) concludes that we actually

know little about the role, importance, and impact of the technical report in the transfer of federally funded R&D because little empirical information about this product is available.

To help fill this knowledge void, we are examining the U.S. government technical report as part of the *NASA/DoD Aerospace Knowledge Diffusion Research Project*. This project investigates, among other things, the information environment in which U.S. aerospace engineers and scientists work, the information-seeking behavior of U.S. aerospace engineers and scientists, and the factors that influence the use of STI (Pinelli, Kennedy, and Barclay, 1991; Pinelli, Kennedy, Barclay, and White, 1991). The results of this investigation could (1) advance the development of practical theory, (2) contribute to the design and development of aerospace information systems, and (3) have practical implications for transferring the results of federally funded aerospace R&D to the U.S. aerospace community.

In this paper, we summarize the literature on technical reports and provide a model that depicts the transfer of federally funded (U.S.) aerospace R&D through the U.S. government technical report. We present results from two surveys (one of five studies) of our investigation of aerospace knowledge diffusion vis-à-vis the U.S. government technical report and close with a brief overview of on-going research into the use of the U.S. government technical report as a rhetorical device for transferring federally funded (U.S.) aerospace R&D.

2. THE U.S. GOVERNMENT TECHNICAL REPORT

Although they have the potential for increasing technological innovation, productivity, and economic competitiveness, U.S. government technical reports may not be utilized because of limitations in the existing transfer mechanism. According to Ballard, et al., (1986), the current system "virtually guarantees that much of the Federal investment in creating STI will not be paid back in terms of tangible products and innovations." He further states that "a more active and coordinated role in STI transfer is needed at the Federal level if technical reports are to be better utilized."

2.1 Characteristics of Technical Reports

The definition of the technical report varies because the report serves different roles in communication within and between organizations. The technical report has been defined etymologically, according to report content and method (U.S. Department of Defense, 1964); behaviorally, according to the influence on the reader (Ronco, et al., 1964); and rhetorically, according to the function of the report within a system for communicating STI (Mathes and Stevenson, 1976). The boundaries of technical report literature are difficult to establish because of wide variations in the content, purpose, and audience being addressed. The nature of the report -- whether it is informative, analytical, or assertive -- contributes to the difficulty.

Fry (1953) points out that technical reports are heterogenous, appearing in many shapes, sizes, layouts, and bindings. According to Smith (1981), "Their formats vary; they might be brief

Second, the formal part relies heavily on information intermediaries to complete the knowledge transfer process. However, a strong methodological base for measuring or assessing the effectiveness of the information intermediary is lacking (Beyer and Trice, 1982). In addition, empirical data on the effectiveness of information intermediaries and the role(s) they play in knowledge transfer are sparse and inconclusive. The impact of information intermediaries is likely to be strongly conditional and limited to a specific institutional context.

According to Roberts and Frohman (1978), most Federal approaches to knowledge utilization have been ineffective in stimulating the diffusion of technological innovation. They claim that the numerous Federal STI programs are "highest in frequency and expense yet lowest in impact" and that Federal "information dissemination activities have led to little documented knowledge utilization." Roberts and Frohman also note that "governmental programs start to encourage utilization of knowledge only after the R&D results have been generated" rather than during the idea development phase of the innovation process. David (1986), Mowery (1983), and Mowery and Rosenberg (1979) conclude that successful [Federal] technological innovation rests more with the transfer and utilization of knowledge than with its production.

4.0 AEROSPACE KNOWLEDGE DIFFUSION AND THE U.S. GOVERNMENT TECHNICAL REPORT: AN ANALYSIS OF TWO SURVEYS

We have surveyed aerospace engineers and scientists in the U.S. and abroad as part of five studies. Survey populations have included members of professional (technical) societies as well as aerospace engineers and scientists at comparable aeronautical research facilities. Data follow that deal with technical report use from two surveys. A self-administered (self-reported) mail survey was used to gather data. A brief overview of the methodology is provided for each study. Data are presented in the order in which the surveys were conducted.

4.1 Study of the AIAA Membership

Two self-administered (self-reported) questionnaires were used for data collection. The membership (approximately 34,000) of the American Institute of Aeronautics and Astronautics (AIAA) served as the study population. Survey 1 investigated the relationship between the use of U.S. government technical reports and selected (seven) institutional and (seven) sociometric variables. Survey 2 investigated the use and importance of Advisory Group for Aerospace Research and Development (AGARD), DoD, and NASA technical reports; reasons for non-use of these reports; how U.S. aerospace engineers and scientists find out about (become aware of) and physically obtain these reports, the influence of seven factors on the use of these reports; and the use of specified technical information (e.g., computer program listings) in electronic format. The sample frame for both surveys consisted of 6,781 AIAA members (1 out of 5) who reside in the U.S. and who were employed in academia, government, and industry. Survey data were analyzed using the Statistical Package for the Social Sciences (SPSS).

Survey 1. Systematic sampling was used to select 3,298 members from the sample frame to participate in survey 1. Two thousand and sixteen (2,016) usable questionnaires were received by the established cut-off date. With an adjusted sample of 2,894 and 2,016 completed questionnaires, the adjusted response rate for survey 1 was 70 percent. The survey spanned the period from May 1989 to October 1989. The following composite participant profile was based on survey 1 demographic data: works in industry (52.6%), works in management (37.5%) or in design/development (28.1%), has a graduate degree (70.3%), was educated (trained) as an engineer (83.0%), currently works as an engineer (67.5%), has an average of 21 years of professional work experience, and has had some part of this work funded by the U.S. government (82.9%).

Survey 2. Systematic sampling was used to select 1,735 members from the sample frame to participate in survey 2. With an adjusted sample of 1,553 and 975 completed questionnaires, the adjusted response rate for survey 2 was 63 percent. Survey 2 was conducted from July 1989 through February 1990. The following composite participant profile was based on survey 2 demographic data: works in industry (49.3%), works in management (35.1%) or in design/development (26.9%), has a graduate degree (72.5%), was educated (trained) as an engineer (83.6%), currently works as an engineer (66.7%), has an average of 21 years of professional work experience, and has had some part of this work funded by the U.S. government (84.3%).

4.1.1 Survey 1

Data regarding the use of U.S. government technical reports were collected from survey 1 participants. Within the context of other technical information products (i.e., conference-meeting papers, journal articles, and in-house technical reports), survey respondents were asked to indicate their use of and the importance of these four information products and approximately how many times they had used each product in the past 6 months in performing their present professional duties. As shown in table 1, almost all the U.S. aerospace engineers and scientists in survey 1 use the four information products in performing their present profes-

Table 1.
Use of Technical Information Products

Information Products	Percentage Using Product In --			Overall Percentage Using Product (n = 1,839)
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)	
Conference-Meeting Papers	99.4	99.1	95.5	97.1
Journal Articles	99.4	97.4	95.5	96.7
In-house Technical Reports	97.9	99.6	98.8	98.8
U.S. Government Technical Reports	98.9	99.1	96.6	96.6

sional duties. There is no statistical difference in use among the academically-, government-, and industry-affiliated respondents. In terms of the highest level of education, career, and years of professional work experience, almost all the respondents use the four information products in performing their present professional duties.

Respondents rated the importance of conference-meeting papers, journal articles, in-house technical reports, and U.S. government technical reports using a 1 to 5 point scale (table 2). Of the four information products, in-house technical reports received the highest overall mean rating. The overall mean importance rating, although lower, does not differ considerably for conference-meeting papers, journal articles, and U.S. government technical reports. Statistically, academically-affiliated respondents attribute a higher importance rating to conference-meeting papers

Table 2.
Importance of Technical Information Products

Information Products	Average ^a (Mean) Importance Rating In --			Overall Average (Mean) Importance Rating (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Conference-Meeting Papers	4.04	3.64	3.31	3.53	1,777
Journal Articles	4.35	3.49	3.26	3.52	1,775
In-house Technical Reports	3.02	3.98	4.05	3.84	1,766
U.S. Government Technical Reports	3.45	3.73	3.44	3.51	1,778

^a A 1 to 5 point scale was used to measure importance with "1" being the lowest possible importance and "5" being the highest possible importance. Hence, the higher the average, the more important the product.

and journal articles. Government- and industry-affiliated respondents attribute a higher importance rating to in-house technical reports. (Government-affiliated respondents probably view U.S. government technical reports as synonymous with in-house technical reports.)

Statistically, participants who hold a doctoral degree attribute a higher importance rating to conference-meeting papers and journal articles. Survey participants who hold a master's, bachelor's, or no degree rate in-house technical reports more important than do survey participants who hold a doctoral degree. Scientists rate conference-meeting papers and journal articles more important than engineers rate them. Engineers rate in-house technical reports more important than scientists rate them. Engineers and scientists rate the importance of U.S. government technical reports about equal. With two small exceptions, the importance rating of the four information products increases as years of professional work experience increase.

Survey participants were asked to indicate the number of times they had used each of the four information products in a 6-month period in the performance of their professional duties (table 3). Data are presented both as means and medians. On the average, in-house technical reports are used to a much greater extent than the other three information products are used. Conference-meeting papers and journal articles are used to a greater extent by academically-affiliated participants. In-house technical reports are used to a greater extent by government- and industry-affiliated participants. Average use of U.S. government technical reports is about equal for all three groups. With the exception of in-house technical reports, use of the three remaining information products increases as the level of education increases. Survey participants possessing a doctorate make significantly greater use of conference-meeting papers and journal articles.

Table 3.
Frequency of Technical Information Product Use

Information Products	Average Number of Times (Median) Product Used In 6-Month Period For Respondents In --			Overall Average Number of Times (Median) Products Used (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Conference-Meeting Papers	17.98 (7.00)	13.41 (4.00)	9.23 (4.00)	12.02 (4.00)	1,527
Journal Articles	26.60 (10.00)	15.41 (5.00)	9.99 (4.00)	14.74 (5.00)	1,503
In-house Technical Reports	9.22 (5.00)	17.91 (6.00)	23.91 (8.00)	20.30 (6.00)	1,535
U.S. Government Technical Reports	10.01 (5.00)	12.41 (5.00)	11.49 (4.00)	11.45 (5.00)	1,495

Scientists make greater use of the four information products than do engineers. Engineers and scientists make about equal use of in-house technical reports. Scientists make greater use of conference-meeting papers and journal articles than do engineers. The use of the four information products does not seem related to increasing years of professional work experience.

To help define the role of the U.S. government technical report within a formal information structure, survey respondents were asked to indicate what percentage of the conference-meeting papers, journal articles, in-house technical reports, and U.S. government technical reports they use are for purposes of education, research, management, and other. Overall, they use conference-meeting papers most often for research, followed by education and management (table 4).

About 74 percent of the conference-meeting papers used by survey participants working as scientists are used for research, and about 55 percent of the conference-meeting papers used by survey participants working as engineers are used for research. It is noteworthy that as the years of professional work experience increase, the use of conference-meeting papers for purposes of education and research decreases. The use of conference-meeting papers for purposes of management increases as years of professional work experience increase.

Table 4.
Use (Purpose) of Conference-Meeting Papers

Purpose	Average Percentage Of Use For Respondents In --			Overall Average Percentage Of Use (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Education	20.16	25.27	25.41	24.23	1,355
Research	70.37	50.09	47.86	53.34	1,355
Management	6.05	17.62	18.16	15.38	1,355
Other	3.41	7.02	8.57	7.05	1,355

On average, journal articles are used most often for research, followed by use for education and management. Overall, journal articles are used about 52 percent of the time for research (table 5).

Table 5.
Use (Purpose) of Journal Articles

Purpose	Average Percentage Of Use For Respondents In --			Overall Average Percentage Of Use (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Education	23.09	29.76	28.86	27.80	1,327
Research	69.14	49.41	45.60	51.83	1,327
Management	5.27	14.04	16.22	13.22	1,327
Other	2.50	6.79	9.32	7.15	1,327

Statistically, survey participants who hold a doctorate make greater use of journal articles than do participants with a master's degree or less. About 72 percent of the journal articles used by survey participants who work as scientists are used for research, and about 53 percent of the journal articles used by survey participants who work as engineers are used for research. As years of professional work experience increase, the use of journal articles for education and research decreases. The use of journal articles for management increases as the years of professional work experience increase.

In-house technical reports are used most often for research (52.86 percent), followed by management (21.54 percent) and education (16.20 percent) (table 6). Academic participants use

in-house reports most often for research, followed by use for education and management. Government and industry respondents use in-house technical reports most often for research, followed by use for management and education.

About 71 percent of the in-house technical reports used by survey participants working as scientists are used for research, and about 57 percent of the in-house technical reports used by survey participants working as engineers are used for research. As years of professional work experience increase, the use of in-house technical reports for purposes of education and research decreases. The use of in-house technical reports for management increases as years of professional work experience increase.

Table 6.
Use (Purpose) of In-house Technical Reports

Purpose	Average Percentage Of Use For Respondents In --			Overall Average Percentage Of Use (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Education	14.76	18.20	15.61	16.20	1,349
Research	66.94	50.73	50.38	52.86	1,349
Management	11.70	23.73	22.94	21.54	1,349
Other	6.70	7.33	11.07	9.39	1,349

Overall, U.S. government technical reports are used most often for research, followed by education and management. Overall, U.S. government technical reports are used about 56 percent of the time for research (table 7.)

Table 7.
Use of (Purpose) U.S. Government Technical Reports

Purpose	Average Percentage Of Use For Respondents In --			Overall Average Percentage Of Use (n = 1,839)	Total Respondents
	Academia (n = 341)	Government (n = 454)	Industry (n = 1,044)		
Education	17.04	18.79	18.11	18.09	1,332
Research	70.50	52.60	52.18	55.89	1,332
Management	7.71	20.09	19.25	17.22	1,332
Other	4.75	8.52	10.47	8.80	1,332

NASA technical reports (74%) than DoD technical reports (59%), the average number of DoD technical reports used was slightly higher. Although the percentage of respondents using AGARD technical reports and technical translations was low, the frequency of use rate and the overall use rate for these information products were consistent.

The use of the four technical information products was correlated with their importance rating (table 11). Although the correlations were statistically significant, they were low for each of the four products. NASA technical reports had the highest use-to-importance correlation.

Table 11.

Technical Information Product Use Correlated With Product Importance

Information Products	Pearson's <i>r</i>	Number
Technical Translations	0.191*	128
AGARD Technical Reports	0.161*	188
DoD Technical Reports	0.198*	418
NASA Technical Reports	0.239*	516

* $P \leq 0.05$

Survey 2 participants who did not use selected technical information products were asked to indicate their reasons for non-use of these products (table 12). About 69% of the survey respondents gave not relevant to their research as their reason for non-use of technical translations, followed by availability/accessibility (54.8%), the time it takes to physically obtain

Table 12.

Reasons for Non-Use of Selected Technical Information Products

Reasons	Technical Translations		AGARD Reports		DoD Reports		NASA Reports	
	%	n	%	n	%	n	%	n
Not Available/Accessible	54.8	278	53.7	212	49.6	127	39.0	64
Not Relevant To My Research	68.8	366	70.0	297	69.0	194	72.9	159
Not Used In My Discipline	45.1	205	51.1	181	37.1	85	47.5	86
Not Reliable/Technically Inaccurate	7.9	27	3.1	8	5.5	10	2.3	3
Not Reliable/Language Inaccurate	13.5	47	16.2	44	17.1	33	5.4	122
Takes Too Long To Get Them	51.0	214	----	----	----	----	----	----
Not Timely/Current	39.1	152	----	----	----	----	----	----

a translation (51.0%), and not used in their discipline (45.1%). Reliability, in terms of either technical accuracy or language accuracy, was not a major factor in the non-use of technical translations.

Seventy percent of the survey participants gave "not relevant to my research" as their reason for not using AGARD technical reports. About 51 percent of the respondents listed "not used in my discipline" and about 54 percent of the respondents listed "not available/accessible" as reasons for not using AGARD technical reports. Sixty-nine percent of the survey participants gave "not relevant to my research" as their reason for non-use of DoD technical reports followed by "not available/accessible (49.6%) and "not used in my discipline" (37.1%). About 73 percent of the respondents gave "not relevant to my research" as their reason for non-use of NASA technical reports followed by "not used in my discipline" (47.5%).

Survey 2 participants were asked to rate selected technical information products on the following characteristics: quality of information, accuracy/precision of data, adequacy of data/documentation, organization/format, quality of graphics, timeliness/currency, and "advancing the state of the art" in their discipline (table 13). Survey participants rated the quality of information highest ($\bar{X} = 4.11$) for AGARD technical reports, followed by the precision/accuracy of the data ($\bar{X} = 3.99$), and adequacy of data/documentation ($\bar{X} = 3.83$). Survey participants rated the quality of information in DoD technical reports highest ($\bar{X} = 3.89$), followed by precision/accuracy of data ($\bar{X} = 3.81$), adequacy of data/documentation ($\bar{X} = 3.58$), and organization/format ($\bar{X} = 3.58$).

Table 13.

Average (Mean) Rating of Selected Technical Information Products

Characteristics	AGARD Reports		DoD Reports		NASA Reports	
	Average (Mean) ^a Rating	Number	Average (Mean) ^a Rating	Number	Average (Mean) ^a Rating	Number
Quality Of Information	4.11	227	3.89	500	4.18	625
Precision/Accuracy Of Data	3.99	227	3.81	501	4.12	626
Adequacy of Data/Documentation	3.83	225	3.58	499	3.90	622
Organization/Format	3.81	225	3.58	499	3.92	624
Quality of Graphics (e.g., charts, photos, figures)	3.62	228	3.41	500	3.88	626
Timeliness/Currency	3.60	225	3.56	498	3.80	622
"Advancing the State of the Art" in Your Discipline	3.57	223	3.52	493	3.84	612

^aA 1 to 5 point scale was used to measure importance, with "1" being the lowest possible importance and "5" being the highest possible importance. Hence, the higher the average (mean), the greater the importance of the product.

Survey participants rated the quality of information in NASA technical reports the highest ($\bar{X} = 4.18$), followed by precision/accuracy of data ($\bar{X} = 4.12$), and organization/format.

Survey 2 participants were asked the purpose(s) for which they use the four technical information products. The bulk of these products are used for research, followed by management, and education. Use (purpose) responses from survey 1 and 2 were compared (table 14). The use patterns are very similar: the technical information products from both surveys are used most often for research.

Table 14.
Use (Purpose) of Technical Information Products

Information Products	Percentage* (Number) Used for the Following Purposes			
	Education	Research	Management	Other
Survey 1				
Conference-Meeting Papers	24.23 (1,355)	53.34 (1,355)	15.38 (1,355)	7.05 (1,355)
Journal Articles	27.80 (1,327)	51.83 (1,327)	13.22 (1,327)	7.15 (1,327)
In-house Technical Reports	16.20 (1,349)	52.86 (1,349)	21.54 (1,349)	9.39 (1,349)
U.S. Government Technical Reports	18.09 (1,332)	55.89 (1,332)	17.22 (1,332)	8.80 (1,332)
Survey 2				
Technical Translations	40.2 (101)	86.5 (142)	45.0 (27)	34.7 (15)
AGARD Technical Reports	47.1 (56)	85.5 (207)	43.0 (28)	45.3 (19)
DoD Technical Reports	40.5 (37)	83.9 (413)	51.9 (131)	50.9 (63)
NASA Technical Reports	45.7 (169)	84.9 (530)	47.3 (107)	51.1 (59)

*Percentages do not total 100 percent for Survey 2 responses.

Survey 2 participants were asked to indicate the extent to which their use of the selected technical information products was affected by seven factors. Their responses are contained in table 15. Accessibility, technical quality, and relevance exert the greatest influence on overall use. Technical quality, ease of use, and familiarity or experience influence the use of technical translations. Accessibility, relevance, and technical quality are the factors that influence the use of AGARD technical reports. Relevance and accessibility influence the use of DoD technical reports. Relevance and accessibility influence the use of NASA technical reports.

Survey 2 respondents were asked how they find out about AGARD, DoD, and NASA technical reports and how they obtain them. The findings are shown in figure 2 and figure 3. Survey 2 respondents who used AGARD, DoD, and NASA technical reports were asked to indicate the various means by which they find out about these reports (figure 2). For presentation and discussion, the awareness choices are grouped into 3 categories: **Producer**, which includes announcement journals such as *STAR*; **User**, which includes colleagues and coworkers; and **Intermediary**, which includes interaction with a librarian or technical information specialist.

Table 15.

Factors Affecting the Use of Selected Technical Information Products

Information Products	Average ^a (Mean) Influence of the Factor on Use							Total Respondents
	Accessi- bility	Ease of Use	Expense	Famil- iarity	Technical Quality	Comprehen- siveness	Relevance	
Survey 1								
Conference-Meeting Papers	3.79	3.43	2.50	3.56	3.74	3.38	3.97	1,552
Journal Articles	3.88	3.51	2.64	3.58	4.03	3.59	3.87	1,509
In-house Technical Reports	4.01	3.61	2.50	3.78	3.77	3.51	4.15	1,538
U.S. Government Technical Reports	3.65	3.38	2.51	3.52	3.73	3.55	3.90	1,573
Survey 2								
Technical Translations	3.54	3.43	2.34	3.40	3.68	3.73	3.86	223
AGARD Technical Reports	4.09	3.78	2.74	3.84	3.91	3.74	4.07	621
DoD Technical Reports	3.79	3.36	2.33	3.27	3.47	3.19	3.83	155
NASA Technical Reports	3.89	3.45	2.55	3.59	3.54	3.43	3.94	492

^a A 1 to 5 point scale was used to measure influence, with "1" being the lowest possible influence and "5" being the highest possible influence. Hence, the higher the average (mean), the greater the influence of the product.

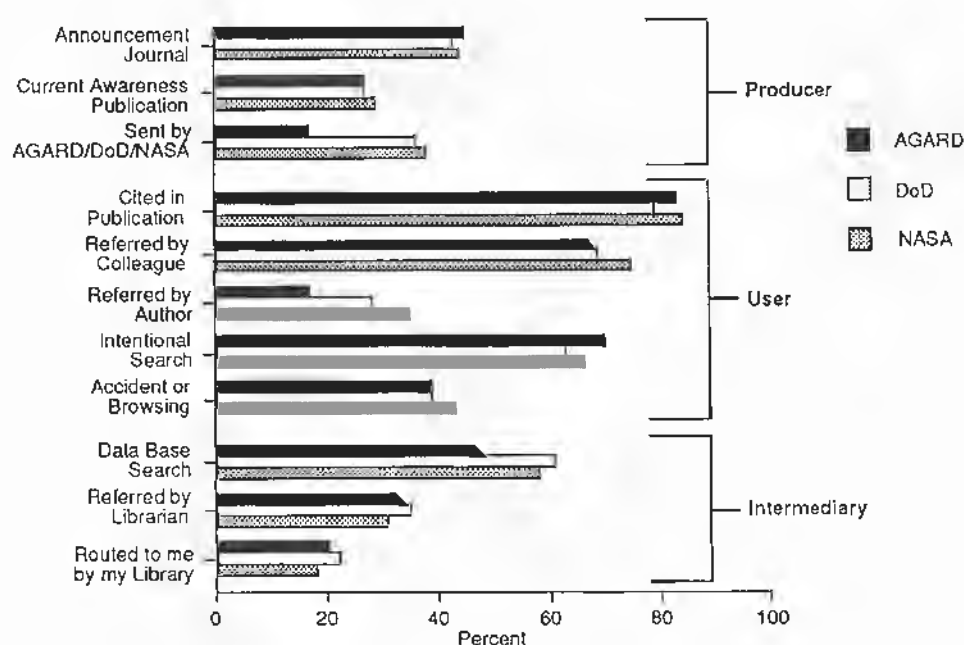


Figure 2. How U.S. Aerospace Engineers and Scientists Find Out about DoD and NASA Technical Reports.

Little difference was demonstrated in how U.S. aerospace engineers and scientists find out about DoD and NASA technical reports. **User** methods dominate awareness choices with "cited in a publication" and "referred by a colleague" being selected most often. **Intermediary** methods ranked second with "data base search" being selected most frequently. **Producer** methods ranked third with "announcement journals" such as *STAR* being selected most frequently.

From a list of seven sources, survey 2 respondents were asked how they actually access or obtain copies of DoD and NASA technical reports (figure 3). For presentation and discussion, the acquisition choices have been grouped into 3 categories: **Producer**, including sent by author; **User**, including obtained from a colleague; and **Intermediary**, including routed to me by my library.

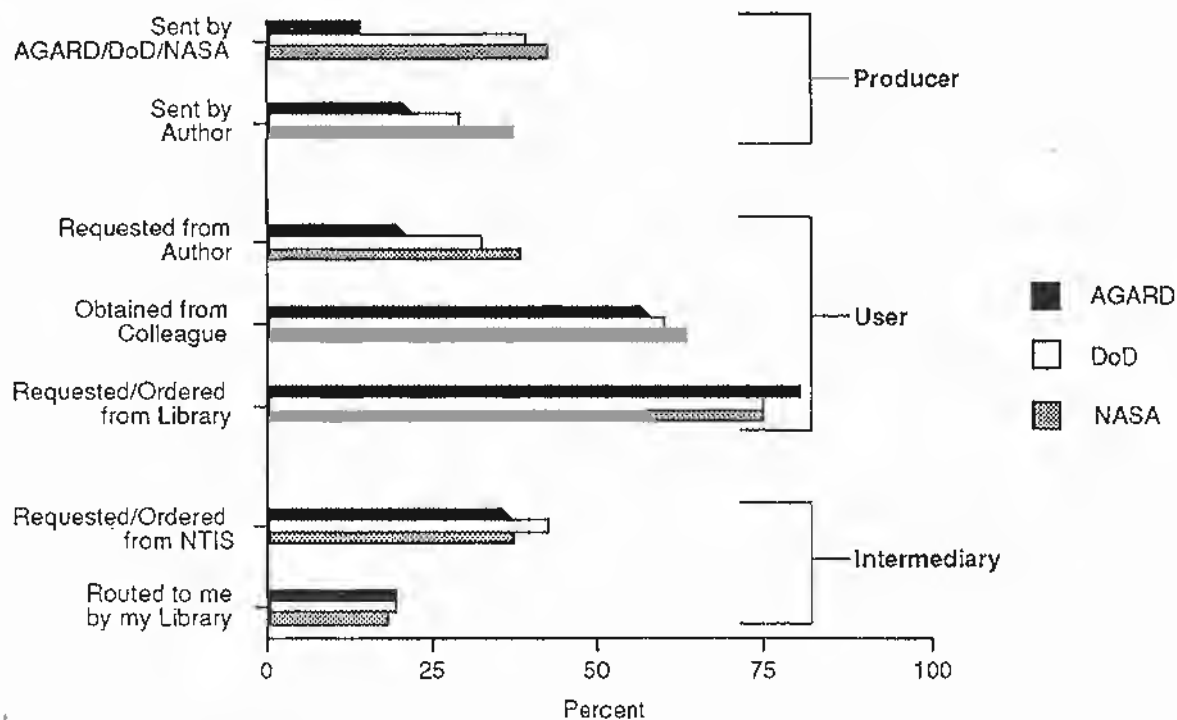


Figure 3. How U.S. Aerospace Engineers and Scientists Acquire DoD and NASA Technical Reports.

Overall, **User** methods dominate access choices with "requested/ordered from my library" being selected most frequently. (See figure 3.) **Producer** methods ranked second with "sent by DoD and NASA" being selected most frequently. **Intermediary** methods were third with "requested/ordered from NTIS" being selected most frequently.

5.0 FINDINGS

Readers should note that the data reported in this paper reflect responses of U.S. aerospace engineers and scientists belonging to the AIAA. The data may not be generalizable to U.S. aerospace engineers and scientists who are not members of the AIAA or who are members of some other professional (technical) society. Because the samples came from the AIAA, the responses may not necessarily be generalizable to the population of all U.S. aerospace engineers and scientists.

1. U.S. government technical reports are used by and are important to U.S. aerospace engineers and scientists. Overall, U.S. government technical reports are used most often for research. As years of professional work experience increase, the use of U.S. government technical reports for education and research decreases. The use of U.S. government technical reports for management increases as years of professional work experience increase.

2. "Not relevant to my research" and "not used in my discipline" are the reasons most frequently given for the non-use of (U.S.) DoD and NASA technical reports.

3. The quality of information and the precision/accuracy of the data in DoD and NASA technical reports are highly rated.

4. Relevance, accessibility, and technical quality influence the use of DoD technical reports. Relevance, accessibility, and familiarity influence the use of NASA technical reports.

5. **User** methods, with "cited in a publication" and "referred by a colleague" being selected most often, dominate the choices by which U.S. aerospace engineers and scientists find out about DoD and NASA technical reports. **Intermediary** methods ranked second with "data base search" being selected most frequently. **Producer** methods ranked third with "announcement journals" such as *STAR* being selected most frequently.

6. **User** methods, with "requested/ordered from my library" being selected most frequently, dominate the access choices by which U.S. aerospace engineers and scientists acquire DoD and NASA technical reports. **Producer** methods ranked second with "sent by DoD and NASA" being selected most frequently. **Intermediary** methods were third with "requested/ordered from NTIS" being selected most frequently.

6.0 CLOSING REMARKS

The data reported in this paper provide valuable insight into the use of U.S. government technical reports. Research presently underway will help determine the use of U.S. government technical reports by non-U.S. aerospace engineers and scientists. An empirical investigation of the U.S. government technical report as a rhetorical device for transferring the results of federally funded (U.S.) aerospace R&D is also being considered.

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Using grey literature in informal information service in Africa

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Abstract

There are increasing numbers of experiments (in countries as diverse as Sierra Leone, Tanzania, Benin, Senegal, Botswana, and Zimbabwe) with informal community information services dealing with health, hygiene, child care, cultivation, stock-rearing, trades, crafts and repair work, in the way in which surveys show that citizens require. Conventionally published material is in very short supply and seldom has relevant content. Services make use of such materials as are available, whether printed in leaflet, pamphlet, newspaper, poster, or flipchart form, or deliver information orally, on tape, filmstrip, or in the form of song, story, or dramatic presentation. Preliminary investigations show that the mechanisms for obtaining appropriate information to repackage for use in such information centres, and the capacity to carry out the repackaging exercise, are poorly developed in most of Africa. The official publications, reports, planning and policy documents from parastatals, development agencies, aid and charitable organisations and research centres, which contain this information, are poorly represented in the holdings of national library systems, research collections, or government agencies. Equally significantly, such institutions are not oriented in the dynamic way required to permit an effective repackaging exercise. There are, however, a few examples of appropriate arrangements for the acquisition, repackaging and distribution process which are cited as partial models of the way this work might be done.

1. INTRODUCTION

Grey literature is capable of being used to make an unusually significant contribution to the future of library and information service in Africa. Yet if this is to be done, it must be done despite the existence of a sustained crisis in the information sector of the continent. Received wisdom on how information and library service should be delivered has not provided effective answers to the needs of the poorest countries of the world. In Africa, librarians agonise over their marginalisation and powerlessness, whilst attempting to put into practice the lessons learned from information-rich, library-oriented societies. University libraries which are supposed to be 'the heart of the university' sit in imposing but neglected buildings, engaging ineffectively with learning patterns based on the words of the teacher. Research libraries flounder in the gratuitous complexity of their retrieval systems and struggle to meet the expense of

imported journals and monographs. Public libraries provide services suitable for a few expatriates and a western-educated elite, but provide very little in response to the clamorous demands of the school children whose desire to read is ever likely to be stifled by lack of things to read. Meanwhile, the semi-literate and non-literate majority population living in the rural and urban marginal areas strive to come to terms with a changing and frequently inimical environment. Their efforts to be better fed, healthy, better housed, more productive and generally secure have little assistance from formal information service of any kind. This is true of both libraries and extension services.

It is true that sensible things have been said about library services in Africa from their very inception in the years immediately before and after the independence of the majority of states. In particular, the Ibadan Seminar of 1953 suggested that "Dynamic public library service (in Africa as elsewhere) must be rooted in and evolve out of the needs, interests and conditions prevailing in the service area."¹ It also advocated surveys to establish just what the relevant conditions were. Yet thirty years on from Ibadan the situation could be characterised as follows - "Instead of playing an active role as change agents, most of these libraries play an information suppressing role to their community in failing to disseminate information geared towards bettering the lot of the rural poor. The public libraries still lack the interest or capacity for carrying out an analysis of the community, isolating its needs and satisfying them. They are yet to make a real commitment to the free flow of information, harnessing and providing ready access to information on rural development that would change the social circumstances of the rural poor."² Whilst some might argue that libraries were not intended to perform such a role, extension services were intended to do just that.

Extension services are typically attached to government ministries in the areas of agriculture, health, community development and adult education. They are designed to spread 'development messages' into the community by a variety of means. Agricultural extension, for instance has been closely associated with the so-called 'green revolution' in which new farming techniques, inputs such as seed, fertilisers and pesticides, and marketing opportunities were publicised by extension agents who visited farms explaining and distributing literature. The tendency was for the services to reach mainly the larger and better capitalised farms to the near exclusion of the rural poor. There has since been a shift in emphasis towards skills and practices more appropriate to smaller landholders on more marginal land. Integrated projects, involving the contribution of local people, have been launched to replace massive government planned schemes. However it has proved hard to change the perception that extension is about sending down messages from above, based on policies devised without regard to the needs and interests of their intended receivers in the countryside.

Some of this has been attributed to a general alienation between government and the masses. As Frantz Fanon put it in 1965 "The men at the head of things distrust the people of the countryside"³ and, as might be expected, the people of the

countryside in turn distrust the men at the head of things. The existence of a 'development coalition' between government, industrial employers and agribusiness has been alleged,⁴ with the bulk of the rural population excluded and fed messages intended to direct them towards official goals. In consequence, "Avoiding publicly monitored markets, working private plots, and seeking refuge in the most private of all institutions- the family - the peasants pursue private solutions to the problem of economic welfare."⁵ In such a context of alienation, extension's messages are not well received, however well they might be conveyed. In fact they tend not to be well conveyed either.

Extension has always emphasised face to face contact between agent and local people, backed by printed and audiovisual materials, and messages conveyed through the mass media. In practice the agents have often been isolated and not very welcome figures, sometimes treated as if they were government spies. Use of media has often been strident and clumsy with radio messages relayed at the wrong time of day in unsuitable language and tone. There have also been problems with ill-designed and poorly-distributed literature. Namponya, in a survey of the literature on extension services,⁶ concluded that they tended to reach only about half of the farming community and that about one third of farmers used radio as a source of information. He also found that the literature designed for farmers was not widely received though "most of them [the extension workers] have bought kitchen salt, soda, or curry powder usually sold by the spoon in groceries and markets in the townships and villages and found copies of the publications used as wrapping."⁷

The problem of extension service is not merely that it is too identified with officialdom, or that its messages are conveyed clumsily, but that it is based on a misapprehension of the ways in which information acquires acceptance by the community. This has long been perceived by sociologists of communication and Leonard Doob summed it up well as long ago as 1961. "Development in rural Africa will not be achieved through centralised control and manipulation of the rural masses by urbanised, distant bureaucrats. A more localised, more personalised, more situation-realistic approach, which allows an interchange of initiative, which explicitly involves the talents of rural people and people whom they respect and trust, using media which are familiar and accessible to them, will in the long run, lead to the creation of a climate for changing the life of rural communities."⁸ In particular, information service must construct its messages with in respectful acknowledgement of the existing body of oral indigenous knowledge.

This knowledge system has been defined as the "accumulation and dissemination of information in the form of shared environmental knowledge, beliefs, rules and techniques for productive activities... developed over generations as a product of man-environment interactions."⁹ To take only a single example of the significance of this type of knowledge, recent research into the practice of storing and fermenting the maize porridge eaten as a staple in Ghana, shows that, contrary to the advice of health workers, this is much more likely to produce a diet free of diarrhoea-causing bacteria than fresh food.¹⁰ Thus an examination of a traditional practice has proved it is more

appropriate to local circumstances than one imported from other conditions and other knowledge structures. It is also true that the oral indigenous knowledge contains beliefs and traditions which have no proven value, but these have to be addressed rather than merely overridden if new knowledge is to be effectively absorbed.

Social structure is crucial to the way in which messages are received and absorbed, and the communicator needs an understanding of the ways in which knowledge is passed on in rural society. Certain kinds of knowledge, for instance, are passed on as part of coming of age ceremonial, and systems of traditional apprenticeship are also widespread. Work and education were more or less indistinguishable, as "Both in childhood and adulthood, the traditional African contributed to family and communal economic wellbeing by acquiring the practical skills relevant to his immediate environment and practised by most of the other members of the community: animal husbandry, agriculture, dyeing, weaving, carving, skin tanning, fishing and so on."¹¹ Modern African governments seem to have inherited some of the colonial incomprehension of the significance of this mode of learning, and of the social organisation, methods of land tenure, religious beliefs which also influence how ideas and information are accepted. They have persisted with distinctly mechanical models of information transfer in the face of the evidence of the organic complexity of the system into which messages must be absorbed. Extension service has suffered from being at the meeting point of this conflict between mutually uncomprehending parties, whilst librarianship was somewhere off on the margins.

2. INFORMAL INFORMATION SERVICES: THE IDEA

It is the failure of both libraries and extension to function effectively which has turned attention towards the idea of new, informal services. Adimorah in a 1983 analysis of the failures of public libraries in Nigeria, suggested that "Further research is needed on the information needs of Nigerians and their information gathering habits to enable public library directors to plan society-based services and create a true library tradition."¹² In fact in Nigeria itself some important research of just this type had already been done in Olabimpe Aboyade's RUDIS project at Ibadan University.¹³ Researchers made regular visits to a selected village community, offering information, but taking good care to discover from the villagers just what kinds of information they wanted and in what forms they could accept it. The conclusion reached about the types of information required were in the first place unremarkable - health, occupations, education - but did include two areas - recreation and religion - which had not actually been anticipated. As for the conveyance of the information, the preference was for oral transfer, but tapes and posters, in association with opportunities for discussion, were very positively received. The important point was that the villagers reacted very positively to the service because they were seekers obtaining a reaction

from the service, not, as was usually the case with extension service, supposed to be passive recipients of messages prepared without reference to their sensibilities.

There has also been work in particular subject areas. Work on the expressed information needs of farmers by Oladele¹⁴ suggests that there are three broad elements, market and demand information, inputs and supplies, and production technologies. Extension service was seen to concentrate on the latter more or less to the exclusion of the first and second. Slightly earlier research, such as Adimorah's survey of farmer's information needs in Imo State, Nigeria,¹⁵ had found that the chief requirements concerned fertilizers, pest control and financial loans. Aina's research from the same period¹⁶ largely corroborated this, identifying fertilizers, pest and disease control, seeds and other planting materials, and financial loans, as the chief concerns, with agricultural prices not far behind.

There has been less research with a whole community scope, but the International Development Research Centre (IDRC)'s INFORD survey in Botswana, Malawi and Tanzania is a major exception to this generalisation. The published Malawian results¹⁷ show that the chief problems in their lives which respondents identified were overwhelmingly in the health area, with farming and fishing ranked second. When asked to think in terms of their information needs as such, many respondents could not suggest anything that they identified in this way. For those who could conceptualise their needs, health and hygiene ranked high, but literacy, agriculture and home crafts ranked higher. These two sets of responses, taken together with information from the survey on the places and personnel associated with information exchange, develop quite a full and convincing picture of the needs of villagers, and their perception of them in information terms.

Other projects on information transfer in rural communities are not numerous, but some are moving beyond the broad sweep of the INFORD survey. An example is research in progress in 1993 on how to make the most effective transfer of information to rural communities in Akwa Ibom State, Nigeria.¹⁸ The aim is to examine why and how information is absorbed in some communities and yet fails to penetrate others which are superficially the same. This is partially inspired by the observation that an information campaign failed to persuade all its target villages that filtering water does not remove the goodness which promotes wellbeing, but does reduce the incidence of health problems caused by the Guinea Worm. The hypothesis that heightened economic activity, such as that generated by a scheme of small loans for fisheries development, encourages behaviour change including receptivity to the content of information campaigns, is being tested.

What the results of such research begin to do, is to lay the groundwork for the design and implementation of responsive information services, rooted in a knowledge of needs. Meanwhile the calls for such services and tentative suggestions for the form they might take have multiplied. Rahnema in 1982¹⁹ outlined an information service wholly based on audio tapes, but particularly concerned with using recording technology to preserve and disseminate local culture and knowledge. Adimorah in 1983²⁰ saw a future for libraries in Africa as information

and documentation centres, and in 1984²¹ developed the idea of integrated rural development units making use of mobile libraries, book boxes and village library centres. The locus for dissemination was a major concern for Durrani,²² who identified kiosks selling food in Kenya as existing points for informal information transfer, at or near which information service could very effectively be provided. Mchombu in 1985²³ considered various alternatives to the National Library systems which are generally provided by African states as their means of giving information service to the public. Agbelele in 1986²⁴ suggested re-orienting existing public libraries in Nigeria to an information and referral mode.

The most fully realised version of such ideas was published in book form in 1987 by Aboyade.²⁵ This elaborated in some detail the potential form of services that would: reinforce development messages put out by various agencies by permitting reference to the materials containing these messages at a fixed information point; repackage information into forms acceptable to the local population; acquire and organise specialised materials to permit deeper levels of information provision; fill the information gaps not tackled by extension services (eg the leisure and religious interests identified by her earlier research); provide information links between other information services and campaigns, and act as a source of feedback on local response. The services would be explicitly rooted in local languages, use acceptable media for information transmission, and interact with traditional patterns of communication.

This programme in its essence has continued to be advocated and expanded since. Iwuji in 1989 envisaged a community information resource: "This civic centre would be pulsating with community activities like work-based adult education such as agricultural extension instructions on new ways of doing old things, generation of reading materials for new literates, art and cultural exhibitions and festivals, viewing of recorded oral literature and tradition, meetings and workshops organised by the various interest groups in the community, and a whole range of other activities aimed at enhancing the social craft of the people."²⁶ Sturges and Neill in 1990 attempted to develop the idea of the personnel to be involved, talking of an 'information animator'.²⁷ Kedem, in 1991,²⁸ looked at library services from the literacy campaign point-of-view and concluded that new types of service should be an essential support for such programmes. Nthiga²⁹ contrasted the protected existence of the African professional librarian with that of the rural information seeker, and called again for new informal services. In 1992, Mchombu³⁰ discussed a number of information delivering options in the rural areas, and Kantumoya³¹ made a number of suggestions for more effective community information service.

The informal information service, rural library, or whatever it is called, also has a widely available manual by Shirley Giggey,³² based on her own experiences in Papua-New Guinea and piloted in various African countries. This carefully written and pleasingly illustrated book shows how a community can help itself to set up a plain and serviceable information and study centre, matched to its needs, using simple materials and local skills. There have also been a number of very useful workshop meetings

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devoted to the organisation of such services. The German Foundation for International Development (DSE) promoted such a meeting in 1984, and published the proceedings.³³ There was a national seminar in Nigeria in 1989 on Rural Library Development,³⁴ and in 1991, the Commonwealth Library Association (COMLA) organised a Regional Workshop for West Africa on Rural Community Library and Information Centres.³⁵

3. INFORMAL SERVICES IN PRACTICE

The response to these promptings has been widely distributed and varied, but has an essential consistency with the programme to which the various writers on the topic have contributed. Some initiatives have a quite limited initial purpose, others seek to provide a much more extensive and ambitious service, more or less from the inception.

At the more modest level, in several areas there has been work done with the concept of simple reading rooms. These are places for children to do their homework, and for anyone else to study, or read newspapers. Such rooms provide little more than tables and chairs, and the artificial light many homes lack, supervised by a member of the community. They usually have some basic reading material, often of the kind generated by adult literacy schemes. A system of such rooms in Tanzania has been established for some time with a certain amount of success.³⁶ A recent UNESCO mission to investigate these Tanzanian reading rooms drew attention to their potential for maturing into community resources with a role broader than the simple reading facility.³⁷ This of course should be the aim with such facilities: to begin with a limited role matched to immediate need, but to develop as the needs of the community members expand, and the ability of the community to support something more elaborate grows.

In experiments with reading rooms in Botswana, the Botswana National Library Service has linked up with various kinds of local community organisations to support the rooms.³⁸ This has included the provision of book boxes containing small, but regularly exchanged, collections of publications. A similar idea was included in the Malian Five Year Plan, 1984-1988, with public library service decentralised through the provision of collections of fifty books to rural communities. There were also related plans, including "The organisation of cultural tours, including shows in local languages, as well as the setting up of reading areas in the six villages of the Bamako district."³⁹

Humble, but effective, community-generated initiatives of more than one kind are also to be found in a number of centres in Zimbabwe. The country has some of the best conventional libraries in Africa, and in the Bulawayo townships a library system giving excellent service to the less privileged sector of society despite financial constraints and great pressure of reader demand. This same area also has the Bulawayo Home Library Project, supported by the Swedish International Development Agency. This was based on the home library idea, used some years before in Harare, which utilises an individual's home as a centre

for reading and exchange of materials from a small collection.⁴⁰ Although in Bulawayo the collections are, in fact, held at literacy centres, home libraries (sometimes also referred to as suitcase libraries) can be found in other African countries. Also in Zimbabwe, there several examples of community libraries stemming from the initiatives of Obadiah Moyo and his Rural Libraries and Resources Development Programme.⁴¹ The programme currently supports 23 school/community libraries which have grown from expressed need, involve the community itself in organisation, have no formal bureaucratic structure, and provide service in an improvised, low-cost way. They are a real workshop for generating ideas and experience in the informal services sector.

A more ambitious group of services, conceived in the context of an internationally fostered programme, can be found in francophone Africa. Centres de Lecture et d'Animation Culturelle en Milieu Rurale (CLAC) have been set up under the aegis of IFLA's Advancement of Librarianship in the Third World Programme (ALP). Such centres are already established in Benin and Senegal, and others are to be established in Ivory Coast and Burkina Faso. The objectives of the CLAC centres are "to break the isolation of the rural communities by creating access to modern media to make it possible for the population to contribute more to the economic, cultural and social development; to develop in rural environments active centres for education and training in health and medicine, agriculture, literacy, literature, etc; to promote the flourishing of the local cultures and popular traditions."⁴²

Finally in this brief account of existing informal services, there is current activity in Sierra Leone, where Rural Community Resources Centres, intended to embody the full informal services programme already outlined here, are being set up as pilot projects with support from the British Council and UNESCO. The ultimate functions of the centres are listed as: information exchange centre and clearing house; repository of development-related information; information mediating centre, translating collected information into a more appropriate form; search and find centre for requested information; live information promoter, through drama, song and story; publicity agency for information providers and development agents; literacy sustaining centre. The organisers say of them that: "The challenge is to move into a more dynamic-interactive mode suitable for dealing with rural communities, to serve not only as repositories of 'stored knowledge' but also a centres of 'knowledge in the making' and, finally, to adopt a diversified approach to the media/technologies used for collecting as well as for storing, retrieving and disseminating information."⁴³

4. THE CONTRIBUTION OF GREY LITERATURE

Grey literature in its original forms may, on occasion, be used in informal information services, but much more significant is the potential use of its information content in new forms. What most of the proposals for informal services refer to, though sometimes rather indirectly, and what the existing services

practice, as far as they are able, is the transformation of information, whether it be from publications, grey literature or the oral tradition, into forms capable of absorption by the information seekers. The stress, for instance, on 'knowledge in the making' amongst the functions intended for the Sierra Leonean Rural Community Resource Centres is just one of the many explicit and implicit references to this throughout the literature on the topic. The process they allude to is probably known most correctly as 'information consolidation', though generally referred to, by a term which strictly only describes part of the process, as 'repackaging'.

Saracevic and Wood, in the standard manual on information consolidation, define it thus "Consolidated information is a text or message purposefully structured from existing public knowledge to affect the private knowledge and decisions of individuals who otherwise may not be able to effectively and efficiently access or use this public knowledge from the original amounts or in the original structure and form".⁴⁴ The consolidation process begins with the study of potential users, selection of primary information sources and the evaluation of their information content. Analysis of this content to permit restructuring (condensation, rewriting, etc.) and packaging or repackaging of the restructured information can then follow. The diffusion, or dissemination of the packages should be accompanied by feedback from users to enable evaluation and adjustment of the process to take place.

For information centres to engage with knowledge in the making, and practice effective information consolidation, the centres must have access to a range of resources, amongst which grey literature is of central importance. This is well recognised in Sierra Leone where organisations holding grey literature were surveyed by the British Council to produce a directory for use in providing development information.⁴⁵ Some African librarians too, have grasped the need for a more effective exploitation of grey literature. Raseroka, for instance, has declared that "Libraries in developing countries should make this [collecting grey literature] their primary task".⁴⁶

Nevertheless, in Africa generally, the significance of grey literature is only imperfectly appreciated. It is true that there is some evidence of the content of grey literature being studied for academic research purposes. Aina, in a survey of the use of grey literature in agricultural research in Nigeria found that 14% of the citations in a group of theses he examined were to technical reports, conference proceedings, annual reports and theses.⁴⁷ In contrast, and perhaps more typically, the Dean of the Faculty of Science in an African University, when faced with the suggestion that a collection of grey literature could be useful to his faculty members and students, claimed that nothing of this kind could be relevant to science in any of its branches. Presented with listings of the material, he was surprised to find significant material on botany, and zoology, and even some relevant to chemistry, in the form of natural resources data on water, soils, minerals and consumer products.⁴⁸

Just as African academics may not be well-oriented towards the use of official and semi-official material, so government planners make insufficient use of academic research findings.

Akan, looking at academic research relevant to planning in Ghana, found it essentially scattered and lost in university libraries.⁴⁹ Academics too, sometimes perceive the problem of access as one of library attitudes and practices. Witness the academic administrator who "requested that all academic-oriented information be sent to the faculty instead of the library where its catalogued and shelved unnoticed by those who could otherwise need the information. She quipped that librarians at ---- University are still information keepers as compared to information disseminators."⁵⁰ The total picture at research level is one of limited appreciation of grey literature, and that appreciation, such as it is, frustrated by ineffective systems for delivering its content to the user.

Thus, the case for the utilisation of information from grey literature in informal information service is not based on its easy availability, or on a high level of appreciation of its value at the top. Rather, it is based on sheer crying necessity. African countries lack the conventionally published material that would in other parts of the world be a first resort for those establishing information services. Their own publishing industries are, almost without exception, insufficiently developed to meet more than part of the demand for textbooks or library materials. Imports are not merely horrifically expensive, but finance ministries and central banks do not have the foreign currency to release for purchases, even if budgets contain the necessary local currency funds. The methods of ordering and payment required by overseas booksuppliers, the bureaucratic formalities, particularly those of customs services, complicate matters and sometimes impose extra costs, all of which effectively block off all but a trickle of imports. Under these circumstances, the providers of any kind of information service cannot reasonably defend the under-exploitation of grey literature on any point of principle.

It remains to be shown, however, how the exploitation of grey literature can be achieved to full effect. There are three main requirements: first that the grey literature should be collected and organised efficiently; second that there should be the capacity to research its content and create new information packages from it; and third that these new products should be disseminated effectively. To some extent the ultimate answer to the third of these requirements is contained in what has already been discussed here. New informal information services, alongside extension services and libraries, provide the outlets. Ensuring that there are the means to supply the packages to them is the vital link in the information chain. The first two requirements therefore remain to be discussed.

5. ACQUIRING GREY LITERATURE IN AFRICA

Collection of grey literature worldwide has been, until recent years, less than satisfactory. In less developed countries it is still very unsatisfactory. A natural answer to the question this raises is to say that legal deposit regulations take care of it. Of course, this is just not true. Take for example Botswana,

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which has a regularly-appearing national bibliography based on legal deposit receipts and a specialised development bibliography in DEVINDEX Botswana. The deposit law in force requires all monographs, pamphlets, government publications, conference proceedings, and theses to be deposited with the Botswana National Library Service. The issues of National Bibliography of Botswana for 1984 and 1985 contained a high proportion of government and NGO reports and other documents, suggesting that maybe legal deposit was producing a national collection of grey literature. However, a small survey in 1985 of material printed in Setswana, the national language, showed that by enquiring at government ministries and agencies, the enquirer, could obtain numerous titles.⁵¹ Virtually none of these are listed in the national bibliography 1984 and 1985 issues, and indeed the material in the bibliography is predominantly in the English language. None of the 21 Ministry of Agriculture, Agricultural Information Office booklets and pamphlets, or the 6 from the 4B Youth Section, identified in the survey, appeared in the volumes, nor did 15 booklets from the Ministry of Health, Health Education Unit. More recently Aina found that, while the DEVINDEX Botswana issues for 1987, 1988 and 1989 had fairly good coverage of material from government departments, their coverage of other sources was less effective.⁵² He stressed the need to solicit such material actively, rather than wait for it to arrive under arrangements such as legal deposit.

More systematic surveys of grey literature in less developed countries show what a significant proportion of the total material available they represent. Sly in 1982 suggested that development literature globally was 60% grey literature, and the proportion was certainly even higher in the information output of the poorer regions of the world.⁵³ Obasi suggested that about 70% of Nigerian publishing evades the national bibliographic process.⁵⁴ Much of this would be trade books elsewhere, but its undercapitalised young publishers, operating from no fixed address, constantly dodging creditors and the interest of government officials, made acquisition of their products by national bibliographic agencies very difficult. The main reasons why grey literature evades collection are well known, but in Africa they can be accentuated by local circumstances. Documents are a source of power and even money. The economist Balabkins researching in Africa found that officials deliberately hoarded grey literature, not least because they hoped to derive financial advantage from its release to enquirers.⁵⁵

Diligent collecting efforts can, however, assemble a very high proportion of what is notionally available. Indeed, actively pursued legal deposit can be effective. In Zimbabwe both the National Archives in Harare and the Historic Reference Collection of the Bulawayo Public Library should receive legal deposit material under the Printed Publications Act of 1975. Deposit with national archives services is not an uncommon arrangement, and in Zimbabwe the National Archives acquire a high proportion of conventionally published material and government publications, and good quantities of non-conventional publishing from other sources. The underfunded, but excellently housed and maintained, Bulawayo collection is also effective, estimating an 80% to 85% success rate in acquiring relevant Zimbabwean imprint. In 1985

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the National Archives began to publicise their facilities to senior personnel from government, local government and parastatals. This was to counter the observation that "The administrative authorities tend to view archives only as the means of preserving their country's history but perhaps overlook their importance as an essential development and planning tool."⁵⁶ These efforts can be supported by anecdotal evidence of the value to planners of the publications held in archives. For instance, in the late 1980s tentative plans to utilise the enormous reserves of bat guano found in caves in Zimbabwe for fertilizer were aborted when analyses done in 1920-23 were discovered in the Bulawayo Public Library Historic Reference Collection. These showed too great a range of quality to make economic exploitation a practicality.

National archives services can indeed redefine their function to focus on the collection and exploitation of grey literature and other current documentation. Possibly the best example is the Kenya National Archives which set up a National Documentation and Information Retrieval Service in July 1989. The NDIRS actively publicises the archives service's holdings of report literature. Leaflets announcing the availability of the material are widely distributed and members of the service's staff visit schools, colleges, universities and other research centres to back up the message. The lists of acquisitions produced at six-monthly intervals are used to illustrate what the service has available. The reports of these visits show the magnitude of the educational effort required to implant the idea of grey literature as a source, and archives as the place to find it, but the programme is an admirable attempt to meet this need.⁵⁷ It also suggests that an archives service, suitably organised, is capable of providing the means to feed the content of grey literature into a system of informal information services.

However, experience suggests that specialised institutes are usually more effective than national library or archives systems in identifying and collecting grey literature. They are less concerned with decisions over whether material really fits the categories they are supposed to acquire and are much more interested in the subject content. They more often adopt an active collecting policy, rather than relying on the awareness and good will of producers towards legal deposit or archives regulations. For instance, in the late 1970s the Documentation Centre of the Senegal River Basin Development Programme made a systematic search for relevant material and discovered 20,000 items.⁵⁸ Ambrose's study of grey literature in Lesotho⁵⁹ identified over 150 sources of grey literature active over a ten year period in this small country. From these the Documentation Centre of the Institute of Southern African Studies had collected nearly 3000 items, more than 100 serials and 180 annuals. The significant point about these examples is that most of the material had not been collected or listed by any of the other services which might notionally have accepted responsibility for it.

6. SERVICES TO REPACKAGE GREY LITERATURE

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This outline of some collecting and exploitation of grey literature stops well short of describing any fully-fledged service to transpose the information content of grey literature into different forms for different purposes. Writers on the topic have seldom made very specific suggestions as to the form this might take. Several writers have suggested units attached to agricultural information services. Oladele in 1987, claimed that "The librarians must not only have the capability to identify sources of information of value to the farmers from the financial houses, commodity boards, government policy makers, or from any other sources, but must also be capable of restructuring such information through the process of analysis, synthesis, and repackaging in a format other than print, Such repackaging should take into consideration the prevailing illiteracy, cultural divergence, and idiosyncrasies of the small farmers."⁶⁰ Alemna also identifies a need for such units. "The results of expensive research submitted in the past are still lying in dusty files in offices or laboratories and have not been efficiently communicated to policy makers, planners, industry, extension workers and others who must apply them. This is due to the lack of information workers/scientists to distil and repackage research information into a form which extension workers can use to communicate to farmers."⁶¹ He discusses the potential for the Ghana Scientific and Technological Network (GHASTINET) to exploit radio, TV, posters, meetings, comic and folk plays for the dissemination of the agricultural information.

Other writers have suggested different arrangements. Gooch opted for a combined agricultural/medical service in which there was a [female] information specialist "Gathering information from her country/regional internal sources (grey literature): selecting, filtering, translating, repackaging the information collected; delivering the information (at the right level) to (a) the scientific community (b) the extension/agri-med community, and (c) the general community."⁶² Kantumoya identified the problem very precisely when he said that "What they [the people] need is information on modern farming methods, importance of vaccination for children, sanitations and civil rights. There is plenty of such in the offices of various government ministries and departments, as well as the offices of some non-governmental organisations. This information, which for so long has been neglected, should be collected, repackaged and put at the disposal of the people by public libraries."⁶³ His suggestion that the work should be done by 'community information departments' within the public library service, is less convincing than his analysis of the problem.

Although what is quoted above is still at the level of suggestion and exhortation, services which repackage information do exist, and others are being set up. Rosenberg, for instance, describes a number of specific instances of the presentation of information in forms designed for easy absorption by rural people in the Sudan.⁶⁴ Three other examples, in technology, health care and women in development, will be described here because their

structure illustrates an important requirement. Saracevic and Wood argue strongly that the information consolidation unit needs a host organisation which contains subject experts. It has already been argued here that collection of grey literature is done most effectively by an organisation with a commitment to a particular subject area. This applies at least as strongly to repackaging. The work needs to be done by people who have a full understanding of both the message they must repackage and the audience for which it is intended. A specialised institution offers this, whilst a broad based service, such as a public library, does not. The three examples are quite different from each other: the Botswana Technology Centre has been consolidating information effectively for many years; the Malawi Ministry of Health Library and Documentation Centre has fairly recently begun to make good use of modern technology for this purpose; and the Zimbabwe Women's Resource Centre and Network has, as yet, not moved fully into the consolidation work included in its plans. All, however, are illustrations of the type of unit which is most suitable for this type of work.

The Botswana Technology Centre (BTC) was established in 1979 as the arm of the Ministry of Finance and Development Planning devoted to promoting appropriate technology in the country. Some of its work is concerned with the development of technologies, but it also works at the policy formation level, and, most significantly, provides information service. The Technology Information Service is closely connected with the monitoring and evaluating of technologies by the Technology development Division and the Technology Assessment Division. Engineers with backgrounds in civil, electronic, mechanical, systems, and renewable energy, are amongst the experts employed by the Centre. The types of project in which they have been involved include the design of electronics products which are suitable for manufacture and use in Botswana; study of alternative designs for rainwater catchment tanks using ferrocement; experimentation with indigenous materials, such as stabilised soil blocks, for building purposes; development of hand-operated workshop equipment for rural entrepreneurs.

The Technical Information Service has Publications, Audiovisual, Extension, Library and Information Sections. The library is one of the best in Botswana and in addition to publications it maintains a database of resource persons, suppliers, and technology experts. The Technical Enquiry Service provides advice and answers to the public and private sectors. The Extension Unit promotes BTC at meetings, seminars and conferences. The Publications Section handles the formal output of BTC's research and technology monitoring in the form of a Technical Paper series directed at the administrative and technical level reader. Titles include Rainwater catchment possibilities for Botswana, Ferrocement tank construction manual, Rural workshop equipment, Growing vegetables in little water, and Lightning protection in Botswana.⁶⁵ They are easily identifiable as grey literature and, although clearly written and illustrated, would present problems for the vast majority of potential users of the information they contain. Therefore a series of Technical Bulletins are produced to present information from these, and from other sources, in a more accessible form.

The Technical Bulletins deal with discrete, practical topics likely to appeal to and be useful to a large number of people. They are only 3 to 4 A4 pages long; the language in which they are expressed is simple and direct; layout is clear and uncluttered; there are plenty of simple, sometimes amusing illustrations. The very first Technical Bulletin illustrates the way in which the repackaging process within this organisation. It is a 4 page treatment of Better care for your car battery (TB1), which first appeared in March 1986. This relates directly to a Technical Paper Battery operation and maintenance (TP6) by Gerrit Jacobs, which had appeared in October 1985. The Technical Paper derives from the published literature on the topic and in 33 pages mixes practical advice on maintenance with detail of the construction and operation of lead acid batteries. There is a certain amount of technical information, such as an explanation of how battery capacity is measured, and chemical reactions in the discharge and charge cycles. This is supported by tables of figures and diagrams. The Technical Bulletin takes the same subject and in 4 pages concentrates entirely on providing the essential instructions for someone using a battery, ranging from what to check to make sure the battery keeps running, to how to jump start an engine when a battery is flat. Other topics in the series include Making pickled beetroots, An easier way to make tomato crates, Segwana handwasher (which appeared in Setswana), Bread recipes for small village bakeries, and Protect your home against lightning.⁶⁶

In addition to the information products on paper, there is the work of the Audiovisual Section. This produces regular programmes for broadcasting on Radio Botswana, slides, videos, and photographs. In fact the whole information spectrum, from the original research, assembling of documentation, through to production of information products, consolidation of information and dissemination, is integrated within the organisation.

To turn to an example from health care information, the way in which information consolidation works in the Ministry of Health Library and Documentation Centre in Malawi has been described by Lippman.⁶⁷ In this case the inter-reaction between acquisition and dissemination, through the repackaging process, is of particular interest. The library had considerable difficulty in acquiring reports, research findings, conference and seminar proceedings generated within Malawi itself. It suffered from the perception amongst health care workers that the maintenance of a library was not an essential expenditure when funds were scarce, and when libraries had little visible output. As part of a United States Agency for International Development (USAID) project called Promoting Health Intervention for Child Survival (PHICS), the Ministry library was able to expand its role to include the production of information materials. A desktop publishing unit was established for this purpose, first of all publishing the research reports and findings of the PHICS project. This opened the way to publishing on behalf of other health personnel and because the library was more noticeable as a publisher it began to attract more deposits of report literature.

A repackaging element was included within this programme. Abstracts and reviews of material in the library, which by now

had a strong grey literature element, were included in a newsletter, Malawi Drug Bulletin. Although this, as are the unit's other information products, is essentially targeted at health workers of all kinds, it is distributed right down to village level. The content is intended to be relevant and useful to those providing health care at all levels in Malawi. The library's access to databases, notably MEDLINE on CD-ROM, also facilitated the repackaging of bibliographic information, through the downloading of bibliographic records. But what is more important here is that a local database was also created, including the whole range of grey literature which the library was now receiving. This database was published in hard copy as A select bibliography of health information in Malawi 1980-1991. Publication resulted in the receipt of large quantities of reports, articles, conference papers, and theses, sent in by authors because they had not been included. This improved the library's holdings once again, both upgrading the database and providing further potential content for Malawi Drug Bulletin. Lippman stresses the good effect of this whole process on the library's role in operational research leading to more effective planning and administration.⁶⁸ The importance of this should not mask the essential significance of the mutual benefits which publishing, repackaging, acquisitions and library services derive from each other when combined within the one institution. Each activity benefits the other and, indeed it might be argued that some could not exist without the others. Certainly this complex of activities provides a platform for effective dissemination of health care information from both published and grey literature to every relevant level.

As a final example, the Zimbabwe Women's Resource Centre and Network, which is currently being developed,⁶⁹ illustrates the same point but relating to different subject content. ZWRNCN was a response to the lack of coordination of information from the various researches on women in development which have been carried out since independence in 1980. Institutions, such as the Zimbabwe Central Statistics Office, Zimbabwe Institute for Development Studies, and the University of Zimbabwe, were known to hold large quantities of relevant information, without the resources or will to make it more widely available. Not only does this hamper current researchers, but virtually none of the information has been filtered back to the ordinary women who have been the subjects of research and who could benefit from the knowledge to which they have contributed. The Women's Resource Centre and Network was set up in 1990 to meet this and related needs. It is compiling details of projects and personnel involved with women's issues. The aim is not merely to list, however, but to disseminate information in packages which can be used by women in the villages, just as much as researchers in the universities. These packages are to include regular newsletters, meetings and seminars, simple information packs, educational materials and booklets. Distribution of the materials is to be enhanced by training workshops on gender awareness in project design, for development organisations.

The first phase of the project, which began in 1990, was concerned with identifying and collecting materials and data on women in development from government departments, NGOs, and other

organisations in Zimbabwe. The second phase includes the preparation of packs and booklets repackaging some of the information originally acquired. The extent to which this activity can be sustained has been dependent on fund-raising to pay for staff, equipment and premises. Whatever level of success and permanence the project achieves, it illustrates very well the way in which sectoral information projects are being conceived as more than mere collecting exercises, or means to engage in policy formation or development of the research agenda. The dissemination function, and the information consolidation work which is at the heart of it, is built solidly into the planning of the project.

7. CONCLUSION

What these examples show is first that this awareness that information work for African communities must utilise the whole range of sources, firmly including the grey literature. Second that mere collection of materials is not enough, and that an active information consolidation and repackaging exercise is required so as to provide information capable of effective dissemination. The way in which this dawning realisation provides new impetus for development communication, and in particular, for informal, community-based, user-oriented, information service is exciting. It confirms the assertion made very strongly by Saracevic and Wood that consolidation has to be done in the context of expert involvement and guidance. These projects exist and have some measure of success because of this. So far there is little evidence of such work stemming purely from an information collecting or delivery service, as provided by libraries and archives, despite calls for them to become information product creators on a serious scale.

The future for the use of grey literature and other non-conventional information sources in informal information service seems to lie in a close alliance of those involved in acquisition, consolidation and distribution. National institutions - national libraries, national archives, national institutes of research - are capable of strong acquisition activity. Specialised research institutions in particular subject areas provide the technical expertise in interpreting the source materials, re-writing and re-presenting the information for different media of communication. Community-based services, understanding their public and able to mediate the delivery of information, in the context of places and situations accepted by that public, are the best means to complete the chain. The relationships between institutions involved should never be exclusively defined so as to confine elements of the process to particular players, since it is obvious that in different historical and geographical circumstances roles may best find different balances. Nor should a total national information system (along the lines of NATIS, or any similar concept) be seen as a pre-requisite for such cooperation. Ad hoc relationships which work to achieve specific purposes are infinitely preferable to grand, all-embracing plans. Within a context of such practical

arrangements, the rare and precious information resources of the poorest countries can be put to best use for information service to the poor of Africa's villages and slums, whose need is greatest, but whose ability to help themselves is severely constrained.

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Supply and Demand of Grey Literature. The Case of Japanese Governmental Information

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Abstract

The semi-governmental GMD Tokyo Office is providing grey literature of all kinds to the German government, to academic circles and to industry since 1977. As a rule this service is provided through German libraries with nationwide responsibilities. This ensures that the material is publicly available and does avoid double work. From the beginning, the activities concerning information on Japan were supported by the various Japanese agencies etc. When the liaison activities were started, mostly technical information and copies of prewar articles in the field of humanities were requested. In recent years however, policy papers of the Japanese Government have also drawn attention from abroad. To some extent, this kind of information is well available. The yearly White Papers of the various ministries and agencies can be bought at the Government Publications Service Center or even in larger bookstores. However, many governmental documents appear in a more informal way and hence are grey. Because they give additional information, or information at an early stage of a development, they are very valuable and therefore worthwhile extra efforts. This paper describes the different information channels for governmental information, ranging from specialized databases to full text journals. All this information is in Japanese, so a stepwise approach is necessary to minimize the burden of translation. As an example how to do this, the flow of information in the case of MITI sponsored R&D projects is described. Conclusions are: (1) In addition to "white" governmental literature there is a wealth of grey governmental literature. (2) Access is not easy but not impossible. If channels are established, the information can be accessed even from abroad, but for "maintenance" a (small) liaison office in Tokyo is important. (3) As the staff is concerned, at least the head of the office should be a native of the country to be served. (4) To fulfil bridging functions, an office at home close to the user is of advantage.

1. INTRODUCTION

E. Vogel remarked once, "if any single factor explains Japanese success, it is the group-directed quest for knowledge" [1]. The group-directed approach to knowledge acquisition and handling implies some kind of organisation, and hence a chance to access the organised information from outside. Actually, bookstores have large non-fiction sections with information about government, economics, industry, environment, research and development, companies, technologies etc. to an extent, probably not found elsewhere in the world. In addition there exists a large amount of information which is grey, not handled by the bookstores, but available through other channels. Thirdly there is a large section of informal information, not documented at all. Partly this fact is common to all information systems in

the world, partly it is due to the cumbersome Japanese writing system (virtually no typewriters were in use before the electronic age, when wordprocessors became feasible), partly it is related to the communication environment provided by the capital Tokyo, where governmental officials, business people, scientists meet and can easily exchange information. Japanese outside of Tokyo maintain access to this informal exchange of information by travelling to Tokyo frequently. It is easy to access the large amount of published information, the "white" literature. From outside of Japan this can be done through the well established agencies. It is much more difficult for the other types of information mentioned, but it is possible. The Japanese work hard to access information, and they are ready to pay for it. The same attitude is necessary for foreigners. The GMD Tokyo Office has helped to improve the access to the grey part of Japanese information for the past fifteen years with success [2], which would not have been possible without the help from the Japanese side. The Japanese support is, maybe, not pure altruism, rather the feeling, that better information to the Western World on the political, scientific and technical aspects of Japan is in her own interest. We may classify information into scientific-technical information, business information, governmental, political information and general information. This paper will concentrate on the problem of grey governmental literature. There are many definitions for "grey", but for our discussion here it is sufficient to define it as "not available through book stores or general purpose libraries". "Literature" means any kind of documents.

2. THE ROLE OF GOVERNMENTAL INFORMATION

2.1. Background

Today's Japan was shaped essentially 120 years ago, when the Meiji Restoration led to a complete revision of the government, economic order, education and science organisation. This quick and far reaching change was a necessary reaction to the outside pressure. A strong central government seemed the best way to catch up with the West and to avoid the fate of neighbouring countries, which had to accept foreign rules and rulers. To run the whole state from the top, a good flow of information (bottom up) and orders (top down) was essential. By the years, especially after World War II, business became more and more independent. So today, information has replaced orders in many cases and is essential as a unifying band between government, industry and the general public. This is, of course, not unique to Japan, but the extent of information prepared by the government or with the help of the government, is much broader, than, say, in the case of Germany. As the political structure is concerned, there is a central government with seat in Tokyo with which the political power rests. In addition, there are 47 prefectural governments producing information, which is however not discussed in this paper.

2.2. "White" Governmental Literature

Before discussing the grey part of governmental information, the white part has to be indicated. The Japanese Government is engaged in, resp. promotes, a wide range of measures to provide information to the general public. The National Bibliography prepared by the National Diet Library (NDL) [3] lists as new titles per year :

- 2800 publications of the central government,
- 500 publications by the universities,

- 6400 publications by the local governments.

Out of the 2800 publications 900 are published by the Printing Office, others through private publishers. As a rule, these publications are charged. The government publications are distributed by the "Government Publications Service Center" [4], which is under the Printing Office, by its branches, but also by large bookstores. The production of the publications is supervised by a committee at the Prime Minister's Office, but in practice, selection and editing is done by the ministries and agencies quite independently. A catalogue in Japanese is produced regularly, but there also exists a "List of Publications. Governmental & Similar" in English. It is important to realize, that about half of the publications listed above are grey, not available through normal publication channels.

Table 1: Central Government Publications at NDL

Editing Agency	Number
Prime Minister's Office	609
Ministry of Justice	27
Ministry of Finance	139
Ministry of Education	131
Ministry of Health and Welfare	221
Ministry of Agriculture	354
MITI	255
Ministry of Transport	90
Ministry of Posts	53
Ministry of Labour	113
Ministry of Construction	231
Ministry of Home Affairs	38
Others	526
Total	2826

Source: NDL (1993)

The Japanese Government provides also printed information on a daily basis. Among the daily gazettes are

- Kanpō (Official Gazette of the Government) with publications of new laws and important calls for tenders etc.,
- MITI Kōhō (MITI Gazette) with topics related to economics and technology and call for tenders for projects promoted by MITI, and many others.

Publications of special importance are the 28 White Papers, prepared by the various ministries and agencies, which appear annually. MITI e.g. prepares the White Papers of International Trade and Industry, actually in 3 volumes. One volume contains the summary, the two other volumes contain detailed data and the discussions.

2.3. Governmental Information in Electronic Form

Within the government a large amount of statistical information is collected. An older summary from 1981 reports 700 different files, mostly containing statistical data. At that time, more than half of them were publicly available, 40% of those were available on magnetic tapes. Passing-on to the general public is done by various organisations, e.g.

- | | |
|---------------------------|--|
| - Prime Minister's Office | -> Japan Statistics Organisation |
| - Min. of Finance | -> Nihon Kanzei Kyōkai |
| - MITI | -> Inst. of International Trade and Industry |
| - Weather Office | -> Japan Weather Association |
| - Min. of Agriculture | -> Nōrin Tōkei Kyōkai |
| - others | -> others |

The statistical data collected in these files could be of interest also to investigators abroad.

3. GREY LITERATURE

3.1. General Remarks

So far published governmental information was described, which comprises a large volume. An even larger amount of information is produced in the government every day, which is, as already mentioned, grey. Most of it is for internal use but a part of it is available or even intended for broader circulation. An important part are reports (hōkokusho) of study committees of all kind. Fortunately, there are two organisations handling grey governmental literature. The "Seifu Jōhō Shiryō Center"[5] publishes the monthly journal "New Policy", which collects original documents (in Japanese) in full text from the various ministries, agencies and local authorities around Tokyo and Kinki area (Western Japan). In addition information on government supported projects, material from think tanks and other research institutes is collected. All together more than 1500 documents are collected every month. Each volume contains 50-70 selected papers, giving about 600 pages altogether. The titles of all papers can be found in "NPIS Monthly Report", which appears as a supplement to the "New Policy" Journal. The journal is well done and lifts a part of grey governmental information up to the level of white literature. It can be ordered through the channels of the international agencies in book trade. One year's subscription comes to 220,000 Yen, a single copy to 20,000 Yen. Whether the contents will also appear on CD-ROM is not yet decided. The other organisation is the "Institute for Dissemination and Research of Government Data"(IDRGD) [6], which runs the "GD Center". The Center works on a membership basis, with more than 500 member organisations. Registration fee is 50,000 Yen, annual membership fee 200,000 Yen. It publishes the monthly "Seifu Shiryō Abstracts". The Abstracts use a classification into the following 18 fields:

- | | | |
|-----------------|-------------------|----------------------|
| 1. Government | 2. Administration | 3. Economics |
| 4. Planning | 5. Labour | 6. Agriculture |
| 7. Construction | 8. Mining | 9. Trade, Service |
| 10. Finance | 11. Transport | 12. Communication |
| 13. Research | 14. Land | 15. Environment |
| 16. Resources | 17. Society | 18. Overseas Affairs |

Full texts of material cited in the monthly abstracts service can be found in center. The reading room is free of charge, a copying service and other services are available.

3.2. Databases on Grey Literature

An early improvement for the access to governmental reports was a database produced by the publicly funded JICST (Japan Information Center of Science and Technology) [7] since the eighties. In 1990 the hitherto separate file JICST PUBLIC was merged into the general JICST FILE. About 5000 items are collected per year, they also appear in the English edition of the JICST FILE, which is called JICST-E. Due to recent lack of funds, only titles and keywords are prepared in English, there abstracts can be found only in the Japanese original. Information on new projects under the Ministry of Construction can be found within databases of the "Japan Construction Information Center" (JACIC) [8]. Hints on governmental publications can be also found within the newspaper databases, which are offered by several companies. A list of providers can be found in the "Directory of Japanese Information. Jōhōgen" [9], compiled by Th. Consigny at the "EC-Japan Centre of Industrial Cooperation" in Tokyo. The second revised and enlarged edition appeared in March 1993. To improve the access to general information about Japan in foreign countries, the "Japan Center for Information and Cultural Affairs" (JCIC) [10] received funds from the Japanese Foreign Office and established the "Japan Information Network" (JIN) in 1990. JIN prepares databases and runs a host computer 24 hours a day. The following databases are offered:

- Index of Government and Organisations Publications.
(A list of 1000 titles of publications in English).
- Government Text
(Information Bulletin, Bilateral Relations, Press Releases, White Papers, Speech and Statements, Press Conference.
- Facts on Japan
Statistical data concerning 33 topics, ranging from weather to literature.
- Organisations for International Communication
List of over 100 organisations with international activities.
- Prefectures and Cities
Information on the 47 prefectures and on important cities, including touristical information.

The centre has provided terminals in foreign countries, four in the USA (Washington, New York, Chicago, San Francisco), one in Singapore and three in Europe (Paris, London, Berlin). A further extension of the network is discussed. In Berlin, the JapaneseGerman Berlin Centre is the site of the terminal. The Berlin Centre is answering e-mail requests from all over the country. In 1991 the number of calls was as much as five a day.

3.3. A Case Study including Translations

Over the years, Japan has made efforts to prepare English translations of White Papers and other important documents. Sometimes there is a time lag of about half a year between the

*There is no more
Eng. language
contact*

THE CNR CENTRAL LIBRARY AS THE ITALIAN NTIS CENTRE OF
REFERENCE: CONTRIBUTIONS AND PERSPECTIVES

by

AnnaMaria Campanile

and

Annunziata Fazio

Wide-ranging changes, which have taken place and are still taking place in the world of information, are due to various factors:

- Application of new information technology;
- The quasi-exponential growth rate of available information;
- The growing rate at which information becomes obsolete;
- The significant cross-border trends in information.

Apart from the contents of the information itself and the related services, information is increasingly becoming the object of large scale trade, and is therefore an essential resource both for industry and commerce.

All this makes information - an item with highly specific characteristics - a basic national resource, while at the same time a product which is difficult to handle.

The development of a country in various sectors

depends increasingly on the capacity of organizing access to and processing of information. Therefore, the aim of the organizations involved is to ensure a better management of their data, using information experts which besides just safeguarding the information also manage it.

It is necessary to accelerate and speed up the compilation of a data base for the results of scientific research or the use of technology, since these form the background for scientific knowledge needed for further research, especially in fields requiring the constantly updated, rapidly available data which is an essential tool for formulating development strategies and for proper professional updating on techniques and methodologies.

The CNR Central Library, originally founded for the information requirements of CNR researchers and later developing into the National Library for Science and Technology, has bibliographical resources reflecting the organization's multidisciplinary approach and focusing on interventions in scientific research in the country. The institutional role of the Library is the participation in any programmes aimed at utilising national bibliographical resources to promote research.

The direct result has been the intensive development of research and study in the field of scientific research, through links with associations and international professional organizations for an intensive exchange of information and participation in European Community programmes and activities.

On the national level, the Library is the key factor in the management of the scientific data network, with concrete cooperation for sharing resources, both internally (CNR Research Department Libraries) and externally (National Library, Universities and Scientific Bodies).

With this aim, the Library has undertaken cooperation with other research bodies (ENEA, ISS, ASI), with Universities (Parma, Sassari, Bari, Tor Vergata), organisations working in the field of librarianship (National Directorate of Libraries, ICCU, Chamber of Deputies Library) and with research consortium organizations.

In 1991 the European Community Commission declared the Library to be a "European Community Depositary Library". The CNR is currently setting up a network for the CNR libraries, consisting of the Central Library, research sector libraries and libraries of the research departments (161 institutes and 114 centres) located throughout the

country.

The CNR research sector libraries mainly have the aim of providing consultancy and documentation centres for:

- CNR researchers;
- The scientific community;
- Local public bodies and industry.

With these aims, the libraries are intermediaries between local scientific communities and national scientific documentation centres, mainly the CNR Central Library.

While each library maintains its own operational independence, the whole CNR library and documentation service network is closely coordinated, with joint units providing standardised cataloguing and bibliographical and library services.

The sector libraries have become an interface between the research departments, the Central Library and the international documentation network. This enables the system to provide top quality services such as the transmission of the full text to the user within 24 hours of the request.

The users, generally research personnel, universities professors and students, specialists in the sector, professionals, firms, and civil servants request highly

selective scientific information and data, updated in a very short time.

The main concern of the Central Library for satisfying these requirements is to use techniques which are as simple and fast as possible, and with the user needing only minimum computer skills.

With regard to the selective supply of information, the Library has taken into account the requirements of scientific users and has drawn up data bases mainly for its own stocks in order to make user research as easy and fast as possible.

The creation of three data bases has proved important:

- 1) Data bases for cataloguing scientific publications;
- 2) Data bases on the behavioural and social sciences;
- 3) Grey literature data bases.

The first type of data base contains articles which can be consulted at the Central Library and locally available through various access keys: author, title, subject, classification, number of records, etc.

The second type of data base contains about 4000 references for the library's humanities section, with local

access only.

Finally, the grey literature data base contains documents (non-conventional reports and publications) on pure and applied science and on technology.

The Library's grey literature cataloguing programme has two aspects, one European (SIGLE EAGLE) and the other international (NTIS) with separate tasks and characteristics.

Since the Central Library has been formally appointed as the Italian Centre of Reference for grey literature, it is responsible for immediately obtaining and making available any document from the major computerised archives.

With its participation in the SIGLE programme, and as the reference centre, it organizes and coordinates the centres producing "grey literature" with regard to collecting and retrieving documents and sending the related data to the SIGLE data base within the EAGLE-SIGLE Community Programme.

With regard to the NTIS grey literature data bases, the Library only supplies coordination within the CNR, systematically collecting the scientific production of its own researchers with a CNR data base.

The system used by the Central Library for loading data

and handling bibliographical data bases is a department-based computerised system (2 mini computers and 25 local terminals) on a GARR network, functioning as a bibliographical data base.

All the data bases are constantly updated, and the information retrieval service is made available to remote scientific users through the GARR (Gruppo Armonizzazione Reti Ricerca - Research Network Coordination Group) network through the DECNET node. The remote user not connected with this network can gain access by line switching.

Users may directly consult publications and reviews through the lending service, the bibliographical research service and photocopy service for remote national and foreign users, as well as the data base consultation service.

Documents are transmitted via fax, electronic mail and ordinary mail.

Bibliographical research is carried out by electronic and conventional catalogues with about 1,250 on-line data bases and over 60 data bases on CD-ROM.

In order to cover most of the grey literature area, which scientific research needs and which the Library, though well equipped, is not able to handle, the Central Library as the national Library of Science and

Technology has been appointed as the body taking part in the system on the basis of an agreement between the President of the CNR and the National Technical Information Service (NTIS) of the United States Department of Commerce.

This system, utilising modern microfiche technology, is designed to provide photocopies from microfilms and microfiches of all the documentation filed there. The National Technical Information Service (NTIS) of the United States Department of Commerce is an agency dealing with the distribution of all the documents produced by government agencies and other bodies (including foreign ones), made available to the public and publicised in several periodical bibliographies, including the Government Reports Announcements (GRA). It should be pointed out that although the NTIS is a tool for access to this literature, it does not receive the documentation by law but only on a voluntary basis. As a result, the agency has to make more efforts in order to achieve efficient bibliographical monitoring.

The problem is now the quality rather than the possibility of retrieval from the viewpoint of costs and the operational time required. The problems of the techniques and time required are crucial. There are three time levels: normal, urgent and very urgent; three techniques: mail,

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telex, on-line; three cost levels: normal, telex cost and high cost.

The first rule is to be familiar with the characteristics of the users, who can generally be classified into groups with their own specific information requirements and role influencing these information needs. One of the most important methods of information transmission is personal communication. The user also has an incomplete knowledge of the existence of and/or way to use information sources, and the amount of information requested varies considerably from user to user. Short-term information requests may occur and some decisions may have to be taken even when there is no information available. Ease of access is therefore a key factor in determining the use of a source of information.

A fast, sophisticated service obviously costs more.

The specialised librarian of the information service understands the importance of both the demand and its specific contents.

There are three main types of demand:

- Location of the service (site and service required);
- Identification of the research path for titles of documents necessary to satisfy user

Librarian
Demand

requirements;

- Thematic demand, i.e. request and search for specific information.

The response to these situations determines the type of intervention which the librarian makes, and corresponds to the type of user involved.

In a general type of library, demand is considered to be a single type, and little distinction is made between the users.

In a specialised, scientific library, the user is defined by the category of interest:

- Specific information requests for bibliographical data (subject already selected);
- Requests for bibliographical research on specific subjects, in order to narrow the field of interest;
- Requests regarding the contents of a document required because it is not physically available or not considered immediately necessary for current research.

As already mentioned, the type of user and thus the assessment of the intervention and documentation required for a positive result of the research all depend on the contents of the information.

Since 1989, the Central Library, as the Italian

only the acquisition of Italian technical information by the NTIS, but above all the circulation and distribution of information by both parties, with the exchange of technology. Requests are concentrated on subjects regarding: communications, computers, energy, the environment, materials and transportation.

The CNR Central Library is both the producer and distributor of the NTIS data base.

The recent starting up of this data base began with very few resources: a personal computer, a printer and a rather simple, "home-made" programme.

The fields of bibliographical reference include: the number of the report; the number of the record corresponding to the location of the report; the name of the author followed by the original title, the title in English, and bibliographical references; the availability, and finally the abstract in English.

Automatic search provides for access to bibliographical data through various access keys: author, title, number of records, etc.

5.2/0.4
The system began with a CD-ROM data base and then became an on-line system. It must, of course, be constantly improved, so as to enable faster and better data selection which, given the specialised nature of the material, can lead to an international exchange of research and

discoveries.

In order to make this data search efficient and economically feasible, familiarity with indexing techniques, inquiry languages and information retrieval problems is required, and specialised training is therefore required.

As we have seen, the CNR Central Library, and therefore the NTIS, can be consulted through the GARR network, promoted by the Ministry for the University and Scientific and Technological Research.

The GARR network is in turn connected with the main international research networks (EARN/BITNET, INTERNET, HEPNET, ...).

The Central Library is equipped with terminals connected to computers on these networks (VAX on DECNET) and can obtain easy access to the service.

The high-speed network infrastructure has been chosen mainly because of traffic requirements.

The primary centres of the network are currently located in Milan, Bologna, Pisa, Rome, Frascati and Bari.

When the GARR network was designed, the main goal was to enable the integration of the various networks of different research bodies, starting from the lowest levels of communications architecture to gradually achieve higher

levels.

Because of the national importance of the NTIS Reference Centre, and because of the demand from both producers of scientific information and the bodies taking part in the system, paper transcriptions have been made of the bibliographical references acquired up to now, with regular updating, in order to make circulation and consultation easier for the users involved.

The success of this service and the advantages for researchers reporting their scientific output, with the resulting fruitful exchange of knowledge, have spurred the Italian NTIS agency to maintain and systematically improve the data bases.

The problems of recording a quantitative social science grey literature collection for both internal and external audiences; Research Resources Unit at the British Household Panel Study, University of Essex.

Hilary Doughty MA ALA, Information Manager, and Judi Egerton BA ALA, Systems Librarian

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Abstract

The documentation and availability of grey literature still causes a major concern both nationally and internationally. Although some of this material may be considered to have short term value a large proportion of material should be preserved. In this paper the need to record and document quantitative social science grey literature to support the research of the ESRC Research Centre on Micro-social Change in Britain is discussed. The main focus of the paper concentrates on the problems of acquiring and recording the grey literature for both internal and external audiences. The Centre's own survey documentation is used to illustrate the problems. The paper shows how the adaptation and the modification of the TinLib catalogue has addressed some of these difficulties.

1. INTRODUCTION

This paper discusses some problems in the recording of a quantitative social science grey literature collection which has been set up primarily for use by the Centre's staff, visiting students and post doctoral fellows, and the staff and students from within the University of Essex. The particular context in which we have had to deal with these problems is the library of a national social science research centre, the ESRC Research Centre on Micro-social Change in Britain. Grey literature produces numerous problems which are widely discussed in the literature. In particular, Auger usefully explains the nature of grey literature and raises some of the problems similar to those that have arisen from our work (Auger, 1989). The particular problems with which we are concerned are: poor dissemination by the organisations responsible for producing the documents; low print runs which are aimed at a particular group of people or locality; poor technical quality of grey literature i.e. the lack of standard cataloguing elements; poor bibliographic control and the need for original cataloguing for most documents; the adaptation and modification of the computer catalogue designed for the

recording of more 'traditional' documents to cope both with grey literature and to accommodate the conflicting needs of the Centre and the wider audience. We shall illustrate these problems through examining the documentation of social surveys using the British Household Panel Survey (BHPS) as an example. We begin by briefly describing the ESRC Research Centre on Micro-social Change and its library in order to place our paper in context.

2. THE ESRC RESEARCH CENTRE ON MICRO-SOCIAL CHANGE IN BRITAIN.

The ESRC Research Centre on Micro-social Change in Britain was established in 1989 with funding from the Economic and Social Research Council and the University of Essex and is more widely known as the British Household Panel Study (BHPS). The main focus of the Centre's research is to study the way individuals and households react to change and adapt to change over time, thereby creating a picture of the micro-dynamics of British society. In order to study these changes the Centre conducts the BHPS survey which is the main instrument by which the Centre collects its data. This is a representative sample of (initially) 5,500 households and 10,300 individuals who thereby constitute the panel. Panel interviewees are followed and interviewed each year. The broad aim of the Centre is to produce high quality quantitative social science research which is principally based on the panel survey data.

In order to carry out this research the Centre employs researchers from the main social science disciplines: sociology, political science and economics as well as statisticians and researchers with specific expertise in survey methodology. Because such a large panel study as this is unique in Britain the Centre has had to acquire specialist knowledge and expertise through establishing links with other European Household Panel Studies and with the US Panel Study of Income Dynamics and the Survey of Income and Program Participation. Links have also been established with a number of institutions in order to further research methods and to develop new techniques.

3. THE RESEARCH RESOURCES UNIT

The Research Resources Unit is so named because it serves as a central resource for the Centre. The RRU's major resource is the library collection of quantitative social science material gathered from outside the Centre, but the RRU also stores and records all the Centre's publications. To ensure that the latest reports, research papers, conference papers and questionnaires are acquired, the librarians liaise directly with other Panel Studies and Social Science Institutions to obtain the publications and negotiate exchange arrangements. The newsletters from the Institutions provide useful current information on recent material produced by them and other organisations. In fact most of the material received is 'grey literature' which is usefully described by Chillag as "literature which is not readily available

through bookselling channels" (Chillag,1985).

3.1 TINLIB CATALOGUE

The RRU uses IME's TinLib library automation system. An advantage of TinLib is the 'browse and navigate' facility which allows for progressive searching from one field to another thereby allowing an in depth search. For example it is possible to start with a search on a known author, retrieve the record, and proceed directly to a subject search without returning to the main menu simply by highlighting a key term listed. The system is locally networked on a Unix machine and has a client server architecture available via any networked pcs around the Centre as well as an in-house guest account facility which enables access from a small group of departments within the University of Essex. Although primarily intended for more 'conventional' documentation, some fields have been modified by the Librarians to accommodate grey literature.

4. PROBLEMS OF DOCUMENTING SURVEY DOCUMENTATION.

One of the major problems in recording the survey documentation gathered from the European and US Panel Studies is that, in common with other grey literature, it is not subject to any bibliographic control and therefore does not conform to any particular standard. Of course, Panel Studies by their design will continue to produce a questionnaire on a regular basis. However, the accompanying documentation eg Interviewer Instructions; Coding and Editing Files; Flow Charts; Show cards and Technical Reports, not only vary between the surveys but also from one wave to another within the same survey. Furthermore, some of these items may be included within the Questionnaire whereas at other times they are separately produced. Also, while some studies produce sizeable User Guides others produce short guides or none at all. A further problem for the RRU staff is keeping a check on the comprehensiveness of any one set of Survey Documentation as the Institutions do not usually provide a checklist of their documentation.

Cataloguing survey documentation and associated documents (in common with other categories of poorly documented grey literature) is time consuming because it is not possible to download records from cooperative cataloguing projects, for example, and to edit them locally. Most of the documents received therefore need original cataloguing.

Some of the major problems encountered in the cataloguing process are: establishing the title of the survey with adequate added entries; setting up authority files for originators/publishers of documents ; the adaptation of the classification field to accommodate the survey number; and handling the survey documentation. The AACR2 rules for corporate bodies can and do apply, but often establishing the name of the organisation raises problems particularly as research organisations expand and contract, merge and adopt new names as the nature of the organization changes. Table 1 shows the layout adopted for a typical survey entry.

Table 1. Catalogued Survey Entry.

Main Title : (Survey Name)	British Household Panel Survey: wave 1, 1991
Alternative Title:	Living in Britain: wave 1, 1991
Alternative Title:	BHPS: wave 1, 1991
Corporate Body:	ESRC Research Centre on Micro-social Change
Classification:	SN 2960
Publication Type:	Grey Literature Survey: Brochure Survey: Coding/Editing Notes Survey: Letters Survey: Questionnaire Survey: Reports Survey: Respondent Documentation Survey: Show Cards/separate Survey: Show Cards/within questionnaire Survey: Technical Report Survey: User Handbook

4.1 TITLE ENTRY

As shown in Table 1, the Survey can be identified in varying forms. This variation is deliberate as a different title is used for different audiences so, for example, the title "British Household Panel Survey" is used on the user documentation, and the title, "Living In Britain" on the Questionnaire itself and the respondent documentation. The AACR2 rules for "Title Proper" can be followed and TinLib has provision for multiple alternative titles which usefully

can accommodate the translated titles of surveys from the European Household Panel Studies.

4.2 CORPORATE BODY

The RRU has developed a detailed Authority File which makes provision for preferred and non-preferred forms to prevent anomalies, so that if, for example, the Corporate Body/Originator of a Survey is known by the official name, a more commonly known name or an acronym, the researcher on accessing the catalogue using any of these forms will be guided to the work. The former name is accommodated in the "Related to" field. For cataloguing purposes the librarians will use the preferred form. The asterisk indicates a non-preferred form in the authority file.

Table 2. Corporate Body template

Name (Official/Preferred form)	ESRC Research Centre on Micro-social Change
Non-preferred form ('Common' name)	British Household Panel Study *
Non-preferred form (Acronym)	BHPS *
Career summary	formerly CARE
Related to	CARE

4.3 PUBLISHER

Unfortunately TinLib makes no provision for the non-preferred form of publisher. Yet, in the case of grey literature, the corporate body/originator of the document is often the publisher as well and therefore needs a similar authority file to the Corporate Body file above (see Table 2). Recommendations have been made to IME to upgrade their publisher file, but in the interim added entries have been created to direct users to the preferred form:

Table 3. Publisher listing

Publisher	**Social Science Information and Documentation Centre USE SWIDOC
------------------	--

Rosa Fernández López

University of Salamanca,

Faculty of Translation and Documentation

SPAIN

STATISTICAL RESEARCH ABOUT THESES PRODUCTION: VIABILITY TO EUROPEAN NORMALIZATION

The definition a thesis, according to the British Standards Institution in " The presentation of an investigation or research, disclosing the author's theories and any final conclusions with the view to supporting his candidature to a higher status, profesional qualification or other nomination".

The fact that the presentation of an investigation exists as an inherent characteristic of any thesis, automatically associates this to Grey Literature .

In continuation, other principle characteristics that definitively make up the category of Grey Literature are:

The presentation of conclusions

The submission of the work to a reviewing board

The unpublishment of the documents, except for in very exceptional cases. That is they do not appear in conventional marketing channels and such are not available in bookshops or publishing houses.

It itself possesses other characteristics, at times aparently unjustifiable, concerning problems of identifying and obtaining works, problems that are frecuently mentioned in relation to reports for example.

In generally there exists an excessively conservative policy concerning the provision of copies of theses on that on the other hand is logical considering the fact that the majority do not possess any form of registered copyright and theses are susceptible to plagiasion and publication by other authors completely or in parts changing them in form of articles or similars.

In Spain, until only very recently, theses could not be borrowed.

Today the norms are the follows:

- 1.- At least one copy of each thesis must be deposited in the University Library.
- 2.- With the permission of the author, theses may be borrowed and photocopied.
- 3.- The authors must, at the moment of submitting the thesis, give written permission regarding the exact conditions under which such works may be used as reference.

The constant production and remarkable working of the production of thesis means a live critic to their under-value.

Theses are an important joint in cuality and cuantity. It's a scientific valuable material that must be made public and accesible because of their investigations contents.

There are several reasons that have this situation bring up:

The lack of bibliographic control makes that nobody knows about theses, even into the scientific community.

Desagreement between diferent Universities about the fact of supply brings demand or demands bring supply.

The limited support University gives to investigators after their effort, nobody help them to promote their jobs. The lack of divulging and knoedgment obstructs the development of Spanish investigation.

And finally the fact, signed before, that people dont'n know anything about value of theses.

Moreover, the needs of academic and other researchers are constantly changing being affected as it were by the introduction of new courses in University curricula and the wide range of elective courses being offered in particular faculties as well as new research opportunities that offer themselves as a result of the introduction of these new courses and research areas.

Lecturers in Universities in developing countries especially in Africa have a particular need to use grey literature materials if they want to make the courses they teach more relevant to local needs and conditions for which there are no written textbooks that are relevant. By and large, textbooks used in Universities in developing countries are written in Europe or America and therefore have bias towards those countries.

Case study examples which quote Europe or America are therefore not very helpful to the student in a developing country. It is therefore incumbent upon the lecturer to prepare examples that are relevant from Africa or other developing regions. This requires a great deal of locally produced materials which are not published. Obtaining such relevant information for academic research brings into focus the important role of collecting grey literature sources which are generated within the regions or continent.

What is grey literature

There is generally no accepted standard definition for grey literature. For the purposes of this paper, grey literature embraces such things as non-conventional literature, archival material, fugitive material, non-book material and unpublished documents. Indeed, the simplest definitions that have been put forward for grey literature materials are not definitions at all but merely alternative names.

A study undertaken by the Devsis team in 1976 divided information resources into two major categories namely the visible and the invisible information resources (1) Visible here refers to the published materials (books and serial) and invisible refers to the unpublished materials. The team further said that out of the world's information resources, 40% was published and constituted the visible literature while 60% was not published and constituted the unpublished information resources which were:

less accessible, grey, fugitive [and comprising of] unpublished working papers, feasibility studies, consultancy reports, theses, research reports, government documents and documents of international organisations which are not widely disseminated (2).

Other people have tried to define grey literature as embracing the idea that it consists of small items produced in limited quantities to such an extent that it would be difficult for academic libraries to collect these materials for research purposes.

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