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‘TRUSTED GREY SOURCES AND RESOURCES’

GreyNet

The Grey Journal

An International Journal on Grey Literature

COLOPHON

Journal Editor:

Dr. Dominic J. Farace
 Grey Literature Network Service
 GreyNet, The Netherlands
journal@greyjournal.org
<http://www.greyjournal.org/thegreyjournal.html>

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TextRelease
 Javastraat 194-HS
 1095 CP Amsterdam
 Netherlands
 T/F +31 (0) 20 331.2420
info@textrelease.com
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About TGJ

The Grey Journal is a flagship journal for the grey literature community. It crosses continents, disciplines, and sectors both public and private. The Grey Journal not only deals with the topic of grey literature but is itself a document type classified as grey literature. It is akin to other grey serial publications, such as conference proceedings, reports, working papers, etc.

The Grey Journal is geared to Colleges and Schools of Library and Information Studies, as well as, information professionals, who produce, publish, process, manage, disseminate, and use grey literature e.g. researchers, editors, librarians, documentalists, archivists, journalists, intermediaries, etc.

Grey Literature is defined as "information produced and distributed on all levels of government, academics, business and industry in electronic and print formats not controlled by commercial publishing i.e. where publishing is not the primary activity of the producing body." (Luxembourg, 1997 expanded in New York, 2004)

About GreyNet

The Grey Literature Network Services was established in order to facilitate dialog, research, and communication between persons and organizations in the field of grey literature. GreyNet further seeks to identify and distribute information on and about grey literature in networked environments. Its main activities include the International Conference Series on Grey Literature, the creation and maintenance of web-based resources, a moderated Listserv, and The Grey Journal. GreyNet is also engaged in the development of distance learning courses for graduate and post-graduate students, as well as workshops and seminars for practitioners.

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EDITOR'S NOTE

As the Eleventh International Conference on Grey Literature (GL11) approaches, the organizers are reaching out to next generation library and information professionals. Ten students from two master's programs in the United States will be attending the conference. Their attendance is funded by GreyNet as well as by their home institutions. Six graduate students from Catholic University of America (Washington, DC) along with Prof. Ingrid Hsieh-Yee and four graduate students from Pratt Institute (New York, NY) along with Prof. Debbie Rabina will actively participate in GL11. Learning to understand and identify underlying issues and implementing solutions and best practices for managing grey literature in a variety of information environments are among their goals. These students will also be working with their professors on projects and terms papers related to the conference themes, the results of which will figure into their semester course grades. GreyNet further encourages both professors to consider submitting superior work for publication in The Grey Journal (TGJ).

GL11 will likewise host a special panel session on the OpenSIGLE Repository. This multidisciplinary, subject based repository offers a unique distribution channel for European grey literature with roots dating back a quarter century. The first part of the session will deal with INIST's (Institute for Scientific and Technical Information, France) experience as service provider and GreyNet's experience as OAI-compliant data provider. Later in this panel session, the draft of a project proposal will be further elaborated. The proposal seeks to explore the capacity required for the OpenSIGLE Repository to develop in multilateral and international cooperation in support of European research infrastructures committed to the open access of grey literature collections and resources. Here, emphasis is placed on the involvement of libraries, research centers, and institutions of higher education.

In the above, mention is made of new initiatives in the field of grey literature. And in this issue of The Grey Journal, six articles have been brought together in order to demonstrate the results of research that lead to 'trusted grey literature sources and resources'.

Dominic J. Farace, Journal Editor
journal@grey-net.org

Grey Literature and Development: The Non-Governmental Organization in Action*

Lynne Marie Rudasill
(United States)

Abstract

Traditionally, the non-governmental organization working in the area of development has been viewed as a trusted source for research and information on specific topics and populations. With the advent of the World Wide Web, many of these organizations are working to make their expertise available to a large number of users. This preliminary study surveys non-governmental organizations working in several areas of health-related activity to ascertain what types of information they are making available on the Web. What types of grey literature are being made available electronically by these organizations? What resources are being used to disseminate this literature? In addition to reviewing the types of information extant on these sites, we will compare a sample of the contents of the websites to the WorldCat database to see what is, and is not, part of the traditional dissemination system.

This preliminary study is part of a larger survey that looks at the electronic production, collection, and dissemination of information by non-governmental organizations in developing and developed nations. Resources such as press/news releases, reports, books, bulletins, and journals are calculated for each organization at individual websites.

It is expected that the World Wide Web now serves the purpose of the traditional vertical file in which print copies of non-governmental organization materials used to be placed. It is also assumed that the materials on the Web serve only as the tip of the iceberg as far as the production of information by the non-governmental organization. The impact this might have on the organization's ability to serve as a point of expertise in policy decisions is explored.

[The author wishes to acknowledge the Research and Publication Committee of the University of Illinois at Urbana-Champaign Library, which provided support for this research.]

Introduction

The growth of the non-governmental organization (NGO) as an actor in the policy and information arena has been rapid over the course of the last century and a half. At the time the United Nations was chartered, forty-four NGOs were recognized as consultative organizations with the Economic and Social Council (ECOSOC). Currently over 1600 NGOs are associated with the U.N. Department of Public Information and ECOSOC.¹ The NGOs are regularly consulted about areas related to their work by various agencies of the United Nations for several reasons. These civil society organizations are often recognized for their expertise in the topical areas in which they work. They are the groups that are "on the ground" with the problems they address and they usually have a deep understanding of the causes and solutions to these problems. Although these organizations are generally recognized as representing a variety of societal problems that need to be addressed, they usually have few, if any, apparent ties to either commerce or government that might influence their fact-finding. This provides the organization with a high degree of credibility in their respective areas. These organizations also have very effective networks. Frequently the NGO has to engage in public relations, advocacy, and rationale for funding support. This type of outreach creates many channels for the sharing of ideas and information and also supports the accountability for the organization in the eyes of others.

One of the ways the NGO can achieve this networking is to support a web site. The web site serves many purposes reaching out to the target population, the press, the government, and the donor.² The sites are as varied as the organizations, and the richness of the website is tied to the support the organization enjoys. The sites also are somewhat representative of the digital divide because in developing nations the expense of hosting for a site, as well as the price for the expertise needed to maintain a site, is often higher than the organization can afford. In related research including

* First published in the GL10 Conference Proceedings, February 2009

the exploration of various directories for NGOs, we have found that the percentage of organizations with a web presence is much greater in the developed nation. But what does this mean in the creation and capture of grey literature by any of these organizations?

A wide variety of literature is available concerning the NGO and information dissemination. A large part of the writing revolves around how NGOs use and disseminate information and the difficulties they encounter in fulfilling the target audience needs in a timely and efficient manner.³ One of the most useful advances in the collection of grey literature by non-profit or non-governmental organizations is the *Grey Literature Report* of the New York Academy of Medicine.⁴ This particular resource is specifically targeted at health and public health resources, and does an excellent job of covering the grey literature produced by a large number of organizations.

Scope and Method

The larger project, still under investigation, includes non-governmental organizations in several countries chosen specifically to contrast eastern and western cultures and developing and developed nations. For the purpose of this paper, the organization web sites reviewed were recognized generally as "health" organizations. Related areas of concern for these organizations included information concerning HIV/AIDS, reproductive rights, women and children, sanitation, and malaria and other tropical diseases. The majority of the organizations were drawn from those listed in the Non-Governmental Organizations Search at the Jonsson Library of Stanford University. These organizations "were chosen based on their consultative status with the United Nations Economic and Social Council (ECOSOC) and also collated from University of Minnesota Human Rights Library, Duke University Libraries' NGO Research Guide, and the World Association of Non-Governmental Organizations (WANGO)."⁵ The search term was simply "health." The organizational web sites reviewed were also generated from the development directories produced by the DevDir organization.⁶ The sites were closely reviewed to determine the specific material types available from these resources. In addition, each of the organizations was searched as a publisher in the WorldCat database.

The structure of disclosure is closely related to the structure of literature in the information sciences, but reflects the degree to which literature appears in the cycle of publication. The various stages of this disclosure include the following. First disclosure is the point at which the information appears as primary literature, a book, a thesis, an article, or a presentation of some sort in print or on a website. Secondary disclosure includes reviews of the literature, bibliographies, indexes, abstracts, summaries, digest, and guides to the literature. Tertiary disclosure includes the publication of the information in the form of reference works and the existence of information as a popular synthesis of knowledge. The grey literature of the health-related organization that is found on websites might fit under all of these events, but is most commonly found as primary literature. The World Wide Web and Web 2.0 provide a number of less conventional means of dissemination in the form of blogs, podcasts, and other types of social networking.

Results

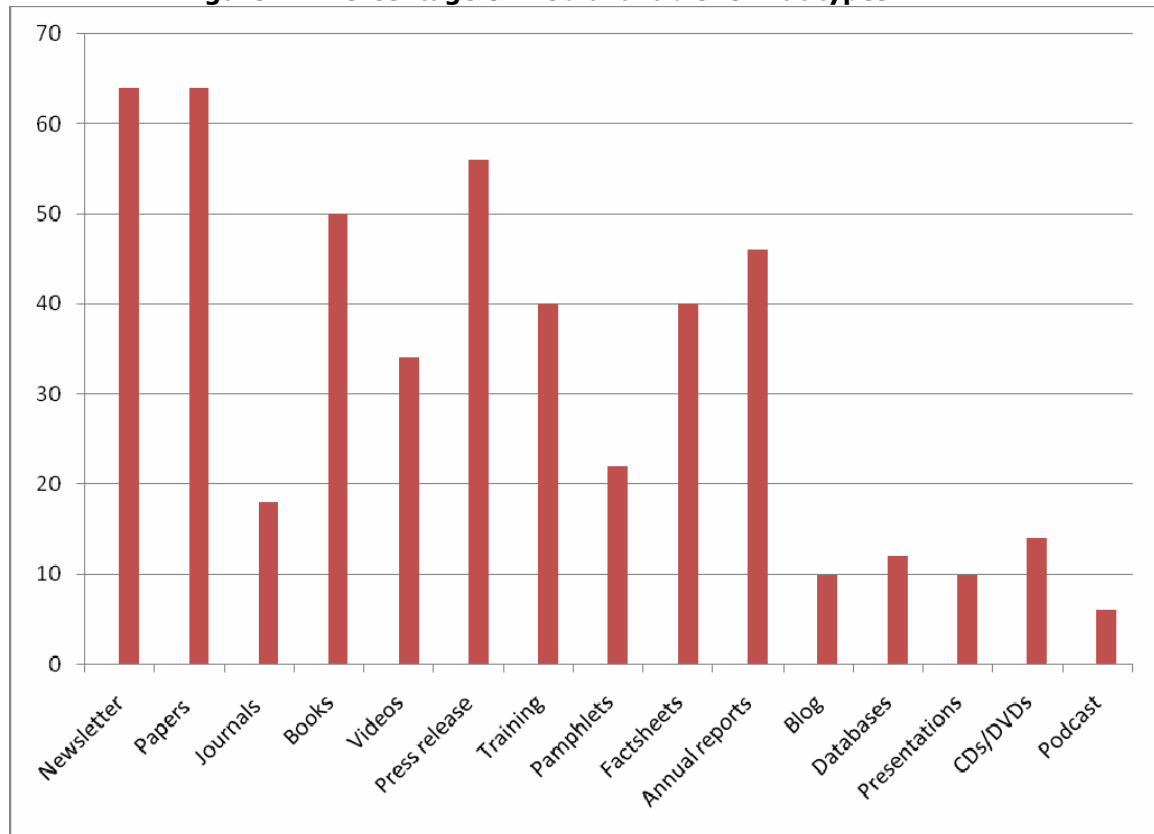
In exploring the web sites of various health related organizations, a large number of information material types were revealed. The first type includes newsletters and/or bulletins, the very essence of NGO information disclosure. These are primarily directed at target audiences and possible donors. Papers, including briefing papers, policy papers and policy briefs comprise another large part of the virtual literature of NGOs. Many items are referred to as books in the publishing area of sites. These can include anything from the multiple page electronic file to the formally published monograph. In this survey, a search for a representative number of "books" was done in WorldCat to ascertain whether the item was cataloged in any way.

Many times publications referred to as journals appear on the web site. A representative number of these titles were also searched in WorldCat to ascertain whether cataloging had been done for the work. Due to the public outreach function of many NGOs, the presence of videos, press releases, training materials, pamphlets and factsheets were also present on some of the sites. Annual reports and similar materials are essential to maintaining the reputation of the NGO and so are posted to the web. Other formats for the dissemination of information are unique to the virtual world, and are frequently found on NGO websites. These include blogs, databases, PowerPoint presentations, CDs or DVDs, and podcasts. A few of the sites also included

printable items such as posters and post cards related to the subject area or engaged in virtual social networking in particular via FaceBook.

The following chart indicates the frequency in percentage for the existence of each of these formats on the websites of fifty randomly selected NGOs that generally work in the area of health concerns.

Figure 1 – Percentage of web-available format types



In early results from a larger survey, it was found that a great deal of information is not published on the website. This includes any reports required by the national, regional, and state governments. Also not included were reports to the funding bodies of the organizations surveys. This frequently makes up a large percentage of the information collected by an organization. Finally, the materials that are printed for local distribution, such as handouts regarding events and scripts and recordings from radio and television appearances, are frequently not found on the web. The searches conducted for publications by the NGOs in question through WorldCat revealed that at least 80% of the organizations had publications that had been formally cataloged in the database. The publication types in WorldCat included monographs, serials, internet resources, audio files, and CDs or DVDs in addition to brief reports.

As part of the larger study, interviews with a variety of organizations of interest revealed that there are many reasons for lack of disclosure of information. Frequently, individual's remarks implied that NGOs are competing with each other to obtain funding and are therefore not very forthcoming in the interest of remaining highly desirable to their donors. The issue of confidentiality is also of major concern. It would be inappropriate and quite chilling for the organization to disclose client records in any public way. In the areas of HIV/AIDS as well as the health of women and children, there sometimes exists a fear of reprisal from the government if certain information is disclosed. This has been articulated more than once in the personal interviews done as part of the larger research project, particularly in the developing nation. Police and the courts are not always on the side of the victim in some societies, and public disclosure of the short-comings of these agencies can often put the NGO at risk.⁷ Finally, the simple fact that the organization cannot afford to hire someone adept at programming prevents information from making it to the website. This is another problem that is particularly prevalent in developing nations where the cost of supporting a web site is high and the cost of hiring someone with the skills to maintain the site is out of the question.

Several characteristics were shared among the sites visited. Most of the sites clearly indicated an area in which publications might be found. Many also had news feeds of some sort on their homepages. Annual reports were often hidden on secondary pages, but were generally easy to access. Some of the items with the most direct access included areas in which donations could be made and the nearly ubiquitous press releases. The availability of RSS feeds for news releases was also quite common.

The general study, although not yet statistically significant, is revealing some interesting, if not entirely unexpected differences in information trends between developed and developing countries. As far as the focus of the organization is concerned, the NGO in a developing country is more likely to have the local audience as a target as opposed to trying to influence policies on a regional, national, or international stage. In addition the developing nation NGO is less likely to support dissemination of information via conferences or seminars, emphasizing capacity building more than the NGO in the developed world. In addition, the developing nation NGO places less emphasis on the collection of research results but collects books, published reports, news clippings, and videos to a larger degree. The first world NGO tends to collect more journals, probably because their resources allow them to pay the subscription price.

Commonalities

In reviewing the websites of health-related organizations several aspects of information dissemination were found to be commonly held. Most pages provided a clear access point for publications although the terms varied from "library" to "publications" to "research." A large majority of the web pages also provided newsfeeds of some sort. These feeds included information about agency-related events, accomplishments, and more general press releases that might assist in making the general public and others aware of the actions of the agency. Although sometimes buried at a second or third level on the pages, many NGOs provided annual reports and related materials. The most apparent common link for the NGO web page was, not surprisingly, a "donation" link.

Suggestions and Conclusions

Two problems are paramount for the researcher working with NGOs. First is access to the print materials created by the organizations. The original impetus to this research was the story of a researcher in a developing country being unable to access a seminal report in print that had been readily available in that country when the researcher returned to the U.S. This is not uncommon and impedes the ability to provide quality information outside of the target area. Early research also indicated that the lack of formal publication of these reports results in large amounts of information piling up in the corners of NGO offices that are not available either for digitization nor cataloging. Often these organizations have private libraries that contain important information, but these collections are not available to individuals from outside of the organization. The second area of concern revolves around those items that are born digital. Librarians in large and small institutions are struggling with the best manner in which to preserve and archive documents that have no print counterpart. OpenSIGLE is an example of the way in which this type of material might be archived.⁸ The use of DSpace and open archives in Europe has been used to support subject repositories to good effect. In addition to grey literature, the NEREUS project has been compiling a repository for economic literature that reflects the cooperation of over twenty institutions of higher learning in the area as well as one university in the U.S.⁹ The Grey Literature Report supported by the New York Academy of Medicine, although not a repository in the formal sense, also provides important access to digital material. In no small way, this project reflects the possibility of using institutional repositories to provide another avenue to the preservation and archiving of "born digital" information.

Two other, related tools exist that might be of use to the scholar and the librarian. These include "The Way-Back Machine"¹⁰ and the subscription service Archive-It¹¹, both provided by the Internet Archive. The Way-Back Machine is basically a web crawler that will return the searcher to any site for which there is a URL that has not been blocked. The Archive-It subscription will allow the institution to build collections of digital resources according to their instructions and archive it for future use.

All four types of tools may be useful for capturing grey literature produced by NGOs whether related to health or any of the other purposes for which the organizations exist.

As mentioned in the introduction, this paper is reflective of the beginning of a larger research project involving the creation, preservation, and dissemination of information by NGOs. These organizations are still growing at an amazing rate, and hold the promise of becoming rich providers of information resources in the future. Their work in human rights, development, health, humanitarian relief, and many other areas provide unique resources for the librarian and the scholar. The capture of the grey literature they produce is a challenge that can and should be met.

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Information International Associates, Inc (IIa)
P.O. Box 4219
1055 Commerce Park Drive, Suite 110
Oak Ridge, TN 37830
Phone: 865.481.0388 Fax: 865.481.0390
E-mail: inquiry@iiaweb.com

The "Grey" Intersection of Open Source Information and Intelligence*

June Crowe and Thomas S. Davidson II
(United States)

Abstract

The U.S. Government intelligence community (IC) is relying less on "classified" information as a sole source and is moving toward an "all source" product that includes open source information. Gradually, this change will result in a more comprehensive, virtual IC that will enhance or replace the smaller, classified collections of individual government bureaucracies. This has created an emerging paradigm involving technology, outsourcing, and relationships both inside and outside of the IC that has resulted in "grey intersections" of open source information and intelligence. This paper will define "open source information" and look at specific government actions that have boosted support of open source information intelligence (OSINT), as well as the ongoing struggles within the IC to accept the new paradigm. The intelligence cycle as it applies to open source is described, and examples of the use of open source information are given in the context of their reliability and classification. The paper also discusses the future of open source and intelligence.

Introduction

Open source information has been recognized as a significant source of intelligence by some in the U.S. Government intelligence community (IC) in the mid-to-late 1990s. However, it was always considered the source of last resort by many in the intelligence community until recently. In novels like *"Out Sourced"* by R.J. Hillhouse, which describes how contractors work in Iraq, the line between what was compiled from open source and what some analysts may recognize as "classified intelligence" is blurred. Analysts may recognize some information as being classified; other readers will not know this. However, it is clear that the author appreciates the value of open source information.

Today, however, the IC is relying less on "classified" information as a sole source and is moving toward an "all source" product that includes open source information. Gradually, this change will result in a more comprehensive, virtual IC that will enhance or replace the smaller, classified collections of individual government bureaucracies. This has created an emerging paradigm involving technology, outsourcing, and relationships both inside and outside of the IC that has resulted in "grey intersections" of open source information and intelligence.

The IC is concerned about the grey intersection of open source and intelligence, including reliability, classification needs, and the quantity and quality of information to be analyzed. There are also concerns of how open source will affect the responsibilities of the various members in the intelligence community. The new paradigm has been brought about primarily by advances in information technology which allow for customized systems, federated searching, common platforms that make networking easier and allowing data to be shared and exchanged, and a general decentralization of intelligence systems.¹ The combination of technological changes and the value of open source information have begun to blur some of the distinctions between human intelligence (HUMINT) and open source intelligence (OSINT).

This paper will discuss some of the grey intersections of open source and intelligence and examine how the new paradigm will affect the intelligence community. It will also provide some specifics as to the use, evaluations, and examples of open source by the IC, as well as look at the Open Source Intelligence Cycle and the future of open source and the IC.

Definition of Open Source

The term "open source" refers to information that is derived from overt, non-clandestine sources as opposed to hidden or covert collection.² The IC defines open source information as "information which is publicly available and can be lawfully obtained by anyone by request, purchase, or observation."³ Open source information can be on almost any topic, including economics, health, social and cultural, political,

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military, energy and the environment, and demographics. It includes media; public data included in government reports, demographics, budgets, conferences, symposia, academic papers, dissertations, theses, and experts; commercial data; and grey literature. However, once open source information is collected, even that which is obtained from outside experts, it may be classified or receive a protective marking or caveat to prevent showing information gaps in the U.S. IC databases or for other reasons. Some reports produced by government contractors may fall into this grey intersection of open source and intelligence.

At what point does open source information become "intelligence"? Open source information becomes intelligence when it is collected, exploited, and disseminated to address a specific intelligence requirement. Intelligence personnel refer to open source "collection," whereas non-intelligence analysts prefer to use the term "acquisition," as the information has already been collected and is publicly available. The U.S. Joint Chiefs of Staff define intelligence as "the product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organizations engaged in such activities."⁴

The U.S. Army distinguishes between open source collection—the unintrusive collection of publicly available information in the course of authorized and assigned missions with the intent to use or retain the information for foreign intelligence or counterintelligence purposes—and open source research.

Collection responds to reconnaissance and surveillance missions levied on intelligence and non-intelligence organizations through tasks and requests. Focused and synchronized through collection management, open source collection resources know who, what, when, where, and why to collect publicly available information and essential metadata (date, time, location, language, frequency, station identification, newspaper name, author). Essential metadata includes temporal and geospatial data that enables tracking and visualization of activities, changes in the operational environment, and coverage of reconnaissance and surveillance resources.⁵

The U.S. Army defines open source (research) as "information gathered without the expectation of privacy—the information, the relationship, or both are not protected against public disclosure."⁶ "Open source intelligence" is defined as "information of potential intelligence value that is available to the general public. Relevant information derived from the systematic collection, processing, and analysis of publicly available information in response to intelligence requirements."⁷ The definitions of open source research and OSINT are similar with the exception that open source intelligence is driven by intelligence requirements. "The leveraging of OSINT to the greatest extent possible as a means to provide the needed information to the widest audience at the lowest level of classification" is part of the strategic goals, objectives, and priorities of the *Defense Intelligence Strategy 2008*.⁸

U.S. Government Actions in Support of Open Source

The United States has made some remarkable changes in policy since the July 2006 *Implementation Roadmap for National Open Source Enterprise* was released by the IC. The Roadmap includes the following initiatives, many of which were in place at the end of 2008:

- Establish and use the National Open Source Committee (NOSC) enterprise governance structure to:
 - determine and refine the IC open source capabilities and resource baseline; identify agencies and sources for open source exploitation;
 - manage IC open source resources more effectively;
 - improve input and collaboration.
- Implement an IC-wide open source training and certification program. This program will standardize open source training for all within the IC. The OSC will also provide a mobile training team for all IC open source cells regardless of agency.
- Develop and deploy the OSC Expertise Franchise Program. This program will provide mentors and subject matter experts to assist in developing and improving Open Source Cells across the IC.
- Drive rapid IC progress toward a single open source information technology (IT) architecture which would include single sign-on, federated search, one-way transfer, and an anonymous Internet research functionality.

- Publish a National Open Source Exploitation Capabilities Manual. This manual has already been published with a protective caveat.
- Establish an unclassified IC Open Source Works innovation facility. This facility is used to test ideas and capabilities. Computer technicians are brought to assist in making databases more accessible and user friendly.
- Develop open source requirements management and tasking systems. The management system will cover such items as collection management to include life cycle management of materials. The tasking system will involve receiving users' information requirements and the tasking of the appropriate open source cells. For example, the Foreign Military Studies Office (FMSO) deals in primary language open source materials. If a user's requirements included foreign language expertise, FMSO would be an appropriately tasked agency.
- Invest in IC Research Librarians. This particular problem is not the lack of research librarians but rather the lack of librarians with the appropriate clearance.
- Improve contributions of potential international and academic partners.
- Sponsor an annual Director of National Intelligence (DNI) Open Source Conference open to the IC, consumer agencies, private industry, academia, and international partners.⁹

The first DNI conference was held in July 2007 and the second in September 2008. Conference attendees included academia, contractors, foreign and domestic U.S. military personnel, and other U.S. government employees. The DNI has strengthened its partnerships with academia and private industry and has created an Open Source Collection Acquisition Requirements (OSCAR) management system that is designed to connect intelligence consumers, analysts, and collections requirements managers with providers of quality open source intelligence resources.¹⁰ Intelligence is no longer considered just a national issue but an international one, and open source information is seen as being a major component of that effort that is embodied in DNI's new *Vision 2015* which envisions a globally networked and integrated intelligence enterprise.¹¹

At the September 2008 conference in Washington, DC, the virtues of OSINT were extolled by many in the IC with great enthusiasm. Prior to 2005, the use of non-classified, open source information was seen as a source of last resort instead of a primary resource. Now officials are indicating that there can be good reasons for classifying some open source information products; however, the classification itself has become one of the grey intersections for intelligence. General Michael Hayden, Director of the Central Intelligence Agency (CIA), indicated that while the "information might be unclassified – our interest in it is not."¹²

The need for classification is usually based on the analysis of the open source information. However, the trend of integrating open source information into all-source products has led to the over-classification of open source materials in general. Nonetheless, open source information is gaining credibility for three primary reasons: ease of distribution – not everyone has top-secret clearances; easier access; and timeliness. Additionally, open source information provides insight into how others view the world and serves as a means of validating classified or sensitive source reporting.

There are some concerns among national open source policy makers that open source collectors need to be more selective in what is collected and produced. The consensus is that open source information products should be classified at the lowest level so they can be disseminated to the largest number of consumers possible. In spite of these concerns concerning selectivity, the support of open source information has become stronger because more people can be more informed in a more timely manner.¹³ The IC has only recently begun to make deliberate efforts to build an infrastructure that enables them to share information easily.

U.S. Government OSINT Resources

There are a number of centers for open source information with various missions. One such center is controlled by the Office of the Director of National Intelligence (ODNI). This center provides policy documents, guidelines, reports to Congress, exploitation manuals, and other products and services in a variety of areas.

Five centers are listed on the DNI's website:

- Center for Security Evaluation (CSE) – The primary purpose is to plan and prepare for situational emergencies;
- Intelligence Advanced Research Projects Activity (IARPA) – IARPA is the innovation center for research projects; Information Sharing Environment (ISE) – The purpose is to facilitate and promote collaboration and information sharing;

- National Counterintelligence Executive (NCIX) – This center develops, coordinates, and produces annual foreign threat assessments and annual national strategies for the U.S. government, prioritizes collection, investigations, and operations, and other administrative functions;
- National Counterterrorism Center (NCTC) – The Center combats terrorism at home and abroad;
- Special Security Center (SSC) – The SSC is responsible for security policies and guidance on security practices and procedures. SSC personnel assist the DNI in sharing and protecting national intelligence information throughout the IC, the U.S. government, U.S. contractors, state and local officials, and our foreign partners.
- More information concerning each of the Centers can be found on the DNI's website at <http://www.dni.gov>. These portals are part of the new technologies being integrated into the IC.

The Open Source Center (OSC), founded in 2005, incorporates the Foreign Broadcast Information Service (FBIS) as its foundation. FBIS was part of the Central Intelligence Agency (CIA). OSC is a center of excellence that facilitates distributed expertise and capabilities, collects intelligence data as it is archived, and fields requests for information from the Defense Department, civilian agencies, and state and local law enforcement agencies. The OSC also has open source certification training for government employees, directives issued concerning the open source information citations, and methods to be used for collecting this information. The OSC has a range of products and services, one of which is the password protected website www.opensource.gov. The head of OSC reports directly to the CIA chief.^{14, 15}

Another well-known open source research and training center is controlled by the Foreign Military Studies Office at Fort Leavenworth, Kansas. The Foreign Military Studies Office (FMSO) is a research and analysis center under the U.S. Army's Training and Doctrine Command (TRADOC), Deputy Chief of Staff G-2 (Intelligence), and the TRADOC Intelligence Support Activity. Their researchers conduct analytical programs focused on emerging and asymmetric threats, regional military and security developments, and other issues that define evolving operational environments around the world.¹⁶ The FMSO's OSINT training website is available at <http://fmso.leavenworth.army.mil/OSINT-Training.pdf>. Open source products are available at <http://fmso.leavenworth.army.mil/products.htm>. These two links are not password protected and available to the public.

New Technologies / Social Networking Tools

The IC is also changing in that it is adapting social networking technologies to collaborate and share information. Intelink was created in 1994 and has since grown to contain thousands of agency sites, along with several hundred databases, creating an information overload. Resolution of this problem has been hindered because of the system's poor indexing and dated search tools. The huge volume of open source information and the difficulty of assessing the source's credibility indicate a need for enhanced IT networking tools and technology. Assessing the credibility of information in these participatory information environments can be challenging because user-generated content can obscure or disconnect the origin of a source from established, reputable, institutional sources. This is particularly true on news sites where readers add comments about the original content.

More recently the IC has created a classified "A-Space" that includes blogs, searchable databases, libraries, and other tools to help analysts trade, update, and edit information. Another success story is Intellipedia, an experimental project started in 2005 by the ODNI (Office of the Director for National Intelligence) that was a take-off on Wikipedia. Later that year it was deemed a success and rolled out in 2007 to the IC.

Throughout the IC, interactive Web tools, such as Facebook, YouTube, blogs and wikis, and other social networking sites, are being copied and incorporated into the new intelligence system. These tools have begun to revolutionize information sharing in the IC by providing mechanisms to incorporate open source information into the intelligence cycle. Still, not all 16 intelligence agencies have adopted inactive social networking and other tools.¹⁷

Impact on Intelligence Community Operations

Open source information is seen as a blessing and a curse by IC professionals; although information is more accessible, often more timely, and easier to disseminate, it has also impacted how the IC operates. No longer is there only one authoritative source of information.¹⁸ The new paradigm is for collection to become more

integrated with technology and with the other intelligence activities (HUMINT, OSINT, SIGINT (Signal Intelligence), GEOINT (Geospatial Intelligence), ELINT (electromagnetic intelligence), and MASINT (measurement and signature intelligence). These are sometimes referred to as "INTS." However, this also means that the relationship between the producer and the consumer needs to be closer. The producers of open source information products are often civilian contractors. Issues of contractor trust and reliability need to be resolved and the product requirements better defined for the contractor. Often contractors do not understand the consumers' needs for the information. Prior to 11 September 2001, the rule was "when in doubt, leave it out;" in the post 11 September 2001 environment, the rule is "when in doubt, put it all in." The only qualification is that the information needs to be user friendly and fit the consumer's daily mission.

As acceptance of open source information grows, there is a need for closer collaboration between the consumer and the producer of intelligence which may also create another "grey intersection" in the IC as uncleared contractors provide open source products to the IC. Open source means unclassified, but sometimes the government classifies the finished OSINT product using the information because it responds to specific tasking from the IC. Contractors perform a lot of research for the IC using open source research. In order to better respond to their information requests and produce a better product, closer collaboration will be required. The new products will show research results in innovative ways using geospatial images and mash-ups, a web application that combines data from more than one source into a single integrated tool.

Intelligence Cycle

In the past, the intelligence cycle was based upon the mission, such as responding to a natural disaster, war, or a terrorist attack. The on-scene commander's mission drove the intelligence cycle and, therefore, the collection of information. For every bit of information obtained and processed, new requirements were generated to provide the basis for effective planning and direction of the collection. Planning had to include personnel, equipment, beginning sources, and, finally, the development of a collection plan.

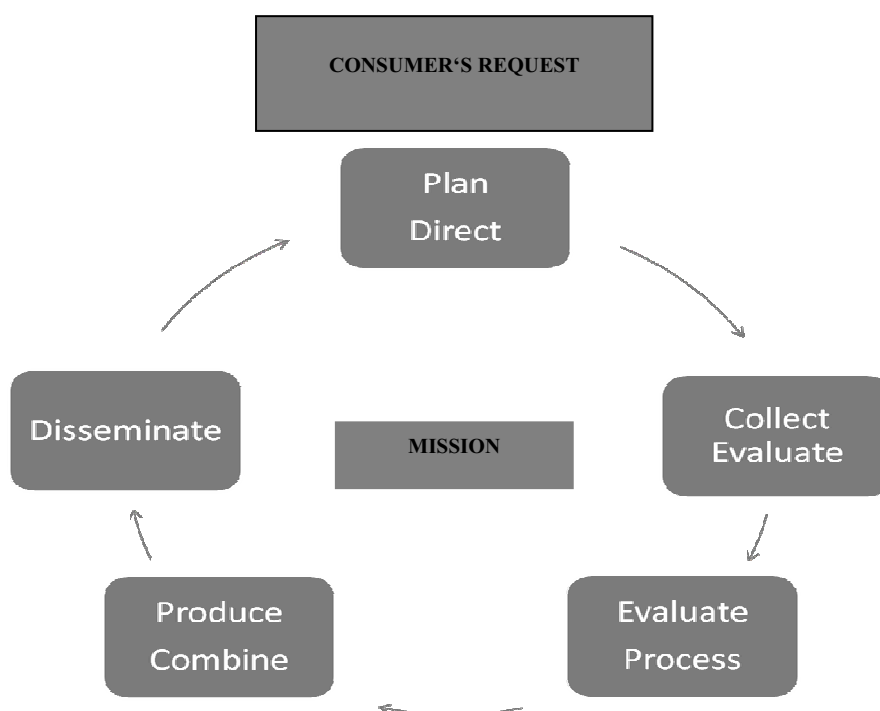


Figure 1. The Intelligence Cycle.

Today, the Intelligence Cycle is consumer driven as can be seen in Figure 1. The consumer is at all three levels of the government (local, state, and federal). Local government consumers include the local law enforcement personnel and medical and health elements; state government consumers include state law enforcement personnel, fusion cells, and medical and health departments; and federal government consumers include federal law enforcement agencies, Department of Defense, and the legislative and judicial branches. The consumer can be the first responder to a hurricane, the battlefield soldier, the U.S. Border Patrol, the police investigator, or the highest-level national decision maker. Open source information has become an essential part of the Intelligence Cycle. Although the basic planning procedures are still the same, today the intelligence officer uses open sources as well as classified assets as resources. The battlefield soldier or police investigator most probably does not have the same classified access as the national decision maker. Therefore, OSINT should be available to the general consumer who needs detailed information to understand his or her area of operations. Consumers at all levels benefit from accurate open source reporting and analysis.

The intelligence cycle includes the following steps:

Step 1 – Planning and Directing is the beginning and the end of the Intelligence Cycle. Before mission start, intelligence requirements must be determined. Intertwined with the requirements are the planning of specific collection agencies, the processing, the analysis, and the dissemination requirements.

Step 2 – Collecting is the gathering and reporting of raw information which is needed to produce finished intelligence. Open source information can be obtained from a number of sources, including the Internet and government public records. In today's world, a number of countries have transparency laws, many of which are available through the Internet. These transparency laws provide the open source researcher a wider arena. During this process, the collector must evaluate both the information and the source in accordance with the evaluation criteria established earlier.

Step 3 – Processing involves the collation of the raw material into a form used by the analysts. Information management is the key to processing. Critical information is always processed first. Information processing includes the entry of the information into a database, reduction of duplications (circular reporting), collating web open source with paper files, and so on. To process information correctly, the collectors and the analysts must have a thorough understanding of the consumers' needs.

Step 4 – Production is taking the information from the previous steps to include information from classified sources and then integrating, evaluating, and analyzing all available information into a useable intelligence product in response to the original request. Once in this step, the subject matter specialists evaluate all information for contradictory information, reliability, timeliness, and relevance, and place the evaluated information into the required intelligence product in response to the commander's/consumers' requirements. These products can range from lengthy strategic evaluations for national decision makers all the way down to one-paragraph reports for the tactical level.

Step 5 – Dissemination is the end of the cycle which leads immediately to Planning and Dissemination. Commanders/consumers receive the finished reports applicable to them with appropriate classification. If the reports are of value and the analysts have done their job properly, new requirements will be generated and submitted to the appropriate intelligence agency, and the cycle begins again.

Open Source Reliability Issues

Reliability issues concerning adopting open source as a primary resource is still ongoing within the IC. Some more conservative analysts question the reliability of open source information. Open source information must be evaluated by both the collector and the analyst in a number of areas. The four categories for this evaluation are:

- Competence
- Veracity
- Objectivity
- Observational sensitivity.¹⁹

The U.S. government has established a reliability- and credibility-rating scheme, as shown in Tables 1 and 2. Both the source and the actual information are evaluated under this scheme. The scheme is a valuable tool for both the collector and the analyst.²⁰

Table 1. Source Reliability Rating Scheme

CODE	RATING	DESCRIPTION
A	Reliable	No doubt of authenticity, trustworthiness, or competency; has a history of complete reliability; usually demonstrates adherence to known professional standards and verification processes.
B	Usually Reliable	Minor doubt concerning authenticity, trustworthiness, or competency; has a history of valid information most of the time; may not have a history of adherence to professionally accepted standards, but generally identifies what is known about sources feeding any broadcast.
C	Fairly Reliable	Doubt of authenticity, trustworthiness, or competency, but has provided valid information in the past.
D	Not Usually Reliable	Significant doubt about authenticity, trustworthiness, or competency, but has provided valid information in the past.
E	Unreliable	Lacking in authenticity, trustworthiness, and competency; history of invalid information.
F	Cannot Be Judged	No basis exists for evaluating the reliability of the source; new information source.

Table 2. Information Credibility Rating Scheme

CODE	RATING	DESCRIPTION
1	Confirmed	Confirmed by other independent sources; logical in itself; consistent with other information on the subject.
2	Probably True	Not confirmed; logical in itself; consistent with other information on the subject.
3	Possibly True	Not confirmed; reasonably logical in itself; agrees with some other information on the subject.
4	Doubtfully True	Not confirmed; possible but not logical; no other information on the subject.
5	Improbable	Not confirmed; not logical in itself; contradicted by other information on the subject.
6	Misinformation	Unintentionally false; not logical in itself; contradicted by other information on the subject; contradiction confirmed by other independent sources.
7	Deception	Deliberately false; contradicted by other information on the subject; contradiction confirmed by other independent sources.
8	Cannot Be Judged	No basis exists for evaluating the validity of the information.

These two charts are then joined together for the final evaluation of a source and the information provided. It is possible to have an "F-8" as a final evaluation. In fact, it is quite common. This evaluation (F-8) should not be considered derogatory. F-8 simply means that there is not enough information available to evaluate both the source and the information.

Source Evaluation

When a collector/analyst evaluates a source, the three items which must be evaluated are:

- 1. Author** – What are the author's credentials, including – institutional affiliation, education background, writings, and/or experience? ²¹ To what extent is the author controlled – by the government, commercial superiors, financial benefit, or ideology? Has the author published previously? Does the collector/analyst have experience with the author? If associated with a business, organization, publication, government, or other institute, what is the reputation and goals of the organization?
- 2. Date of Publication** – When was the article published? If an instantaneous report (newspaper report), then not all of the facts are in. Eyewitness reports are not always accurate. Is this the first time the article was published? If not, what edition is it? If the article is too old, then the information is most probably dated. However, the article must still be reviewed for items of interest, because as time goes by more facts come into the light.
- 3. Publisher** – The publisher should undergo the same type of examination as the author.

When a collector/analyst evaluates content, the following must be reviewed:

1. **Intended Audience** – Who is the intended audience? Is the article biased? Is the information a government's propaganda message? Is the article targeted towards a particular ideology or belief system?
2. **Information** – Is the material presented factual, opinion, or propaganda? Are the facts consistent with what is known? Are the newly presented facts consistent and logical with previous information? Does the author present the information in an objective and impartial manner? There may be information of value in spite of the slant.

For example, The *National Enquirer* is generally considered an extremely unreliable source of information. Most analysts would rate the newspaper as a "D" or "E." Articles printed in the *Enquirer* would usually be rated "5," "6," or "7."

However, even these "muck raking" journals do occasionally publish articles which can be rated as "1." In September 30, 2008, an article was published about John Edwards and his mistress. In the article, he is referred to as the "vice-presidential candidate" and not the "presidential candidate." Therefore, the source and the article would be rated as D-2.

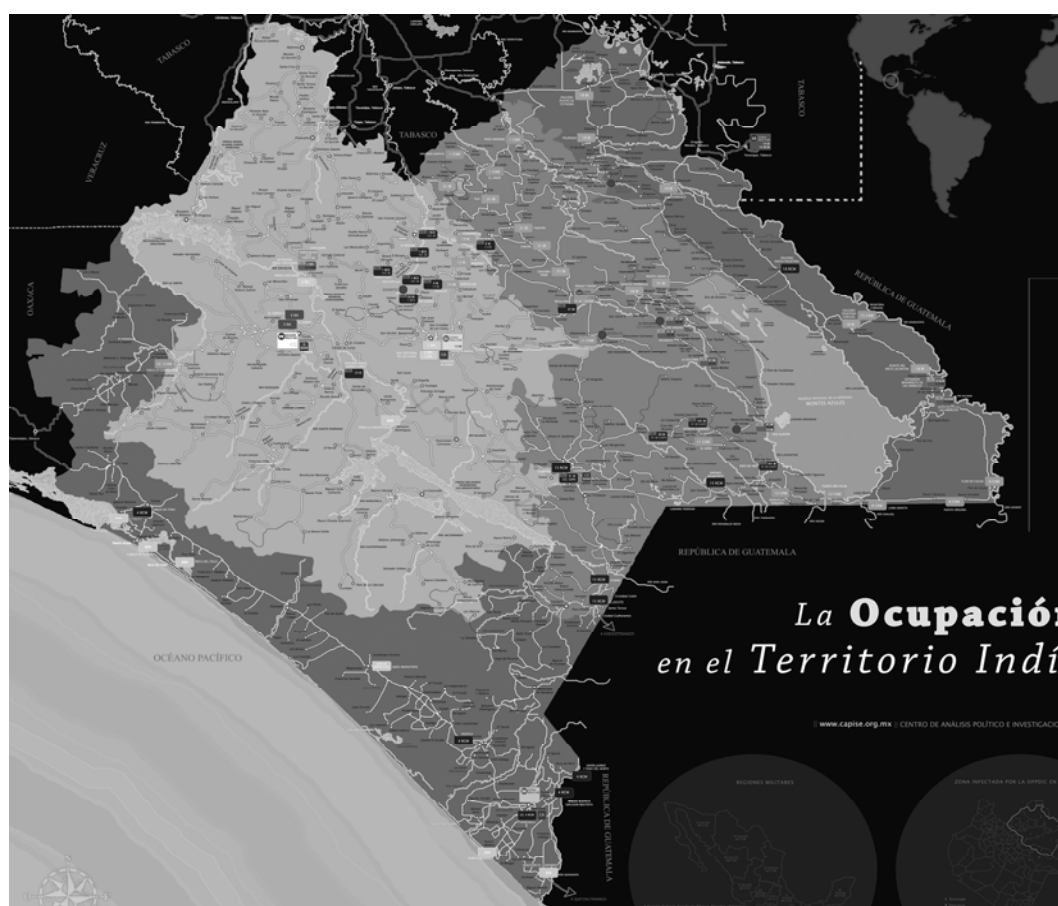


Figure 2. Map of Mexico with Identification of Military Units by Designation and Location.

A prime example of ideologically motivated but useful open source information can be found at website <http://www.capise.org.mx>. The map depicted in Figure 2 was published by CAPISE, an organization calling for complete autonomy for all indigenous tribes in the Mexican state of Chiapas. CAPISE members travelled throughout the state of Chiapas and, with a global positioning system (GPS), identified all Mexican military installations in the state.

Of interest on this map is the identification of military units by designation and location. Through the judicious use of other Mexican government websites such as the immigration, national police, and military sites and the Mexican *Ley de Transparencia* (Transparency Law), an analyst will be able to judge the efficiency of the individual units in regards to stopping drugs and illegal immigration across the Mexican-Guatemalan border and along the Gulf coast. The efficiency of these units is especially valuable when units are transferred to the U.S.-Mexican border. This type of

information is of interest to the Department of Homeland Security and the U.S. Border Patrol in particular. Most of the information contained on this map has been confirmed from other sites, but not all. In addition, all indications are that the organization has received support from some leftist European organizations, so some of the original information obtained by CAPISE workers may have been eliminated or omitted for ideological reasons. For these reasons, the rating for this information would be C-2 or even C-3.

Classification and Security Markings

Open source information, as mentioned earlier, can sometimes be classified for various reasons. For instance, open source information about the numbers of cars and trucks crossing a bridge may not be of interest to the IC. However, if the information is coupled with a threat attack or the bridge happens to be a main connector to a large city, then the information may be of interest to the IC and some type of protective marking or classification may be applied. Currently, the U.S. government (executive, legislative, and judicial branches) has more than 100 classifications markings and protective caveats for intelligence information. Moreover, a myriad of laws and regulations govern the protection of sensitive but unclassified information, such as whether it was derived from overt sources, its public availability, and the reason and way it is analyzed. The U.S. Army has developed guidelines for the classification of open source information in its *Open Source Intelligence Field Manual*.²²

In 2008, the White House released a new policy on "controlled unclassified information" (CUI) which establishes a new framework for designating, marking, safeguarding, and disseminating information designated as CUI.²³ Within the new framework, "sensitive but unclassified" (SBU) falls into three categories:

- Controlled with standard dissemination.
- Controlled with specified dissemination.
- Controlled enhanced with specified dissemination.²⁴

The new policy is meant to facilitate information sharing within the government but will do nothing to restore public access to government records that have been improperly withheld nor will it exclude anything that is currently controlled as SBU.²⁵

The Future of Open Source and Intelligence

Open source information has been integrated into the intelligence cycle and is becoming considered as a source of first resort by many in the IC. The combination of open source becoming a category of intelligence (OSINT) and technological innovations have made it possible for the IC to share data and collaborate using social networking tools and common platforms. Open source products are increasingly becoming grey intersections because of the trend to assign protective caveats or low level security classifications to them. The new paradigm of integrating open source information into an all-source product, using new social networking technologies, and common computing platforms, and the outsourcing of some research, has blurred the distinctions of some intelligence categories.

Additionally, there is the grey intersection created by cleared and uncleared personnel collaborating on intelligence activities. The need to provide broad access to open source information that has been synthesized and melded with other intelligence will require close collaboration with experts in academia, the commercial sector, think tanks, and foreign intelligence networks. The new paradigm will be a virtual community with many players that will contribute to an all-source product that does not rely as much on "classified information" but more on open source information.

The Director of National Intelligence, Mike McConnell, explained the future of open source information/intelligence as follows:

The elusive, transitory nature of our targets, and the imbalance between the increasing demand for information and the capacity of our means to collect it, require multiple, integrated collection systems. Each of the collection disciplines — human intelligence, signals intelligence, computer network exploitation, geospatial intelligence, measurements and signatures intelligence, open source intelligence, acoustic intelligence, and foreign materiel acquisition — will continue to play key roles, although their relative importance will almost certainly change over time.

*"No aspect of collection requires greater consideration, or holds more promise, than open source information; transformation of our approach to open sources is critical to the future success of Adaptive Collection."*²⁶

Open source intelligence will never replace the other "INTs" but will augment classified intelligence, provide the contextual landscape needed to understand the total situation, and ultimately support our decision and policy makers.

Conclusion

The change in open source policy is all about mission integration that will rapidly pull in information and deliver clear decision advantage to the consumer. This will be accomplished by providing broad access to open source information that will be synthesized and melded with other intelligence. The collaboration among intelligence analysts and experts in academia, commercial sectors, think tanks, and allied foreign intelligence networks will result in more targeted, accurate, and timely OSINT for consumers at all levels.

Common Abbreviations and Definitions²⁷

CIA	– Central Intelligence Agency
COMINT	– Communications Intelligence – Technical information and intelligence derived from foreign communications by other than the intended recipients. Always voice.
CSE	– Center for Security Evaluation
CUI	– Controlled Unclassified Information
DNI	– Director of National Intelligence
ELINT	– Electronic Signals Intelligence – Technical and geolocation intelligence derived from foreign noncommunications electromagnetic radiations emanating from other than nuclear detonations or radioactive sources. Communications between machines.
FBIS	– Foreign Broadcast Information Service
FMSO	– Foreign Military Studies Office
GEOINT	– Geographic Intelligence (also called Geospatial Intelligence) – The exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, imagery intelligence, and geospatial information.
GPS	– Global Positioning System
HUMINT	– Human Intelligence – A category of intelligence derived from information collected from or provided by human sources.
IARPA	– Intelligence Advanced Research Projects Activity
IC	– Intelligence Community – All departments or agencies of a government that are concerned with intelligence activity, either in an oversight, managerial, support, or participatory role.
ISE	– Information Sharing Environment
IT	– Information Technology
MASINT	– Intelligence obtained by quantitative and qualitative analysis of data (metric, angle, spatial, wavelength, time dependence, modulation, plasma, and hydromagnetic) derived from specific technical sensors for the purpose of identifying any distinctive features associated with the emitter or sender, and to facilitate subsequent identification and/or measurement of the same. The detected feature may be either reflected or emitted.
NCIX	– National Counterintelligence Executive
NCTC	– National Counterterrorism Center
NOSC	– National Open Source Committee
ODNI	– Office of the Director of National Intelligence
OSC	– Open Source Center
OSCAR	– Open Source Collection Acquisition Requirements
OSINT	– Open Source Intelligence
SBU	– Sensitive But Unclassified
SSC	– Special Security Center
SIGINT	– Signals Intelligence – A category of intelligence comprising either individually or in combination all communications intelligence, electronic intelligence, and foreign instrumentation signals intelligence, however transmitted. Includes COMINT and ELINT.
TRADOC	– U.S. Army Training and Doctrine Command

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Information Literacy and Librarians' Experiences with Teaching Grey Literature to Medical Students and Healthcare Practitioners *

Yongtao Lin and Marcus Vaska
(Canada)

Abstract

The concept of information literacy, which describes the knowledge and skills required in all contexts (i.e. educational sectors, the workplace), as well as in people's everyday lives in today's information rich society, was introduced in the United States in the early 1970s. According to the Association of College and Research Libraries Information Literacy Competency Standards for Higher Education (2000), it has been concluded that an information literate individual is able to determine the extent of information needed, access information efficiently, evaluate information and its sources critically, and use information effectively. Information literacy skills become even more central to meeting the requirements of dealing with complexity and large volumes of information from grey literature.

Our interests as health sciences librarians and thereby the focus of this paper lie in portraying the unstructured nature of grey literature and discussing methodologies and approaches towards teaching this elusive material to those in the health sciences sector, particularly medical students and healthcare practitioners, clients we serve within the Health Information Network Calgary. The Network was formed in 2005 through fee-for-service contracts between the University of Calgary and two partners, the Calgary Health Region and the Alberta Cancer Board. An integrated health knowledge service is provided for healthcare practitioners, staff, patients, and families from Knowledge Centres at major acute care sites, with the University of Calgary Health Sciences Library serving as the Network hub. In both medical school contexts and workplace settings, such as acute care facilities, information literacy is closely associated with the ability to acquire and develop competencies to enable individuals to think critically and use information appropriately.

Giving the end user knowledge related to research information, widening his/her horizons, and implementing critical thinking and carefulness in using information, is more essential than instruction on how to search various information resources. In our own teaching we employ case-based problem-based learning, described by L. Carder, P. Willingham and D. Bibb (2001). We have found this method more effective, active and more student-centered, as it falls in line with a general trend in education, which focuses on making our users independent lifelong learners, and also fits our service goals within the Health Information Network in meeting the needs of medical students and healthcare practitioners.

Keywords: information literacy, grey literature, teaching, problem-based learning

Introduction: The Value of Information Literacy

"Not having the information you need when you need it leaves you wanting. Not knowing where to look for that information leaves you powerless. In a society where information is king, none of us can afford that." (Lois Horowitz, 2007)

In today's society, there can be little doubt that acquiring the ability to retrieve and make use of information is an essential lifelong skill. Information literacy is indeed the root of information, as individuals need information "in order to achieve educational, social, occupational, and economic goals" (Lloyd & Williamson, 2008, p.3).

While the concept of information literacy has existed since the 1970s, originating in the workplace, (Lloyd & Williamson, 2008) differences characteristically arise when it comes to determining theories or best practices for implementing this term into instructional settings. In our experiences with information literacy at the University of Calgary Health Sciences Library and the Tom Baker Cancer Centre, we have shied

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away from a lecture-based approach, focusing instead on providing tools for the user (the medical student or healthcare practitioner) to think critically and apply what has been learned in class towards solving his/her own research problems.

Webber and Johnston (2000) define an information literate person as one who is "able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (p.382). We echo this notion because our goal is to allow the user to take control of his/her own learning. Rather than merely memorizing a pattern of search techniques demonstrated in class, retention of material will be better attained if the user is able to apply what has been learned to his/her own studies in school or in the workplace, "relating literature to life" (Dennis, 2001, p.126). What is gained in the classroom must be transferable to one's occupation, especially in the healthcare setting, as medical students and practitioners alike are faced with the daily task of "developing skills and competencies in order to access and evaluate information, think about information [critically], and demonstrate and document the process of thinking [problem solving]" (Lloyd, 2005, p.83).

The Health Information Network Calgary partnership has allowed us, as librarians of the University of Calgary and the Tom Baker Cancer Centre, to blend our skills and experiences with teaching grey literature, both from a clinical research perspective and from that of a librarian for undergraduate students in the health sciences field, in order to inform a wider audience of the importance of considering the invisible nature of grey literature in research pursuits. We strongly believe that our approach of problem-based learning, where the learner is placed front and centre, and the instructor merely facilitates, allows the main ideas of our lessons to not only come across, but be better retained in the future. Although we are but a small piece of the information literacy puzzle, we feel we are on the right track; grey literature cannot be overlooked if a research endeavor is to be all-encompassing.

In relating our experiences of teaching grey literature to individuals in the medical field, we hope that the researcher's use of a particular piece of information extends beyond a mere paper or presentation. Our aim as information professionals is to supply students and practitioners with the skills necessary to retrieve this information, even for documents that may seem "invisible" at first, skills that we believe will serve our diverse clientele. Bruce (1998) explains that, ideally, "information literacy is seen as working with knowledge and personal perspectives adopted in such a way that new insights are gained" (p.36). Our role as academic librarians and the goal of this paper is to present our views and advice on utilizing problem-based learning as a device to teach the invisible and elusive nature of grey literature to our medical student and healthcare practitioner personnel. We will additionally describe actual class sessions we have instructed, where we provide our clients with the opportunity to work on practice exercises in a group setting, encouraging the sharing of feedback among all members of the class and beyond (Dennis, 2001). Achieving success with this method depends on collaboration between the learner and the facilitator, an active pedagogic role that we see ourselves as playing. We are true believers that information literacy doesn't end with finding relevant information in the moment; it is a continuum.

The Impact of Grey Literature on Information Literacy

Researchers in the education sector propose that information literacy "is recognized as making an important contribution to decision-making, problem-solving, independent learning, continuing professional development, and research" (Bruce, 1998, p.25). Teaching and encouraging critical thinking and problem solving skills is a key ingredient that librarians follow to provide the opportunity for the learner to increase retention of what has been presented outside the classroom setting (Lloyd, 2005). Nevertheless, there is a considerable gap in the literature discussing the needs of the information literate individual alongside the teaching experiences of seasoned librarians, particularly in the field of grey literature. In adhering to Warmkessel's (1997) principle, teaching grey literature involves guiding the user to the correct sources of information, providing advice along the way, yet exercising restraint and not doing the researcher's research for him/her.

Although numerous types of grey literature are available electronically, they are often not indexed, and, without a librarian to serve as a guide, many individuals become frustrated at the lack of congruity in the invisible deep web (Alpi, 2005). Regardless of the form that a grey literature document may take, as health sciences librarians,

and thereby proficient searchers in medical databases, we must be able to search beyond the obvious online resources, overcome limitations, and assist medical students and healthcare practitioners in locating grey literature on a particular topic, thereby satisfying the quest for information.

Were it not for the leaps and bounds that the world of technology has taken over the past decade, many government documents, organizational reports, and informal day-to-day communications would remain hidden. Teaching the medical student or healthcare practitioner how to use technology to locate and retrieve a desired piece of grey literature is the first crucial step on the path to becoming an enlightened information literate individual. Once the ability to use the technology has been achieved, searching for material not available through ordinary publishing channels can be a daunting task, unless information specialists instruct and guide clients with regards to the best available sources in which to find that elusive piece of grey literature.

In discussing the impact of grey literature on information literacy, we strive to remind our audience that researchers should include grey literature and published material side-by-side whenever they conduct a search on a topic, particularly when working on systematic reviews, in order to limit bias. If the theories and goals of information literacy are to remain true, in both a classroom setting and in the workplace, then our goal as information practitioners is to inform our audience that grey literature is a part of one's daily life. In order to be accepted as a true information literate individual, one must not discount rapidly produced material, in various formats, with limited distribution, that is often not peer-reviewed. Research has shown that the notion of grey literature actually existed long before the term "information literacy" was coined, and has had a tremendous impact on critical thinking and the information search process in the real world.

Studies over the past decade have indicated that grey literature resources are expanding at a much higher rate than standard published documents (Coad et al., 2006). As with virtually any information-seeking process, a method or rationale needs to be developed to explain why searching for a particular information source is relevant. So too is the case of teaching the illusive nature of grey literature to library users. If our goal as information professionals is to supply our clientele with all of the skills necessary to experiment with various search tools and critically analyze what they have found, then the impact of grey literature on information literacy is evident. How else can we expect our medical students and healthcare practitioners to become information literate and proficient if we neglect to address tips and techniques to locate conference information, recent publications not yet cited in databases, or the personal communication of experts in a particular field? (Benzies et al., 2006)

When the authors of this paper first began teaching grey literature to their clientele, they were aware of remarks by some educators who claimed that grey literature should not be taught as a component of information literacy, since officially, it was not considered to be a scholarly form of publication. Despite these objections, the importance of grey literature cannot be overlooked. Grey literature exploded on the scene in the past decade, due in large part to the Internet. As a result, interest in grey literature has grown, and previously hidden documents can now be more easily retrieved, allowing the possibility to instantaneously access useful information in both the physical and virtual world.

Our goal in teaching grey literature to our audience of learners is to allow the client to think critically and analyze information that has been retrieved. Even when searching within an organization's website, or hand-searching through government documents, it is unlikely that all of the material located will be relevant to the search topic. Whether information is required to complete an assignment or treat a patient's rare illness, there is always a purpose to searching; grey literature is another avenue to make that search more effective.

Information Literacy and Grey Literature in a Medical Context

While medical students, and in particular, healthcare practitioners, may be real gurus of knowledge in their area of specialty, they may not all have the skills and abilities necessary to "find, select, organize, and use relevant information sources" (Macklin, 2001, p. 306). Librarians must therefore convince the user that understanding how to

find information on a particular topic is just as meaningful as possessing knowledge about it.

The bond between information literacy and lifelong learning cannot be discarded, especially in a field as diverse and challenging as the medical sector. The medical student or healthcare professional who is able to think critically, actively, and independently, to solve or mediate the complex issues that he/she will inevitably encounter throughout a career, often under a great deal of pressure, is truly an information literate human being.

As previously mentioned, despite being introduced in the 1970s, information literacy was not recognized in a medical setting until nearly two decades later. First used in 1989 in the nursing curriculum at the University of Northern Colorado, it is interesting to reflect back, nearly 20 years afterwards, to what was first envisioned by the notion of information literacy in instruction, ideas that the authors of this paper advocate in their grey literature sessions today: "assist...in understanding library organization and services; promote...skills in evaluating and locating and evaluating the accuracy of information; help...understand information seeking strategies and appropriate use of those strategies" (Cheek & Dotskatsch, 1998, p.246) (Fox et al., 1989, p. 423).

In the world of healthcare, finding accurate and reliable information, including grey literature, in a timely manner is essential. A preliminary survey evaluating the use of grey literature by end users in the health sciences was described in a paper published in 1990 (Alberani et. al., 1990). References in selected medical journals and databases analyzed the years 1987-1988 to determine the number of grey literature citations in selected health sciences journals, the various types of grey literature found, and the number of technical reports cited, including country of origin and intergovernmental issuing organizations. The results obtained showed that as a primary source of information, grey literature was cited in those journals that provided reliable data on research in progress. Technical reports prevailed over other types of grey literature, thus confirming the attention given to this type of material in health sciences research efforts.

Public health material takes a variety of formats (both print or electronic), in order to find the best possible solution to a medical dilemma. Alpi (2005) explores the characteristics of public health information needs and the resources available to meet those needs. Important characteristics in public health expert searching are demonstrated by the ability to identify and search for resources beyond the electronically available published literature, including older published literature, grey literature, unpublished information, and documents on the Web. Grey literature is often the only information available on a Public Health topic from a particular perspective. There have also been debates over the inclusion of grey literature in meta-analyses over the past decades. Some critics of grey literature have suggested that meta-analyses should not give unpublished literature the same weight as published studies (Sacks et al., 1996). However, excluding grey literature limits reviews to only a portion of the available evidence, which may result in overestimating effect sizes. (McAuley et. al., 2000). Hopewell (2007) also indicates that it is necessary to include grey literature for certain types of research, such as systematic reviews, since "... published trials tend to be larger and show an overall greater treatment effect than grey trials. This has important implications for reviewers who need to ensure they identify grey trials, in order to minimize the risk of introducing bias into their review." (p. 2). While many voice support for the inclusion of grey literature, most published meta-analyses do not take this information resource into account (McAuley et. al., 2000), an exclusion that may result in difficulties obtaining grey literature studies. As information professionals, this is our opportunity to address grey literature challenges in meta analyses by helping information investigators locate diverse findings and make their own research accessible to other scientists and reviewers.

Besides locating information and assisting with the indexing and cataloguing of grey literature to make this material accessible to researchers, health science librarians can take a much more proactive role in teaching end users the skills of finding and evaluating grey literature. Revere (2007) also emphasizes the need of holding grey literature instruction sessions, particularly in healthcare: "a limited amount of critical information is published through standard channels...finding a resource, let alone locating the answer to a question within a resource, is extraordinarily difficult..." (p.

411). This is where our role as information professionals comes in; we must conquer the information barrier to critical sources that are out there. Developing methods for searching grey literature to uncover the 'deep web' will present medical students and healthcare practitioners with a complete picture to solving medical mysteries. Even though a previously hidden document may become 'visible' and accessible, the source, relevance, and quality of the item must be taken into account before a citation is deemed as appropriate (Revere et al., 2007). Some of the valuable search strategies we incorporate in our teaching sessions include examination of multiple medical databases including online resources for theses and dissertations, Cochrane Library sources, and clinical trials, citation of index searches, examination of research registries, journal hand searches, contact with the organizations and associations, examination of presentation abstracts and conference proceedings, and Internet searches.

The "discerning information consumer" (Cheek & Duskatsch, 1998, p.243), one who is able to adapt new technology to gain knowledge to seek out information required in his/her profession, is prevalent in the medical industry. Medical students and healthcare practitioners are required to learn throughout their lifelong career, adapting the skills acquired to retrieve information according to various circumstances and needs. As Cheek and Duskatsch (1998) further explain, our goal as information professionals is to nurture and motivate those in the healthcare industry to want to continue learning and maintain their status as information literate individuals.

The medical industry is constantly embroiled in change, forcing all practitioners working in this field to keep abreast of new procedures, experiments, and treatments in the literature to help cure or alleviate a variety of illnesses. "Reading professional literature is a critical facet of lifelong learning" (Cheek & Duskatsch, 1998, p.245), nevertheless, time constraints often make it difficult for healthcare practitioners to be on top of all the latest developments. As educators of information literacy and the grey literature, we must remain aware of the latest information available, overcoming the challenge by reminding our learners that turning towards material not published in a scholarly fashion in large, commercial journals, is not necessarily a negative choice. Considering that it can take months for a study to become published, seeking material that may already be available on an association's website will ensure that the information is there when it is needed, keeping the chain of continuous lifelong learning intact.

Lifelong learning is a trait that will always be present in the healthcare industry. The authors of this paper believe that library instruction sessions on information literacy and the grey literature should be taught throughout one's entire medical career, instead of a one-time need-only basis. Studies in the field of nursing have indicated that information rises exponentially on a yearly basis (Barnard et al., 2005). If we apply this finding to the health sciences in general, it cannot be stressed enough that it is indeed a learned trait, one that takes a great deal of skill and practice, to be able to sort through literature, especially that of the grey variety, and locate relevant and authentic documentation on a specific field of study. Unfortunately, even in today's day and age, access to some forms of literature can be a daunting task, despite the universally accepted idea that access to information is essential.

Using Problem-Based Learning for Teaching Grey Literature in Healthcare Settings

Healthcare reform, rapidly changing medical information, and technological advances have changed medical education from traditional lecture-centered to a more learner-driven, self-directed, problem-based approach. Problem-based learning (PBL) is a teaching technique used in many medical schools to facilitate learning basic science concepts in the context of clinical cases (Boud & Feletti, 1997). Over the past two decades, PBL has become increasingly integrated into undergraduate medical education in North America. (Donner et al., 1991). In the problem-based approach, complex, real-world issues are used to motivate students to identify and research the concepts and principles they need to know to solve these problems. Students work in small learning groups, bringing together collective skill at selecting and identifying the problem, acquiring sources of information, and communicating and integrating that information. Outcomes for students in PBL include: the capability to think critically to analyze and solve complex real-world problems, the ability to find, evaluate, and use appropriate learning resources, the ability to work collaboratively in teams and small groups, the likelihood of applying content to real-life work situations following medical

schools, and developing skills for life-long learning. These learning outcomes are congruent with information competency standards, which form the basics of life-long learning. The Information Literacy Competency Standards for Higher Education (ALA, 2000) outlines that "an information literate individual is able to determine the extent of information needed, access the needed information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into one's knowledge base, use information effectively to accomplish a specific purpose, understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally" (pp. 2-3).

PBL focuses on the learner's own ability to find relevant information. The main actor is the self-supporting learner, not the lecturer. Although information literacy is seldom expressed as a main objective, it is an intrinsic concept and learners are expected to turn out as skilled, independent library and information users. Essential to understand is the library's continuing and ever-increasing role as an important learning resource in such an educational program. A study conducted jointly at several universities analyzing the effect of PBL on library services and educational programming (Watkins, 1993), found that the PBL student, in comparison to the student in a conventional curriculum, uses library resources and reference services more frequently, and requires more library training in information-seeking skills to support self-learning.

Since information literacy is one of the primary goals of problem-based learning, it offers important new roles as well as challenges for libraries, changing library user education in the process. The PBL approach promotes critical and analytical thinking skills by applying the learner's own expertise and experience to the problem-solving and information retrieval process. The effectiveness of using PBL in library instruction sessions has been well documented in the library literature. Schilling (1995) describes a successful library program in a medical school course where librarians acted as information facilitators along with other faculty coordinators to help students find, use, manage, and evaluate appropriate information resources. Describing the difference between a PBL and traditional instruction session, Cheney (2004) states that more student-instructor-librarian interaction evokes a clear sense of "purpose on the part of the students – they knew exactly how the library session was tied to their research needs" (p. 505). Given the nature of grey literature, PBL provides the theoretical framework for a learner-centered, active instructional experience that relies on critical evaluation of the "grey" sources of information and hands-on interaction with grey literature material.

The process of applying PBL towards information literacy instruction within the constraints of a one-shot session has been effectively described by both Enger (2002) and Macklin (2001), while Kenney (2007) discusses challenges of modifying PBL instruction from its classic curriculum form to a fifty or eighty-minute session. As PBL is student-centered and focused on the whole process of learning, clear boundaries need to be established through lesson planning, since a well-structured lesson plan also provides the guidance needed when delivering instruction. Macklin (2001) provides explicit directions for creating a lesson plan with "specific learning goals and objectives that relate to information literacy" (p. 310). For example, the learning goals of our Grey Literature session are to: introduce learners to the history of grey literature, familiarize them with major grey literature health resources and search techniques, and educate them with evaluation criteria for grey literature material.

The norm of PBL teaching always starts with the facilitator introducing a problem, followed by the learner analyzing the problem for information, both individually and collaboratively. An information need is then determined and possible solutions are proposed. Afterwards, the facilitator introduces various information sources and learners investigate these sources to locate relevant material for solutions to the problem being presented (Macklin, 2001). PBL has been shown to be effective in engaging students in learning, particularly when the problem is well developed. A well-designed, adaptable problem is an effective vehicle for learners to relate the subject matter to the real world, practicing one or two specific learning outcomes. A small group discussion question in our grey literature session was "What are the grey literature resources/channels you have used, in what way, and why?" This initial question was based on previously learned knowledge in order that all learners in the groups are drawn into a discussion of grey literature. This keeps the learners functioning as a cohesive whole and also helps them build connections to previously

learned concepts and material. At the next stage of problem-setting, we had a different scenario for a diverse learner group. For instance, we asked researchers and research associates from the Department of Public Health to compile a list of resources in communication disorders from the grey literature. As another example, the Prevention Unit was given the task of critically looking at an unpublished article on indoor tanning and skin cancer, and gathering evidence for a systematic review. These problems are placed in a context familiar to the learners, requiring them to make decisions or judgments based on facts, information or logic. The process of thinking through the learning goals of a course and writing realistic problems to meet those learning priorities have changed how we, as instructors, view information literacy being integrated using problem-based learning.

An additional challenge outlined in Kenney's (2007) review is keeping a controlled schedule, particularly for teaching the "unstructured" nature of grey literature. Some of the questions we have asked ourselves when preparing our grey literature classes are: what resources will be used and which concepts will be emphasized?; what part of the research process do we want to stress?; when we have only 80 minutes, is everything important?; what can we leave out?; how comfortable are we with grey literature debriefing since there is usually no single perfect answer to a problem?

Improving one's knowledge of a topic by delving into the world of grey literature can certainly be a rewarding experience. Nevertheless, as problem-based studies have shown, when it comes to educating clients, "how someone understands or experiences information literacy is of greater importance to determining what they have learned, than how much knowledge or skill they can demonstrate" (Bruce, 1998, p.40). To place this in another light, the authors of this paper believe that the use of grey literature in information literacy results in clients learning more by taking control of their own learning. As the activity becomes user-centered, keeping the schedule well-structured is essential to drive collaboration and provide the class with clear-cut parameters and expectations. Almost all of the work of a PBL session is in the design, preparation and planning before class. Providing handouts that support the activity, such as evaluation criteria, and worksheets for group discussion, enables the learner to stay on the task and leave with the information required for future research endeavors.

One of the key principles for PBL is that learning occurs in groups, often two or three learners, a size that seems to work best in this environment. PBL learners continuously engage in discussion; they coordinate, manage, and direct themselves in order to solve problems. Nevertheless, creating teams poses yet another challenge in PBL, as participants may have different comfort levels using computers and electronic resources. Clear guidance needs to be provided for a breakdown of activities and to encourage participation from every team member. Even in a short, eighty-minute session, learners establish a bond with their team members, motivating them to seek out the best solution.

Perhaps the most challenging part of a PBL session is the information professional assuming the role of facilitator and coordinator, rather than lecturer as is the case in traditional library instruction. Macklin (2001) elaborates on this concept further by stating: "a successful PBL facilitator must be able to draw out this evolving expertise by establishing a learning environment that is conducive to exploration, creative thinking and continuous positive feedback and reinforcement" (p.309). Actively engaging a PBL session can be a rewarding experience as it provides an excellent opportunity to interact with learners in a more dynamic environment. As learning supporters and advocates, the authors of this paper set up the problem/situation at the beginning of the session, help learners focus their thinking as they explore grey literature resources, balance learner-direction with assistance, stimulate critical evaluation of ideas, and encourage users to make informed choices in their information seeking.

Conclusion: Continuing with PBL Today and into the Future

One of the satisfactions that we as instructors have from using PBL in teaching grey literature is that we get to know our clients better than we do with a traditional library lecture. By shifting ourselves from the action centre, we get to observe and listen to our users during the class. This allows us to gain insight into the structure of medical students and healthcare practitioners' understanding of grey literature, providing the experience in learning a topic on one's own while applying it to real-world situations,

the core principle of information literacy. Successful PBL involves more than just repackaging the content of traditional lectures into problem-based scenarios; it requires a transformation of learners' experiences, concerns and visions. Although the experience is rewarding, the learning curve is steep; we must be prepared to deal with the changing dynamics of PBL, our users' learning skills, and the subject matter being searched for. Nevertheless, the change in perspective of grey literature and PBL will lead us to renewed interest for providing user-education in the health sciences sector.

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Collecting Foreign Digital Grey Literature through a Consortium in Korea: An Example of Conference Proceedings

Suhyeon Yoo, Kijeong Shin, and Heeyoon Choi
(Korea)

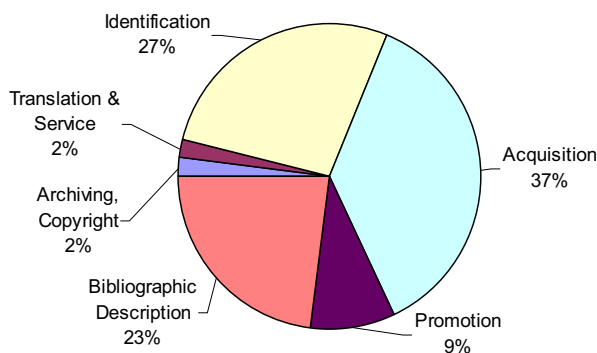
Abstract

Grey literature is occasionally the first and sole source for specific research topics. It may contain comprehensive, concrete, and up-to-date information on research findings. Despite the importance of grey literature, it is often one of the resources in libraries that is neglected, because it has historically been difficult to identify and obtain. In the case of conference proceedings, it is simpler to obtain in libraries than other types of grey literature such as preprints because it has a certain possibility of further publication. There can be two simple ways of obtaining conference proceedings in libraries. The first one is to receive the materials directly from the researchers who participate in the conference. The other is to subscribe to published conference proceedings. This is a much easier way for libraries to build their collections. Most libraries and information centers in Korea have subscribed to foreign digital resources including conference proceedings through a purchasing consortium called KESLI (Korean Electronic Site License Initiative). It allows scholars to get the information as soon as it is published and thus reduces librarians' efforts of collecting and cataloging. In spite of the many advantages, subscribing to foreign digital conference proceedings through a consortium still has some issues to be discussed. This study first introduces the KESLI consortium and then describes how to develop foreign digital conference proceedings through KESLI and reviews some issues encountered in the subscription process.

Introduction

Grey literature means a body of materials that cannot be found easily through conventional channels such as commercial publishers, "but which is frequently original and usually recent" in the words of M.C. Debachere (Debachere 1995). Examples of gray literature include technical reports from government agencies or scientific research groups, working papers from research groups or committees, white papers, or preprints. The term gray literature is often, but not exclusively, used for scientific research.

Grey literature is sometimes the first and sole source for a specific research topic. Grey literature may contain comprehensive, concrete, and up-to-date information on research findings. A survey was carried out on the scientific quality of foreign grey literature in Korea. The importance and value of foreign grey literature was recognized by 42.9% of the survey participants. (KISTI 2006). In a study about dependence of Korean researchers on foreign grey literature, Nam and Cho (2006) analyzed the references of the major Korean journals listed in the Science Citation Index. They found out that the citing rate of the foreign grey literature is about 24% of the total references. According to this research on academic quality, grey literature has higher usage rates than books. Also over 90% of the Korean researchers were demanding the full text of the foreign grey literature. As Charles P. Auger points out in his book, however, it is difficult to identify and acquire grey literature due to its poor bibliographic information and control, non-professional layout and format, and low print runs (Auger 1989). A high level of subject knowledge, professional skill, and personal dedication must be devoted to the task. Furthermore librarians' time and effort are required for identification and procurement. Major difficulties related to collecting grey literature for Korean librarians are shown [Picture 1]. Despite its importance, it is often neglected as a major resource in Korean libraries due to the reasons given.



[Picture 1] Major difficulties related to GL for Korean librarians

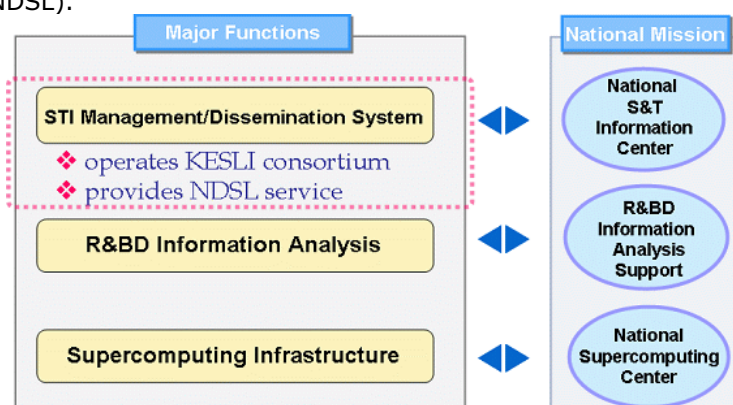
In the case of conference proceedings, they are simpler to obtain in libraries than the other types of grey literature such as preprints because they have a certain possibility of further publication. There can be two simple ways of obtaining conference proceedings in libraries. The first one is to receive the materials directly from the researchers who participate in the conference. The other one is to subscribe published conference proceedings. This is a much easier way for libraries to build a collection.

Most libraries and information centers in Korea subscribe to foreign digital resources including conference proceedings through a group buying consortium called KESLI (Korean Electronic Site License Initiative). It allows scholars to get the information as soon as it is published and reduces librarians' efforts of collecting and cataloging. In spite of many advantages, subscribing the foreign digital conference proceedings through this consortium has still some issues to discuss.

This study introduces the KESLI consortium first. Then this study describes how to develop collections of foreign digital conference proceedings through KESLI and reviews some issues produced in the subscribing process.

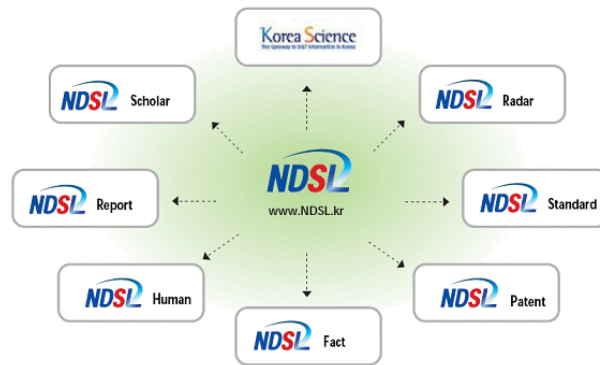
KISTI & KESLI Overview

Before explaining the KESLI, we need to introduce the Korea Institute of Science and Technology Information (KISTI), which is the national Sci-Tech information center as well as the administrative body of KESLI. KISTI has comprehensively collected, analyzed, and managed science and technology information resources for the country since 1962. The mission of KISTI is to create value for customers with STI service innovation. Its three major functions are shown in Picture 2. KISTI operates the KESLI consortium and provides an STI management and dissemination system for public use (NDSL).

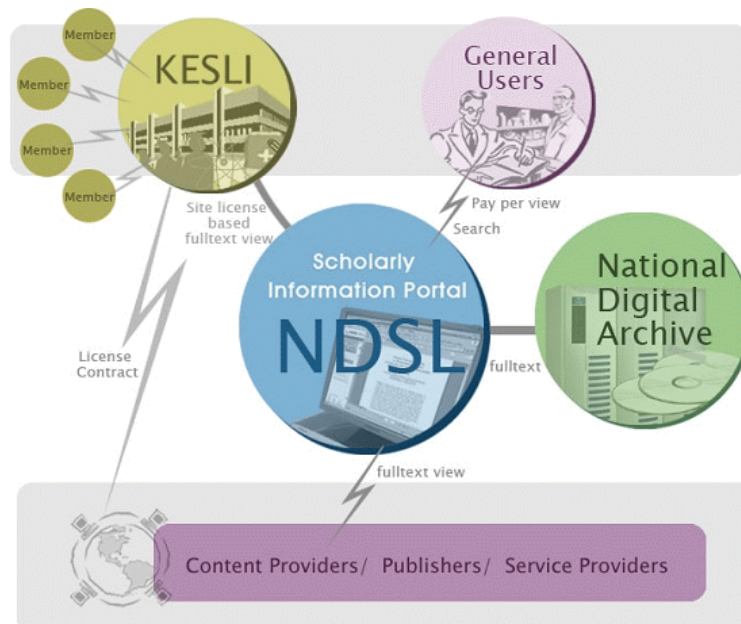


[Picture 2] KISTI major functions and related national missions

NDSL (National Digital Science Links, <http://www.ndsl.kr>) is an STI integrated service platform provided by KISTI. NDSL links to all S&T Information, both domestic and worldwide. The contents of NDSL are varied, such as papers, patents, technical reports, trend analysis reports, standards, human resources and other data. It has three major characteristics: 1) integrated search of varied contents 2) links to specialized services 3) personalized service based on Web 2.0. In particular, NDSL provides a one-click total information service for both electronic and printed journal/proceeding papers to researchers nationwide by building a comprehensive metadata-base in collaboration with KESLI member libraries and publishers [Pictures 3 and 4].

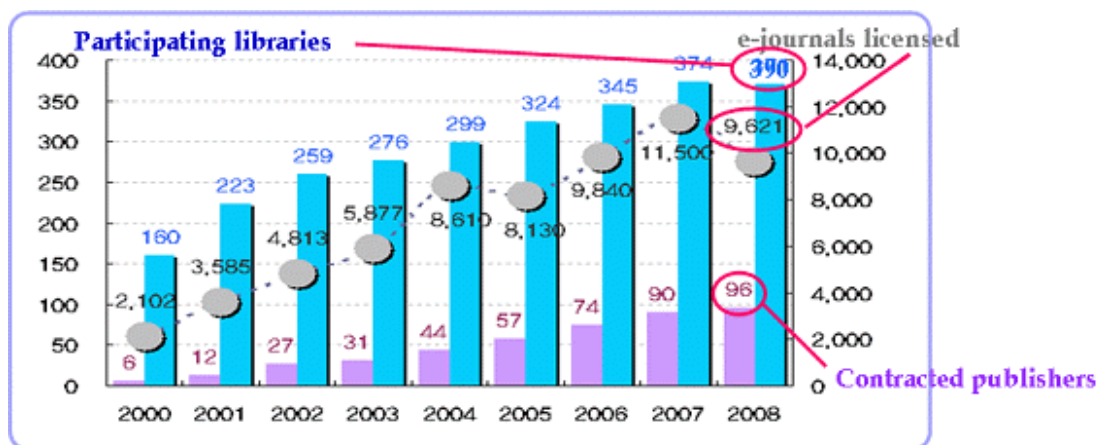


[Picture 3] NDSL contents map



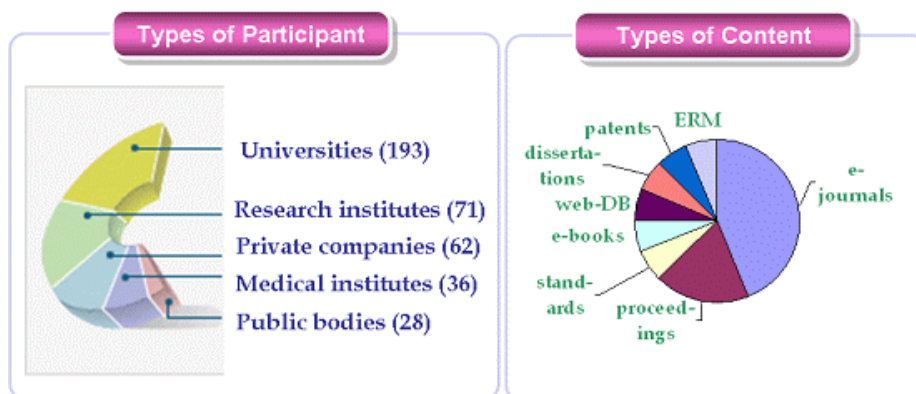
[Picture 4] KESLI & NDSL service map

KESLI is the library consortium for joint purchasing of e-publications administrated by KISTI. It was started in 2000 with 6 participating libraries and has grown dramatically year by year. A total of 390 libraries are participating in the KESLI consortium in 2008, and 96 publishers from all over the world have contracted with Korean libraries [Picture 5].



[Picture 5] Annual growth of KESLI consortium

Types of participants and types of content of KESLI are shown in Picture 6. University libraries are the major participating libraries. Types of content listed on KESLI vary from electronic journals and proceedings to dissertations, patents and ERM services.

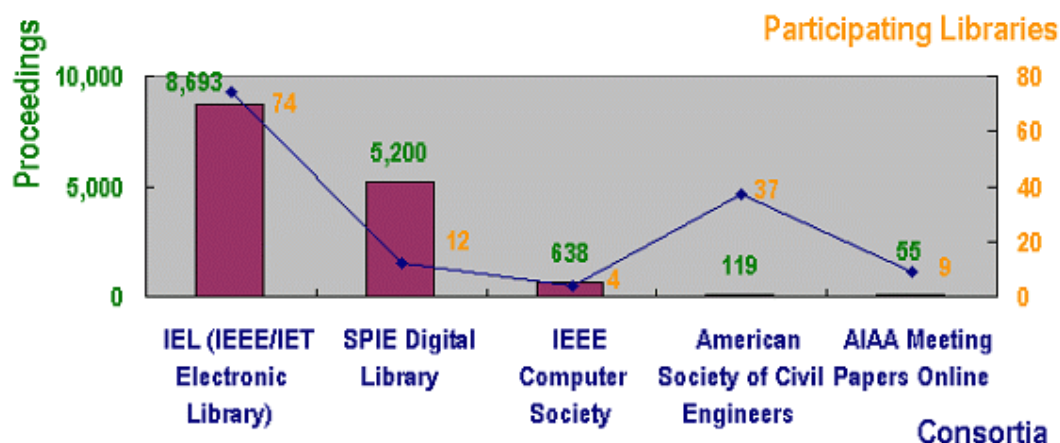


[Picture 6] Participation and Content of KESLI

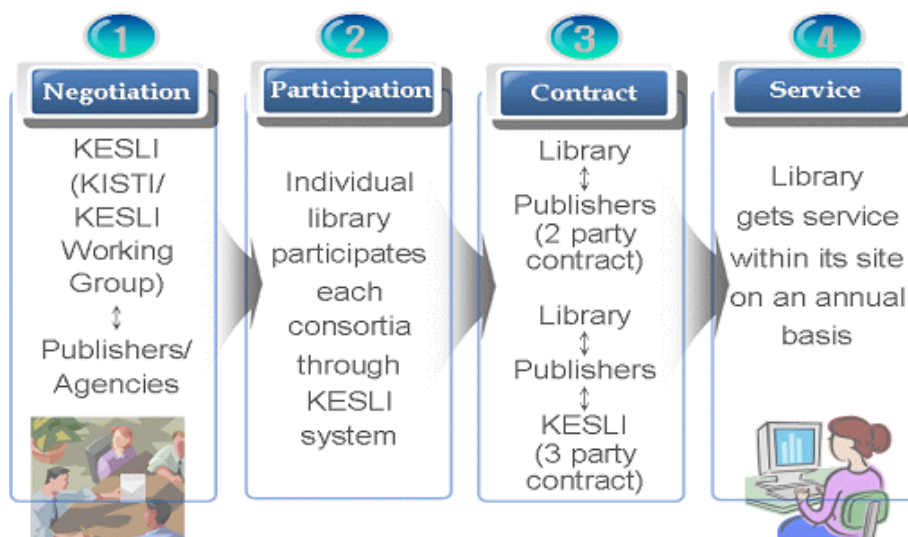
Collecting Foreign Digital Grey Literature in Korea

Most libraries in Korea have subscribed to foreign digital resources including foreign grey literature through KESLI. As many types of contents are listed on KESLI, this study selected the consortium whose main content is proceedings. Proceedings are the easiest source among grey literature to acquire and it is often confused with white literature. Five major proceedings consortia are listed on KESLI in 2008 [Picture 7]. The IEL (IEEE/IET Electronic Library) is the best-known consortium and has the most participating libraries (74 libraries) of the five consortia.

KESLI makes it easy for librarians to acquire this literature by the following process [Picture 8]. The first step is that, the administrative body, KISTI, and KESLI working groups composed of participating libraries, negotiate with publishers and their agencies. As most of the publishers are foreigners, KISTI and KESLI working group members need facility with English in addition to negotiation skills. The results of this negotiation are directly reflected to the participating libraries. Therefore the negotiation process is a critical and effort consuming step. The second process is that an individual library participates in each consortium through the KESLI system. KISTI, as the administrative body of KESLI, holds a presentation meeting. Information providers can have time for promotion of their products. Librarians get the information about price, subscription conditions, options and archives of each consortium that has agreed between KISTI/KESLI working group and information providers. Contracts can be made between the library and publisher or KESLI as the host can be added according to the contract type. When the contract is made, the library gets service within its site on an annual basis. Usually all the process except the negotiation process is finished in a year.



[Picture 7] Major proceeding consortium of KESLI



[Picture 8] Collecting process through KESLI

Issues of Collecting Grey Literature through KESLI

It is clear that for librarians in Korea, it is convenient to collect foreign grey literature only if they participate in the KESLI consortium. It reduces librarians' time and effort of identifying, collecting, and even cataloging. Also it solves the language problem from contract to service. Digital grey literature acquired through KESLI allows researchers to get the information as soon as it is published. However, there are some issues to discuss regarding the collection of digital grey literature through a consortium.

First of all, each library has its own features according to type of library, budget, size, users, etc. However, each consortium cannot be tailored or customized for each library's need. Libraries cannot negotiate the subscription terms, including price. For this reason, the settled price condition can be beneficial to some libraries but may not be to the others. Even though it is impossible to draw subscription conditions which satisfy all participants, it is necessary to try to make reasonable and moderate conditions which satisfy as many participants as possible at the stage of negotiation. The second issue is the archiving problem. The archiving issue is relevant to whether members can still access data they subscribed to, after the contract terminates. KISTI has tried to get full-text for perpetual archiving free of charge or with minimal charge by continuous negotiation with the information providers, in order to solve this issue. Grey literature can be obtained and built as a library's collection by various methods. A library can participate in a consortium like KESLI, buy them directly or through vendors, or get them by gift or exchange between libraries. Many of libraries in Korea participate in KESLI, but researchers still need up-to-date and essential information. These days the largest collections of scholarly full-text documents are provided by digital depositories and repositories maintained by government agencies, associations, universities, professional volunteer groups, as well as new and traditional scholarly publishers. Libraries that need to reduce their budget and still meet their users' needs need to be investigating open access resources.

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Grey literature in French Digital Repositories: A Survey *

Joachim Schöpfel and Christiane Stock
(France)

Abstract

The impact of open archives on the availability and selection of scientific and technical information is growing. Yet, there is little empirical evidence on the deposit and processing of grey literature in digital repositories.

The purpose of this communication is to provide a survey on grey literature in French open archives, e.g. institutional and subject-based digital repositories.

The survey is based on a selection of 56 representative French digital repositories. The different archives are selected through national and international registries of OAI repositories, following a defined set of criteria. The repositories are shortly described (type of repository, scientific domain, software, size, language, institution).

Five aspects are analysed for each digital repository:

- 1. Typology of grey documents (in particular, theses and dissertations, reports, conference proceedings, working papers, courseware).*
- 2. Part of grey literature in the whole archive (in %).*
- 3. Specific metadata related to grey literature.*
- 4. Quality control and policies (evaluation, validation).*
- 5. Conditions of access to the full text.*

These information and data are linked to the characteristics of the repositories mentioned above, and specific features of grey literature are discussed.

Furthermore, the question if the New York definition of grey literature applies to the content of digital repositories is discussed.

The communication provides an overview of the preservation and dissemination of grey literature in French digital repositories, contributes to the discovery of French grey literature and open archives, and moves forward the debate on the future of grey literature in the environment of digital repositories.

1. Introduction

"New possibilities of knowledge dissemination (...) through the open access paradigm via the Internet have to be supported. (...) A complete version of the work (...) is deposited (and thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization."¹

On 22 October 2003, five years ago, 19 major European scientific organizations signed this *Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities*. In January 2006 the European Commission published the *Study on the Economic and Technical Evolution of the Scientific Publication Markets of Europe* with policy recommendations in favour of open repositories ("Research funding agencies ... should promote and support the archiving of publications in open repositories", cf. Dewatripont et al. 2006).

In December 2006, the European Research Advisory Board released a report on scientific publication and policy on open access² and recommends, "that the Commission should consider mandating all researchers funded under FP7 to lodge their publications resulting from EC-funded research in an open access repository". A petition for guaranteed public access to publicly-funded research results launched in early 2007 was signed by more than 27,000 scientists and several hundreds organizations³.

In France 17 scientific and academic institutions support the Berlin Declaration. French universities and research organizations signed in July 2006 an agreement on the development of a common infrastructure of open repositories. Central parts of the French "jigsaw puzzle" (André et al. 2007) are the CNRS Center for Direct Scientific

* First published in the GL10 Conference Proceedings, February 2009

Communication⁴ at Lyon and, since November 2008, the institutional repository portal⁵ launched by the French academic consortium COUPERIN. -

Last year, the European DRIVER study evaluated France as an advanced country in the open archives landscape (see Van de Graaf & Van Eijndhoven 2007).

Grey literature represents a substantial part of the scientific production (cf. Schöpfel & Farace 2009). Since the 7th International Conference on Grey Literature (Farace & Frantzen 2006) at Nancy, the GreyNet community intensified its research activities on the impact of the open access movement on the grey literature. Special attention was paid to institutional repositories, public policies, organisational context and e-infrastructure. Several case studies highlighted the national, cultural and domain-specific differences.⁶ All the same, they also confirmed the force and dynamic of this global movement towards unrestricted access to scientific information.

The purpose of our study is to evaluate the integration of grey literature in French open archives. In particular, five aspects are analysed for each digital repository:

1. The typology of grey documents (e.g., theses and dissertations, reports, conference proceedings, working papers, courseware).
2. The relative part of grey literature in the whole archive.
3. The assignment of specific metadata related to grey literature.
4. Information about quality control and policies.
5. The conditions of access to the full text.

Whenever possible, data on development (evolution of deposit) and usage (statistics of access and downloads) are added. These information and data are linked to the characteristics of the repositories mentioned above, and specific features of grey literature are discussed.

The communication provides an overview of the preservation and dissemination of grey literature in French digital repositories, contributes to the discovery of French grey literature and open archives, and moves forward the debate on the future of grey literature in the environment of digital repositories.

2. Methodology

The survey is based on a selection of 56 representative (e.g. registered either with a dedicated platform or as data provider for harvesting) French digital repositories. The different archives were selected through eight significant international registries of OAI repositories or service providers:

BASE

Bielefeld Academic Search Engine.

<http://base.ub.uni-bielefeld.de/index.html>

DSpace

Repositories using Dspace – Alphabetical.

http://www.dspace.org/index.php?option=com_content&task=view&id=596&Itemid=182

Eprints

Sites Powered by Eprints.

<http://www.eprints.org/software/archives/>

OpenDOAR

Directory for Open Access Repositories.

<http://www.opendoar.org/>

ROAR

Registry of Open Access Repositories.

<http://roar.eprints.org/>

Scientific Commons

Register URL

<http://en.scientificcommons.org/register-repository>

University of Illinois OAI-PMH Data Provider Registry.

<http://gita.granger.uiuc.edu/registry/>

Webometrics

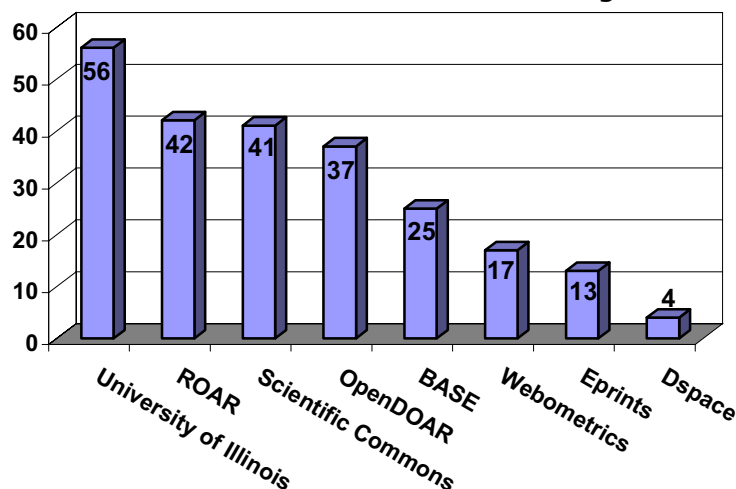
Ranking Web of World Repositories.

<http://repositories.webometrics.info/>

The selection took place between March and May 2008 and followed a defined set of criteria (located/hosted in France, living archive, size>0).

Figure 1 shows for each registry the number of French archives compliant with the criteria.

Figure 1: Number of French archives in international registries (March-May 2008)



Each registered archive (URL) was checked; errors (incorrect URLs etc.) and duplicates were eliminated. Information about the 56 remaining archives were incorporated into a spreadsheet with 37 data columns in 5 categories (see appendix):

1. General (background) information about the archive (10 data elements).
2. Specific information about the archive (6 data elements).
3. Content information (12 data elements).
4. Qualitative data (7 data elements).
5. Comments (2 data elements).

If the information for a specific field was unavailable or uncertain, it remained open.

The data were analyzed with basic Excel statistical functions. Qualitative information was added from the spreadsheet if necessary. Several archives had to be excluded, because the URL was no longer valid or no user interface was provided allowing us to obtain data.

3. Results

The leading questions for the data analysis are:

- How can the current situation of open archives in France be described?
- Which is their content?
- Which is the importance of grey documents in these archives?
- Which are the main aspects of grey material in French open archives?
- How are grey documents used?

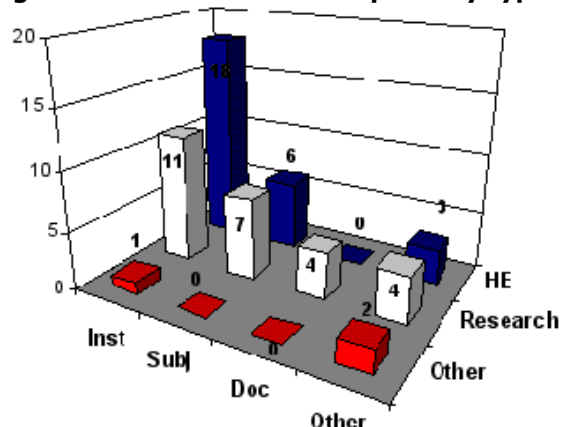
Based on empirical evidence, the following sections try to provide at least partial responses.

3.1. General characteristics of French open repositories

3.1.1. Institutions and typology of archives

One half of the French open archives are owned and/or hosted by Higher Education establishments (HE), e.g. universities and engineering schools, with Strasbourg, Lyon and Paris universities in leading positions. The other half is from public research institutes; mostly from the multidisciplinary national research centre CNRS, some other from INRA (agronomics) or INRIA (applied computer sciences). Only three archives are from other types of organizations.

Figure 2: Institutions and repository typology

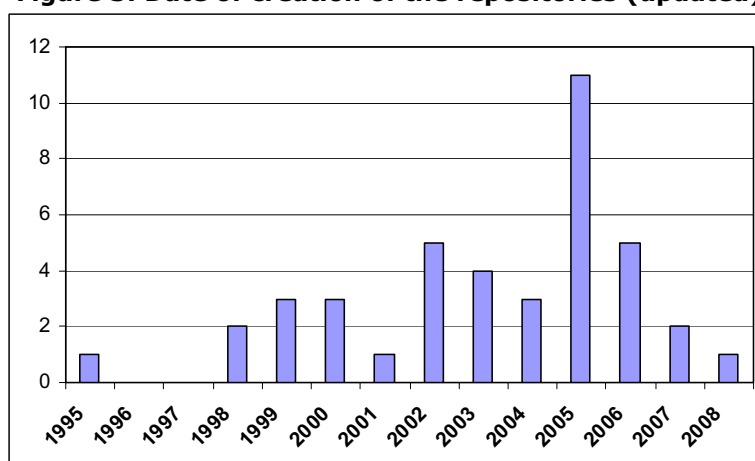


Half of the archives are institutional repositories designed for publications from the scientific authors of the specific institution. In particular, 67% from the HE archives (n=18) are in this category, confirming the academic interest to increase the visibility of scientific production (figure 2).

3.1.2. Date of creation

For 16 repositories, we could not determine the exact date of creation. Most of the others were launched in 2005 or later (figure 3). The figures for 2006 onwards would be even higher, had not HAL been agreed upon as a national repository for French research organizations.

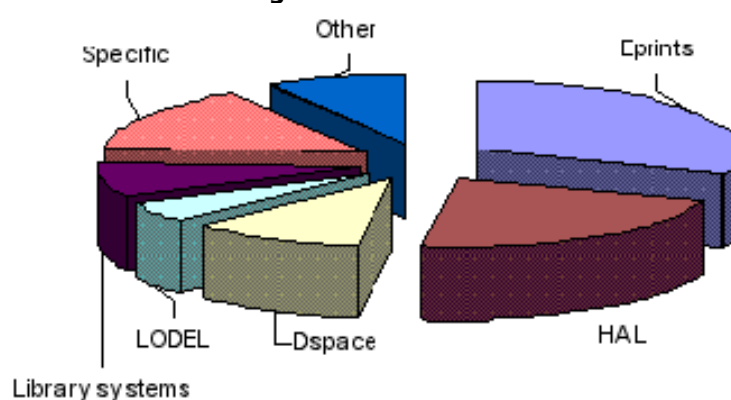
Figure 3: Date of creation of the repositories (updated)



3.1.3. Software

In spite of some early initiatives in favor of national and hegemonic software, the current situation is pluralistic with some major OA-systems and specific (local) solutions.

Figure 4: Software



Two-thirds of the repositories were developed with well-established and OAI-PMH-compliant software, namely *Eprints* (CA/UK), *HAL* (F) and *DSpace* (US). This choice offers the opportunity to collaborate with national and international user groups on problem solving and product development.

This landscape will probably change in the next months. The new French open access software *OAI-ORI*, a specific open source solution for HE institutional archives, was launched earlier this year. Nevertheless, during the period of the empirical study (March-May) *OAI-ORI* was only implemented on experimental sites.

3.1.4. Language

54 repositories provide French-speaking interfaces, 31 of them exclusively. 25 archives supply at least partial English information for users, two of them also German and Spanish information.

Figure 5: Language of interface

Language (interface)	Number of archives
French	31
English	2
French and English	21
French, English, German, Spanish	2

The two fully English-speaking repositories are datasets archives, created for and by international scientific communities (astronomy, crystallography).

3.2. Content: scientific domains, types of material and size

3.2.1. Scientific domains

The French open repositories and especially the multidisciplinary and often institutional archives cover most of the scientific disciplines. Nevertheless there are some characteristics of the French open access landscape.

ADVERTISEMENT

OPENSIGLE

SYSTEM FOR INFORMATION ON GREY LITERATURE IN EUROPE

OpenSIGLE - System for Information on Grey Literature in Europe is your open access to SIGLE bibliographical references of reports and other grey literature (GL) produced in Europe until 2005. Examples of GL include technical or research reports, doctoral dissertations, some conference papers, some official publications, and other types of grey literature. OpenSIGLE covers pure and applied science and technology, economics, other sciences and humanities. <http://opensigle.inist.fr/>

Figure 6: Scientific disciplines

Scientific domain	Number of archives
Multidisciplinary	19
Social sciences & humanities	20
Linguistics	4
<i>Library, information & communication sciences</i>	3
<i>Ethnology & cultural studies</i>	3
Applied sciences	11
Engineering	5
<i>Computer sciences</i>	3
<i>Agronomics</i>	3
<i>Telecommunication</i>	1
Sciences, medical sciences	6
Physics	3
<i>Astronomy</i>	2
Chemistry	1
<i>Geochemistry</i>	1
<i>Mathematics</i>	1
<i>Medicine</i>	1
<i>Sport</i>	1

Compared to other countries, in particular the US and the United Kingdom, a large important archive for French medical and/or life sciences is missing so far. This probably has two explanations, the importance and force of attraction of the PubMed Central for all international scientists, and the decision of the two French public research organizations with significant research activity in medical and life sciences, the CNRS and INSERM, in favor of a national, multidisciplinary article-based repository (HAL-CCSD).

3.2.2. Types of material

The content of the repositories is widespread and of great diversity. A non-exhaustive inventory based on the repositories descriptions gives evidence for more than 20 different types of materials:

- *books*
- *manuscripts*
- *speech samples with transcriptions*
- *maps*
- *images*
- *datasets (astronomical observation, crystallography)*
- *journals (backfiles, current issues)*
- *articles*
- *proceedings*
- *courseware*
- *posters*
- *videos*
- *patents*
- *dissertations and theses*
- *bibliographical records*
- *reports*
- *preprints*
- *other unpublished materials*
- *cultural heritage materials (rare books)*
- *websites*
- *software*

53 archives contain textual material (written documents), seven of them together with other items (datasets, images, maps etc.). Only three repositories don't contain any written document (oral documents and other datasets).

Four archives - all of them produced by the national research organization CNRS - are document-specific, e.g. designed for one specific category of documents and not limited to one institution. The CNRS created a national site for open access journals especially in social sciences and humanities (*revues.org* hosted by CLEO). The other three repositories are dedicated to grey literature: a site for French scientific and technical reports (*LARA* hosted by INIST) and two archives for French electronic theses

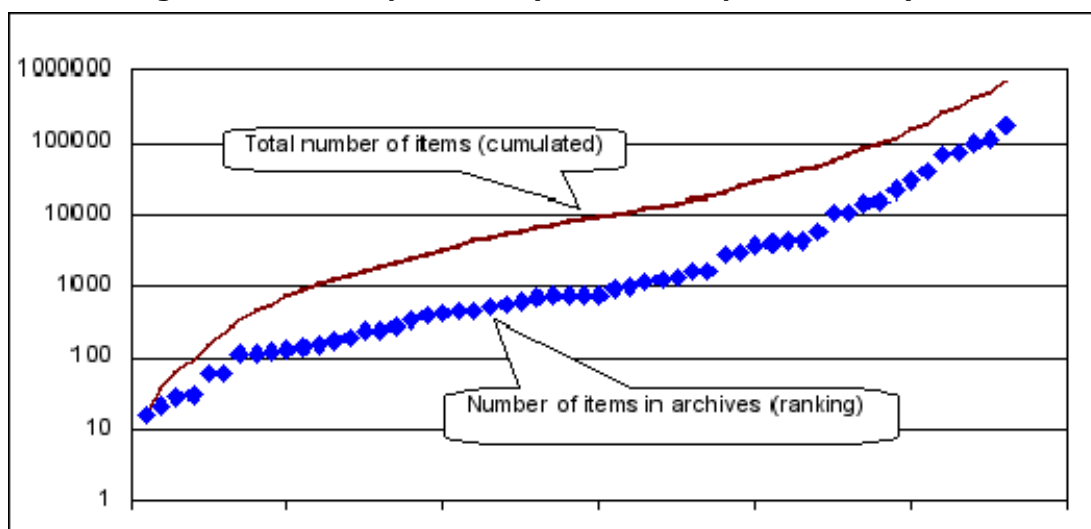
and dissertations (*TEL* for PhD theses and *MemSIC* for Master theses, both hosted by CCSD).

3.2.3. Size of repositories

The size of the repositories varies largely, between a minimum of 16 items and a maximum of 172,215 items (average size 12,500 items, median size 713 items). Together they total 704,578 deposited items.

32 archives contain less than 1,000 items. Together, they represent 57% of the total number of archives but only 2% of the overall number of items (documents, datasets etc.).

Figure 7: Size of repositories (number of deposited items)



On the other side, 12 archives (21%) contain more than 10,000 items each or 94% of the overall number of items in French archives. These most important archives are the following:

Figure 8: The 12 most important repositories (size)

Name	Host	Organisation
TEL	CCSD	CNRS
HAL INRIA	CCSD	CNRS
I-Revues	INIST	CNRS
HAL SHS	CCSD	CNRS
Revues.org	CLEO	CNRS
NumDam	MathDoc	CNRS
GALLICA		BNF
Horizon Pleins Textes		IRD
Crystallography Open Database		University of Maine
ProdINRA	INRA	INRA
HAL	CCSD	CNRS
PERSEE	Lyon 2	University of Lyon 2

The role of the CNRS is significant; the organization hosts and/or produces more than 30% of the total number of items. However, three of the cited archives provide a mixture of bibliographic records and full text documents (HAL, Horizon Pleins Textes, ProdINRA).

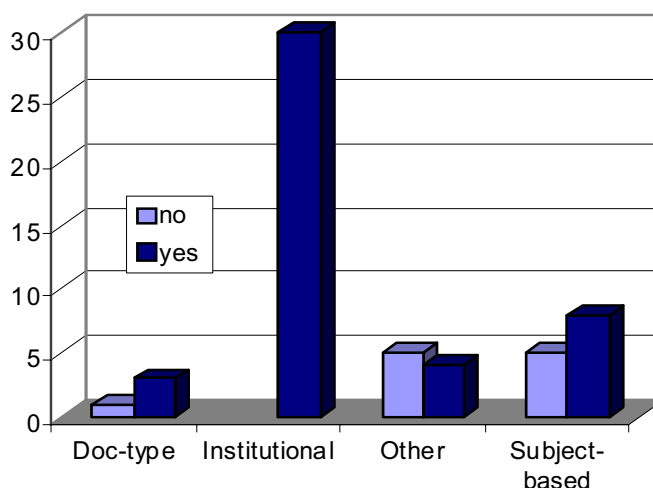
3.3. Grey content

According to OpenDOAR data, 50% of the French repositories contain theses and dissertations, 35% conference or workshop papers and 32% unpublished reports or

working papers (October 2008). Reports are frequently associated with journal articles and conference papers, whereas 50 % of repositories containing ETD's (10 out of 20 sites) are dedicated exclusively to this type.

Our own survey shows that a significant part of French repositories (79%) includes at least one category of "traditional" grey literature (theses or dissertations, reports, conferences, working papers, courseware etc.). Even more interesting is the fact that 100% of the institutional archives give access to grey material (figure 9).

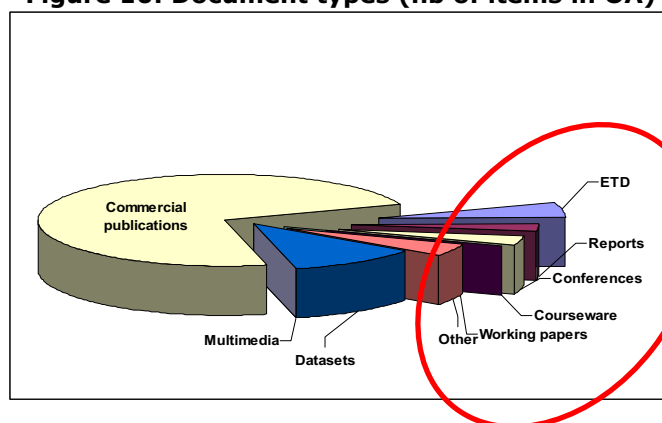
Figure 9: Type of archive and presence or grey content (nb of OA)



18 open archives are 100% grey, e.g. their content is set up by theses and dissertations (14), conference papers (2), reports (1) and courseware (1). Nevertheless, their importance is limited. Together, these "grey OA" contain but 2,5% of all publications in French OA.

The overall part of grey documents (items) in the global French OA content is 16%, e.g. one out of six deposited publications in French archives is grey literature. The other material is commercial (mainly journal articles), multimedia and datasets (figure 10).

Figure 10: Document types (nb of items in OA)



One third of the deposited grey documents are electronic theses and dissertations, followed by conference papers (22%) and reports (16%). Surprisingly low – below 1% – are the indexed deposits of courseware and working papers. On the other hand, the part of undefined grey documents is relative high – 28% (especially in three archives from IRD and CCSD).

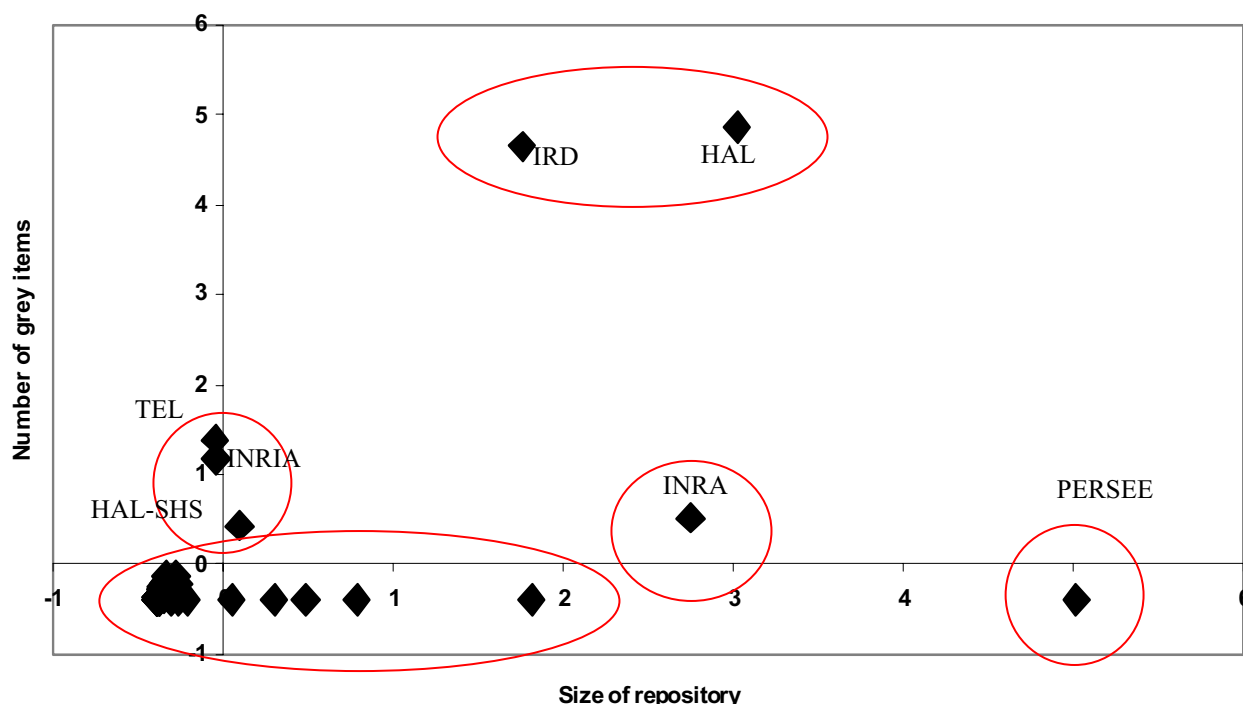
Typology of grey documents

Grey material	Relative part
ETD	34%
Conference papers	22%
Reports	16%
Courseware	0,3%
Working papers	0,2%
Other	28%

Related to the size of the archive and the number of grey items, we can distinguish five types of repositories (figure 11):

- 1) Important archive, no grey material: PERSEE (only journal articles).
- 2) Important archive, relative high number of grey items: IRD, HAL.
- 3) Important archive, average number of grey items: INRA.
- 4) Medium-sized archives, average number of grey items: TEL, HAL-SHS, INRIA.
- 5) Smaller archives, no grey content or low number of grey documents.

Figure 11: Size of repository and number of grey items (standard scores)



3.4. Qualitative aspects of grey content in French repositories

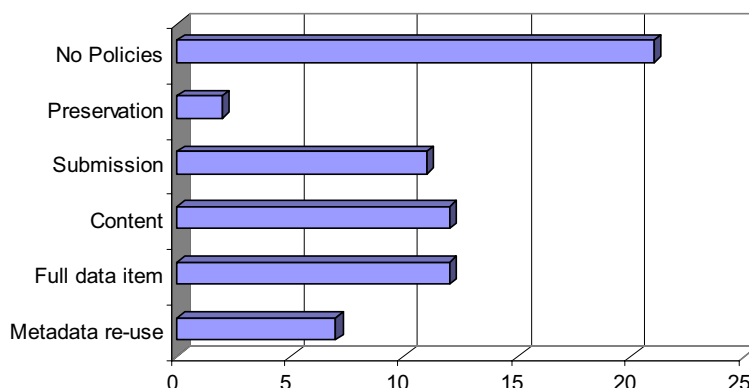
3.4.1. Policy statements

Keith Jeffery in his paper on "Greyscape" (Jeffery 2007) asked whether a repository mentions an "institutional policy to mandate deposition of material". The OpenDOAR registry provides information about policy statements of archives and distinguishes 5 aspects:

- Metadata re-use policy
- Full data item
- Content
- Submission
- Preservation

For the 38 French archives registered with OpenDOAR at the time of our survey 21 sites give no policy statement at all. For the remaining 17 sites we find the following statements (figure 12).

Figure 12: Policies defined by repositories (Source: OpenDOAR)



Policies are expressed in comparable proportions with regards to full data item reuse, content and submission. Metadata re-use is probably implicit for many in the OAI-PMH context, whereas preservation policies are mentioned only twice. Although the majority of the 17 sites make more than one statement, only one repository (OATAO, created in 2007) give information on all 5 issues.

L'Hostis (2006, 23) provides additional information about the mandatory deposit for publications within the major French research organizations. One of the most successful institutes with regards to the submission policy for its research output (effective since 1992, and attaining almost 100%) is the Cemagref institute (agricultural and environmental engineering research). Strangely enough this organization has no visibility as institutional archive whatsoever and doesn't appear in the registries used for our study. Cemagref publications may be accessed through a database (Cemadoc), whenever the full text is available.

CNRS, among the first organizations to sign the Berlin declaration on open access, and operator of HAL, still doesn't oblige it's researchers to submit their documents to HAL.

3.4.2. Metadata

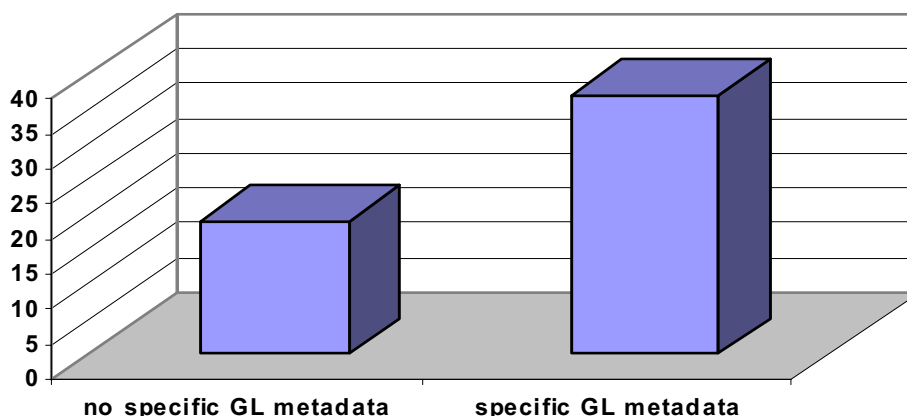
Three main grey document types occur in our survey: theses, reports and conference papers. We consider that specific metadata are added when at least one of the following elements is given.

- **Report:** report number, funding organization, project name.
- **Doctoral thesis or dissertation:** defense date, university, degree, discipline, and thesis advisor.
- **Conference:** name, date, and place (town).

Although 45 repositories contain grey documents, only 37 of them add specific metadata. For the remaining 8 archives either the part of grey documents is very low, or they hold particular documents and fall into the category "other" document type.

Among those who add specific metadata, the number and quality of information vary: from adding the name of the university or defense date for a doctoral thesis to the members of the jury or very detailed information for reports on sponsors or projects.

Figure 13: Repositories with specific metadata for grey documents



3.4.3. Access to the full text

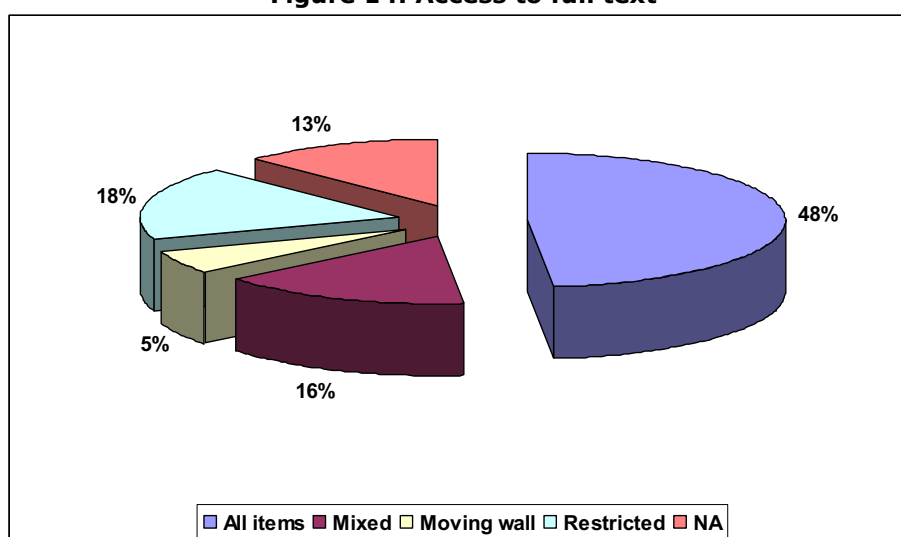
Both ROAR and OpenDOAR registries deal with the distinction between metadata records and access to full text. Data supplied by OpenDOAR refer to full text items only, whereas ROAR gives an estimate on the availability of full text.

In our survey 71% of the repositories in France provide access to full text, and for 48% of the sites the entirety of the documents is available in open access. We distinguish two categories with restrictions:

- Part of the archive is accessible through an intranet or limited to a community.
- A moving wall for commercial repositories. The goal of e-publishing platforms such as I-Revues is to provide access to the full text, but for some titles a temporary embargo is applied.

16% of the archives contain a mixture between bibliographic records and full text. A part of them (e.g. IRD - Research Institute for Development) provide access through a library catalogue, which necessarily includes bibliographic records. ProdINRA currently enhances a bibliographic database to add full text documents. HAL included a publication database of CNRS researchers in its archive. However, it's possible to search for full text records only.

Figure 14: Access to full text



3.4.4. Quality control

Along with the explicit information on the surveyed web sites, about 41% of the repositories mention some kind of quality control and/or evaluation of the archived grey documents.

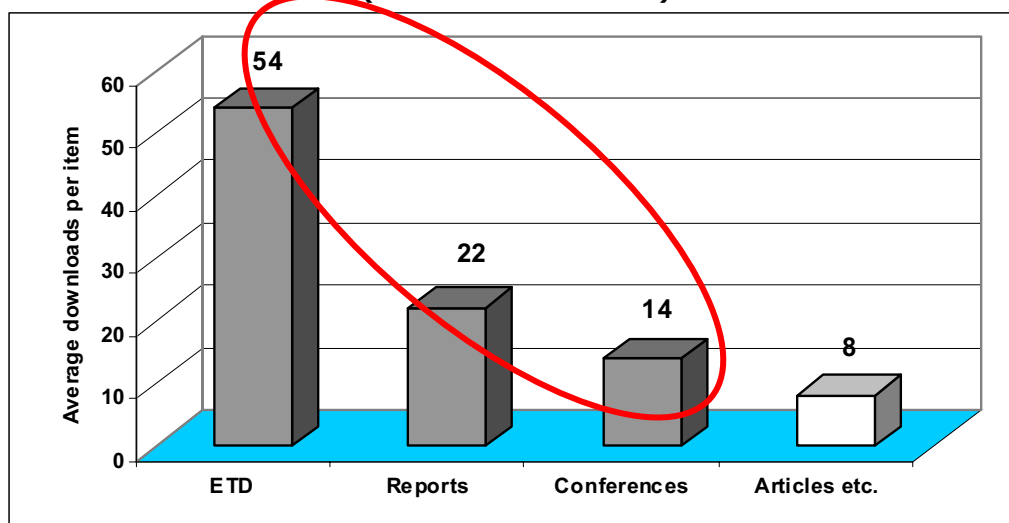
Above all, this quality control concerns electronic theses and dissertations that have been evaluated before their deposit. A few number of archives mention "archive administrators" who obviously act as a kind of scientific editor for the selection (but not for the revision, as far as one can see) of materials. Others only accept peer reviewed or published documents (mostly not grey, however), "outsourcing" by the way the quality control.

3.4.5. Usage statistics

During the period of the survey (March-May 2008), no reliable statistics or other usage related data or information were found on the repositories' web sites.

Shortly before the GL10 conference, we discovered the IFREMER report on the functioning and the usage of the IFREMER institutional archive (Merceur 2008). This report not only publishes the usage statistics (cumulated downloads of archived items) since the creation of the repository (April 2004) but also compares the usage of different types of documents. The result is rather interesting (figure 15).

**Figure 15: Usage of different document types in the IFREMER archive
(source Merceur 2008)**



Even if the IFREMER archive contains two times more white material than grey (e.g. articles, books), the average download per item is up to seven times higher for grey documents, especially for theses and dissertations but also for reports and conferences.

4. Discussion

Difficulties we came across for this survey were numerous, making it sometimes necessary to go into details such as counting items, reading records or even the documents themselves to obtain information. In the following we shall discuss some significant problems.

4.1. Counting items

The overall number of items in a given archive is difficult to define. Data obtained may differ from one source to another depending on what is taken into account: all items, the automatic item count, only full text items, only open access items, items open to harvesting, etc.

On the national level we face the problem of double or triple entries. This situation is similar to other countries; the one and same document may be counted two to four times, because it is included in different repositories. For example a PhD thesis may be submitted to PASTEL and to TEL, then integrated into HAL.

Another confusing situation exists in Toulouse. Several technical universities maintain ETD repositories (INP and INSA and UPS). All their documents can be harvested through a specific website "Toulouse theses", with addition of the items from the veterinary school. OATAO (Open Archive Toulouse Archive Ouverte) is an institutional repository of the recently founded PRES (group of universities and engineering schools), mainly for articles, eprints, but including some ETDS as well. It is planned to have a unique repository for Toulouse in the future.

4.2. Where to find reliable information

Certain information are difficult to obtain. Policies can be expressed anywhere: on the homepage or the "about" page to an article which is deposited in the archive. Administration, validation and quality control of submitted items are often enough part of the back office and difficult to assess from the outside.

4.3. How to identify grey material

Identifying grey content and obtaining quality information, especially reliable numbers, is a real challenge. As mentioned above, it sometimes became necessary to open all items of a given category to control if they are grey. Unfortunately this was not possible for the bigger archives where we know that inconsistencies exist. The earlier archives such as ArchiveSIC and HAL in particular have constantly refined categories (document type, discipline) since their beginnings without always updating existing

metadata. Therefore an unknown number of grey documents like reports or conference papers can be found in categories such as 'Miscellaneous' or 'other'.

4.4. The HAL case

One of the oldest archive in France, HAL became the national archive for scientific and technical organizations in France in 2006. At the same moment, other independent archives such as TEL were integrated into the global HAL, and customized views or portals were created.

As shown in the list below only 25% of the "sub-portals" are referenced in international registries. Most of them led an independent life before 2006. This "fusion" explains the low figures for repository creations from 2006 onwards.

HAL Portals

- Generic
 - HAL, TEL, CEL
- Thematic
 - Archive-EduTice, HAL-SHS, Artxiker, @rchiveSIC, HAL-CSS, HAL-SDE, hprints.org, (MemSIC)
- Institutional
 - HAL-IN2P3, INRIA, Institut Nicod, INSERM, UJM, PRUNEL, LIRMM, Académie des Sciences, EMSE, IRD, CIRAD, PASTEUR, OBSPM, Bioemco, INERIS, CEA, INSU, SSA, IRSN, METEO, UNICE, Paris Descartes, Univ-Paris1, MNHN, SUPELEC, UNIV-BREST, UNILIM

This situation may change in the next years with the evolution of independent institutional archives hosted and maintained by the universities themselves.

4.5. Usage statistics

The missing information on usage and access to open archives in France confirms the statement of the 2007 DRIVER study that 70% of the repositories do log the statistical data on access but analysis and interpretation are "in development" or "problematic". In some cases (CCSD), the depositing authors have dynamic access to «their» statistics, e.g. the figures on hits and downloads of records and full texts. Nevertheless, no global figures are provided.

There may be different explanations: technical problems with software development, conceptual problems with standards, problems related to project planning and priorities, missing capacities for data capture and interpretation, low usage data. Even so, the main problem seems to be the silence, the general lack of any explanation why data are missing or not provided. In a competitive environment where commercial publishers and other vendors provide detailed and standard statistics on usage of journals, databases and e-books, and where the significant public investment in open access creates new business and communication models, public structures can't justify missing information about usage of their repositories.

5. Conclusion

Our survey, even if the dataset remained incomplete for reasons we indicated above, describes a landscape in movement. Pushed by the information market and fostered by new technologies, information services, communication channels and behaviors of scientific communities are undergoing rapid change. The situation of French open archives is changing, and we already mentioned the most important factors of change, e.g. the development of independent institutional archives by the French universities, supported by the academic consortium COUPERIN.

The survey shows how the grey literature takes its place in this environment. The impact of grey material – theses, reports, conferences etc. – in open archives is real and will stay. In the future, the link to new items, multimedia, datasets etc., will need attention and exploration.

On the other hand, the survey reveals three main problems of French open archives, especially in relationship with grey literature:

- (1) Policy statements need improvement. Often, the strategy and positioning of repositories are not explicit or simply missing.
- (2) Especially grey items in open archives need improved bibliographic control. Compared to traditional cataloguing standards, metadata for grey material are less

specific or again, simply missing. This is a problem for referencing, efficient search strategies and evaluation.

(3) Mostly wanted are detailed usage statistics on access and download of documents and other items in open archives.

The survey didn't gather data on the development of the archives (evolution of deposit). This, together with a deeper investigation of usages data, will be the object of a follow-up study in 2009/2010.

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7. Appendix

Format of spreadsheet

- **General (background) information about archive (10 fields)**
 - Name
 - Acronym
 - URL
 - URL alternative
 - Type institution
 - Institution
 - Host
 - Description
 - Source description
 - Creation (yr)
- **Specific information about archive (6 fields)**
 - Repository Type
 - Content
 - Subjects
 - Software
 - Language
 - Size (items)
- **Content information (12 fields)**
 - Presence GL
 - ETD
 - Reports
 - C-Paper
 - Proceedings
 - Working papers
 - Courseware
 - Other
 - Datasets
 - Multimedia
 - Total nb GL
 - % GL
- **Qualitative data (7 fields)**
 - Policies
 - Specific metadata GL
 - Quality control
 - Evaluation
 - Validation
 - Limited access fulltext
 - Other
- **Comments (2 fields)**
 - Comments
 - Date

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- 2 http://ec.europa.eu/research/eurab/pdf/eurab_scihub_report_recomm_dec06_en.pdf
- 3 <http://www.ec-petition.eu/>
- 4 <http://ccsd.cnrs.fr>
- 5 <http://www.couperin.org/archivesouvertes/>
- 6 See the GL proceedings at the GreyNet website <http://www.greynet.org/greytextarchive.html> and the published articles in *The Grey Journal*, especially the two issues on "Repositories – Home2Grey" (2005, vol. 1, n° 2) and "Grey matters for OAI" (2006, vol. 2, n° 1).

Grey Literature on caste-based minority community in India*

Jyoti Bhabal (India)

Background

According to the ancient Hindu scriptures, there are four "varnas" (groups). Manusmriti has mentioned four varnas: the Brahmins (teachers, scholars and priests), the Kshatriyas (kings and warriors), the Vaishyas (traders), and Shudras (agriculturists, service providers, and some artisan groups). Offspring of different varnas belong to different Jātis (Castes). Another group excluded from the main society was called Parjanya or Antyaja. This group of former "untouchables" (now called Dalits) was considered either the lower section of Shudras or outside the caste system altogether. (Caste system in India, n.d.)

Despite its constitutional abolition in 1950, the practice of 'untouchability' – the imposition of social disabilities on persons by reason of birth into a particular caste – remains very much a part of rural India. (Narula, Smita, n.d.)

The communities that are socially deprived due to their caste are categorized as Scheduled Caste (SC), Scheduled Tribes (ST), Other Backward Class (OBC), Denotified and Nomadic Tribes (DT/NT). In this study all these communities together will be discussed as CBM.

Today the educated CBM are trying to use intellectual and organizational means to fight the caste system. Some visible efforts are: using conferences and media, publication of books and journals, forming discussion groups, action groups and building websites to create awareness. They educate themselves on the constitutional and legal rights of the CBM and fight for their implementation and extension using national and international forums. They internationalize CBM issues to get world attention and support. (Melliya Annamalai, 2002)

There were and are documentations on various issues, actions, and movements among CBM. Most of these are at local level. This paper highlights the life cycle of such documentations in the form of grey literature available in the libraries of Mumbai.

Grey Literature (GL): Grey literature is defined as 'semi-published material for example reports, internal documents, theses, etc. not formally published or available commercially and consequently difficult to trace bibliographically. (Harrold's Librarian's Glossary and Reference Book, 2000)

The Internet is now a major source for dissemination and retrieval of grey literature and often serves as the initial introduction to a topic area. Some of the examples of e-grey literature are institutional archives and repositories, search portals and databases, e-print archives and directory of institutional links. (Rajendiran, P, 2006)

Objectives of the study:

- To find the grey literature available on various issues of CBM in the seven libraries of the city of Mumbai.
- To understand the post-acquisition life cycle of grey documents on CBM in these libraries.
- To know the effort/ measures taken by the libraries to enhance the use of grey literature on CBM issues.

Sample: Libraries that were chosen for survey were the ones that were catering to the student community. These libraries were SNDT Women's University Library, New Marine Lines (SNDT Library), Jawaharlal Nehru Library of University of Mumbai Library, Santacruz (MU Library), The Aditya Birla Memorial Library of Nirmala Niketan College of Social Work, New Marine Lines (NNCSW Library), Central Library of Indian Institute of Technology, Powai (IIT Library), Library of International Institute of Population Studies, Deonar (IIPS Library), Sir Dorabji Memorial Library of Tata Institute of Social Science, Deonar (TISS Library), Indira Gandhi Institute of Development and Research Library Goregon (IGIDR Library).

Methodology: A structured questionnaire was prepared to collect data on total GL collection of library on CBM, its format and its language. Some of the questions were related to technical processing of GL on CBM such as mode of acquisition, its classification, cataloguing, and maintenance. Some of the questions were asked to know the user and use of GL on CBM; further special efforts undertaken related to acquisition, analysis, storage, and dissemination of GL on CBM

* First published in the GL10 Conference Proceedings, February 2009

Online questionnaires were sent to each library to gather basic information about their grey collection from acquisition till dissemination. In addition, the various issues related to the life cycle of GL on CBM were discussed directly with the librarian and library staff. The data collected during individual discussion was informative and supplemented to the questionnaire data.

Individual library catalogue was searched to find total number of the Grey documents available on CBM issues in the seven libraries. To retrieve precise data several generic as well as special descriptors were used. Generic descriptors used were SC/ ST, Castes, Tribes, Scheduled Castes, Scheduled Tribes, Dalit, etc. Few other specific names of caste and tribes (i.e Mang, Matang, Koli, Paradhi, Chambhar) were also used. .

SPSS software was used to analyse and generate findings.

GL Collection on CBM:

Total 341 grey documents on various CBM issues were retrieved. All documents were categorised into Report (includes monographs, research report, survey reports excluding government reports, etc), Thesis and Dissertations, Government Publications (includes reports and statistical data- census data), Working papers, Conference Proceedings, Bibliographies. There were 156 Reports (47.5%), 84 Thesis and dissertations (24.6%), 74 Government publications (21.7%), 20 Working papers (5.9%), two Conference proceedings (0.6%) and 5 Bibliographies (1.5%) available as GL on CBM.

Chart 1: Library wise holding of various types of GL covering CBM issues

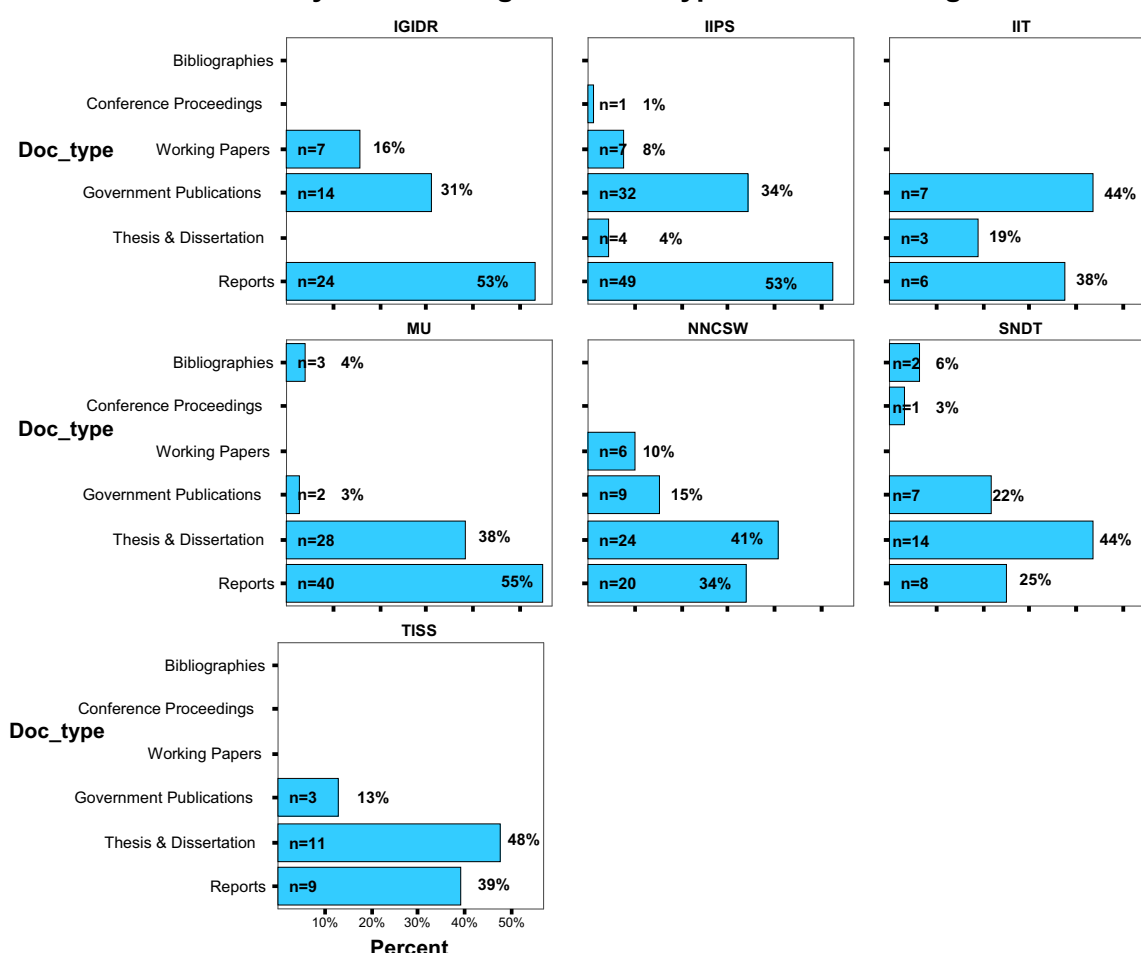


Chart 1 shows library-wise holdings of GL on CBM. It was found that IGIDR Library, IIT Library and IIPS Library had major collection of Government Publications and Reports; whereas MU Library, NNCSW Library, SNDT Library and TISS Library had major collection of Thesis and Dissertations and Reports. Bibliographies, Conference Proceedings and Working Papers were the minor collection in all seven libraries. SNDT Library and IIPS Library each had only single conference proceeding on CBM.

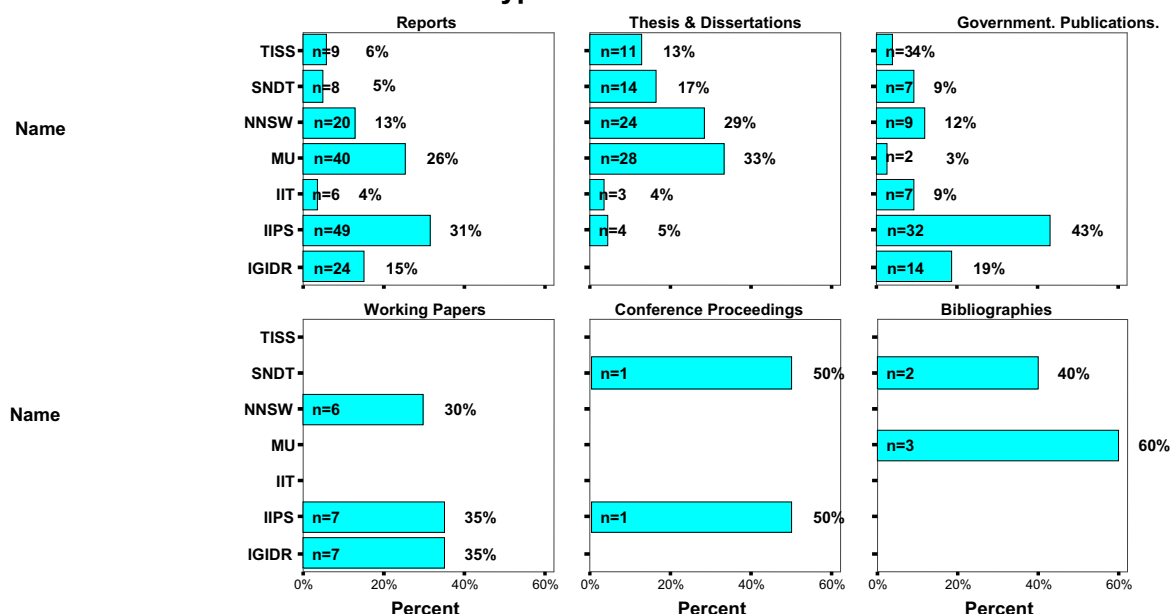
Recently a number of National and Local level conferences, seminars were conducted all over India on several issues of CBM. Some of these were:

- UGC SAP Seminar on Caste Organisations in South Indian States- Social and Economic Dimensions, Department of Politics and Public Administration, University of Madras, 8-9, January 2001,
- Global Conference against Racism and Caste based Discrimination: Occupation and Descent-based Discrimination against Dalits 1-4 March 2001.
- National Seminar on Dravidian Folk and Tribal Lore 29, 30th Nov. 2002,
- National Seminar on "Dalit Studies and Higher Education : Exploring Content Material for a New Discipline", India International Centre, New Delhi, February 28-March 1, 2004,
- National seminar on The Situation of Dalits in Bangladesh: Possible Way Forward on 6-7 September 2007,
- DEV Seminar on "The Creation of Dalit Bourgeoisies: Caste, Credit and Markets in Urban India" on Wednesday 10 October 2007,
- The Challenge of Caste System in Christianity November 2007,
- National Seminar on Emerging Trends and Issues in Reservation Policy, February 2008,
- Seminar on Caste and Conflict in Uttar Pradesh, 1901-1931: Lessons for the policy of caste-based reservations 24-09-2008,

The author is herself belonging to CBM. From her personal experience she has found that information of such events is shared only within a close network consisting of people belonging to CBM. Information of such conferences is generally not disseminated amongst scholars not belonging to CBM. Such restrictive promotion of events makes it difficult for libraries to trace the proceedings. That might be the reason for poor representation of conference proceedings in the collection.

Chart 2 shows the holdings of different types of GL on CBM available across all seven libraries. It shows that majority of the report collection was available at IIPS Library (31%), MU Library (26%), IGIDR Library (15%), and NNCSW Library (13%) as compared to other libraries which had 6% or less of such documents.

Chart 2: Different types of GL on CBM across all seven libraries



Thesis and Dissertations collection of CBM in IIPS Library and IGIDR Library was mere 4% and 5% respectively as compared to MU Library (33%), NNCSW Library (29%), SNDT Library (17%) and TISS Library (13%).

IIPS Library had a large collection of Government publication consisting 43% of total Government publication on CBM compared to other libraries. IIPS Library had acquired almost all the Government Publications on CBM whereas most of other libraries had less than 10% of total Government Publication on CBM.

In case of Working Papers, only NNCSW Library, IIPS Library, and IGIDR Library had Working Papers, which were almost 30-35 percent. Other libraries did not have any

Working Papers on CBM. Working Papers and Conference Proceedings were not very commonly available in most of the libraries surveyed.

Bibliographies on CBM were very few i.e. only 5 bibliographies. Bibliographies of GL on CBM covering individual library's collection would be ideal and useful for the researchers as well as for management. Also control of GL would be possible through bibliographies. Among the 5 bibliographies on CBM, four bibliographies were actually multiple copies of the same document. That was published in 1980s by 'The Mumbai Marathi Grantha Sangralaya', which is a Public Library of Mumbai City. Further, that bibliography was not updated. The remaining one bibliography that was published in 1990s was by SNTD Library covering its own collection. That was also not updated. The efforts from individual libraries to prepare and update the bibliographies were lacking.

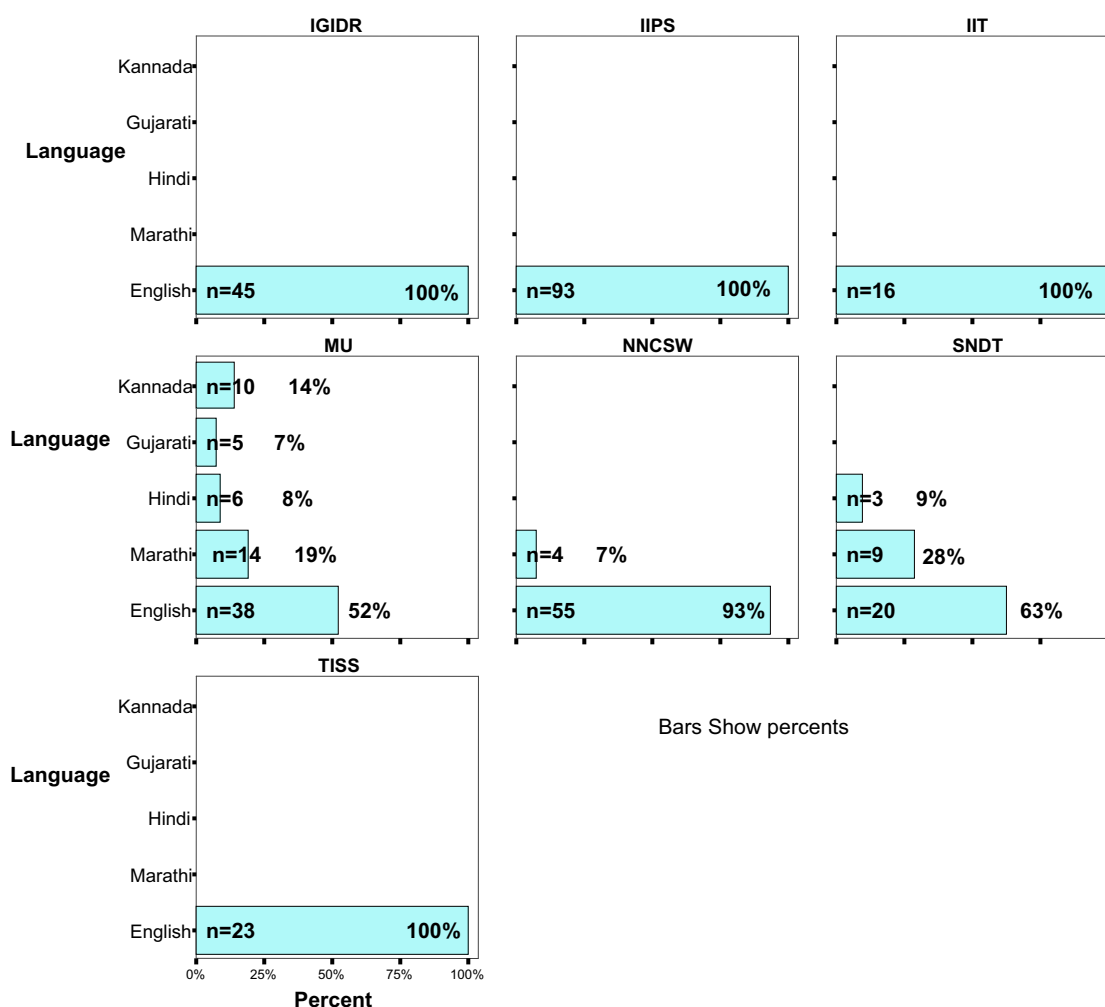
In total, there were 290 documents in English (85%), 27 documents in Marathi (7.9%), nine documents in Hindi (2.6%). There were five documents in Gujarati (1.5%) and ten documents in Kannada (2.9%) available in libraries of Mumbai.

In Thesis and Dissertations, there were documents in Hindi and Marathi in SNTD Library and MU Library. Additionally, MU Library had Thesis and Dissertations in Kannada. Chart 3 shows that all the libraries had GL on CBM mainly in English.

In GL 15% of publication was in regional languages. These GL in regional languages get unnoticed at national or international level. Majority of the publications were in English. This becomes a barrier to CBM students and researchers as many of them get educated through regional languages.

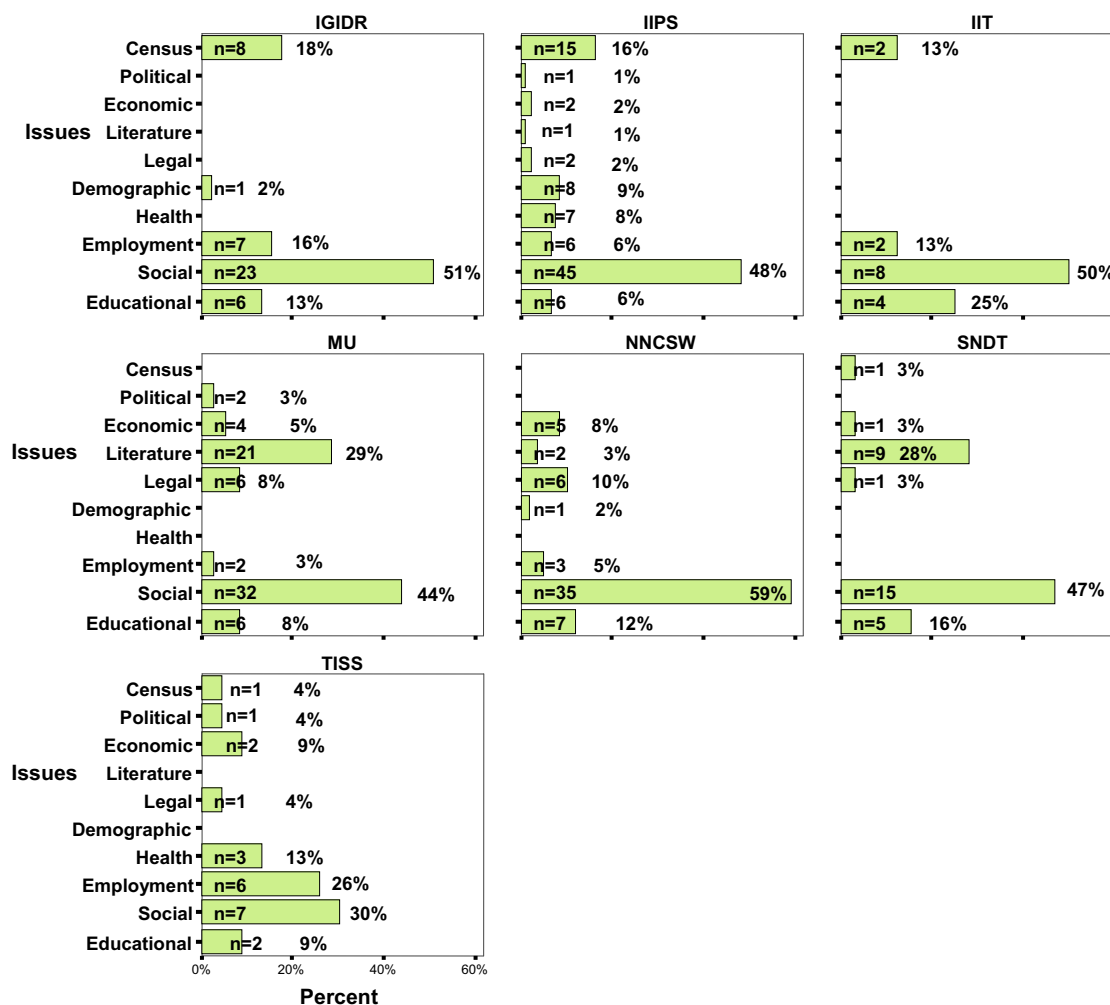
In some of the libraries visited, the software currently being used cannot handle regional languages. Therefore, separate catalogue was maintained for regional language material.

Chart 3: Library wise holdings of GL on CBM published in different languages



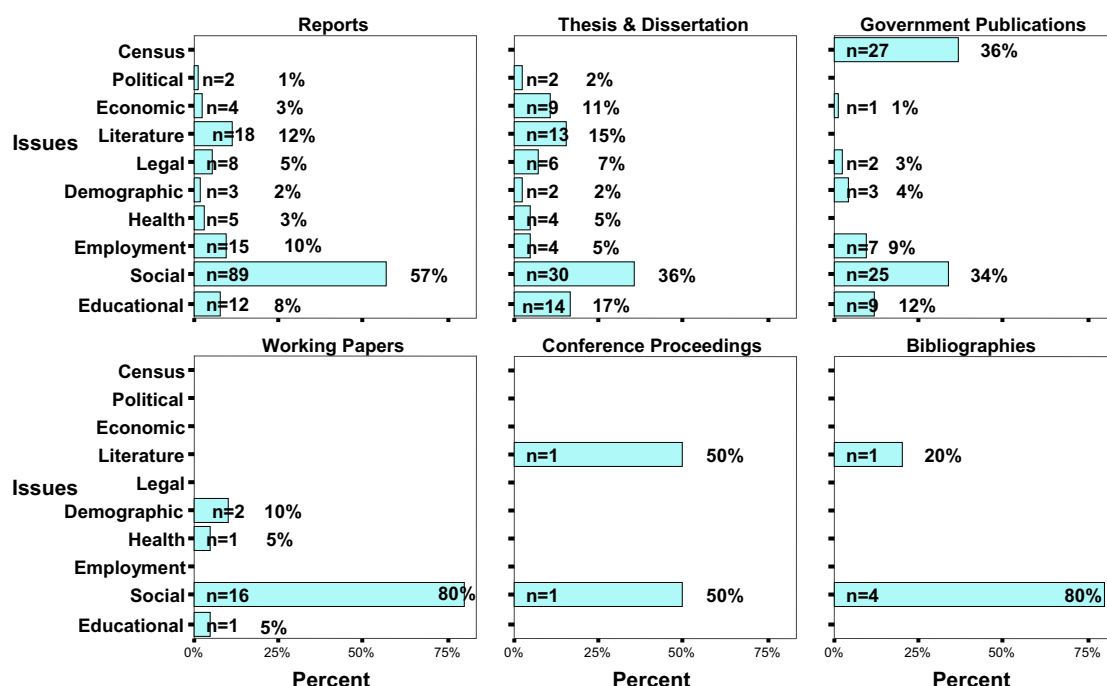
When the GL Collection was analysed as shown in Chart 4, as per subject content, it was found that social status of CBM in the society was the key issue of GL on CBM. Education, Employment and Literature issues were found to be at the second level. Publication on Political, Economic, Legal, Health issues were least represented i.e. less than 10% of the GL on CBM. Most probably studies on this issue are not being done and therefore not available to the libraries. Most of the studies revolve around status as in rural India; this is still a major concern leading to social unrest.

Chart 4: Library wise holdings of GL covering different CBM issues



The subject content was analysed in every document format. As represented in Chart 5, the status as an issue covering social discrimination, standard of living, and progress of the CBM, their interaction with the society, social policy, and government and NGOs efforts, schemes for upliftment of the CBM formed the most important area of discussion. Literature, Educational issues, and Employment issues came after social status.

Chart 5: Various CBM issues covered in different types of GL



In all types of GL on CBM, Educational issues like reservation in admissions, scholarship and freeship schemes, educational attainment of backward class students, etc. were found commonly. In Government Publication Census data was a major area of publication. Employment issues were found in Reports and Thesis and Dissertations as well as in Government Publications. In Thesis and Dissertations and Reports, Literature was the other issue discussed. Economics, Politics, Law, Demography, and Health were rarely discussed in the publication. So the findings on holdings of the library as represented in Chart 4 as well as the subject content of the different document formats as presented in Chart 5 support and reinforce each other.

All 341 documents were analysed longitudinally across 60 years publications covering the years of independence, it was found that in the first 25 years of post independence, the CBM were going through the phase in which they were searching for their identity in society, grooming themselves to acquire the basic education and employment. The retrieved literature reflected the studies done during 1947-1972 covered social status, Education and general issues of CBM.

The studies published after 1972 till 1997 continued with Social and Educational issues along with Demographic, Literature, and Employment issues. Very few studies were found on Legal, Economic, Political and Health aspects of CBM. Government of India also started publishing Reports, Statistical data, etc. to review the status of CBM after independence.

It is only in the last decade, that publications covering topics like Health, Culture, Economical status, Demography, Religious orientation, Political status, and Housing started becoming available. In this study, 54 documents i.e. 16% of GL covered these topics. This shows some shift from the basic concern of Social status, Education and Employment to more mainstream concerns.

Selection and Acquisition:

Publication about CBM by CBM has become a potent tool to reflect the conditions of CBM. Most of these have been published by NGOs, Societies, trusts, etc. who publish literature by CBM about CBM. Therefore these do not get included in the national or trade bibliographies, which make it difficult for libraries to locate and acquire.

The libraries procured Government Reports directly from Government offices. Other GL were acquired from funding agencies, publishers, authors, etc.

It was commented by the librarians that copies of GL directly from author or funding agency were hardly received by the libraries. The most difficult to get were the conference proceedings. Libraries rarely received the brochures or circulars of various conferences on

CBM issues. Thus libraries were facing major difficulty in finding the information about such conferences to follow up further to acquire the proceedings.

IGIDR Library, IIPS Library and NNCSW Library have gathered the grey documents on CBM with the help of their students. Every year students from villages and remote area enroll for the courses. These students of the current year courses are told to enquire and collect the grey document on CBM available from their local areas, especially, when they visit to their villages during vacations.

Technical Processing:

In all the libraries, the GL on CBM issues were classified and catalogued. Commonly all libraries have used Dewey Decimal Classification Scheme to classify the documents except IIT Library, which uses the Universal Decimal Classification Scheme to classify the GL on CBM. All GL on CBM were catalogued as per AACR II (Anglo- American Cataloguing Rules-II) standards. Bibliographic entries of GL in regional languages were added in transliterated form. The documents were assigned descriptors in English. Both generic and specific terms were used. For e.g. Scheduled Tribes- a generic term and "Koli" (Fisherman) - a specific term for a sub section of Scheduled Tribes.

The access to the bibliographic data of GL on CBM differed from library to library. SNTD Library, MU Library, NNSW Library had offline computerized catalogue. Whereas IIT Library, IIPS Library, IGIDR Library, TISS Library had Web OPAC. IIT Library and IIPS Library claimed that they have few Hindi documents on CBM, but these were not retrieved through their Web-OPAC

In some libraries separate databases of Thesis and Dissertations and Working Papers Government Publication, etc. were maintained. Thus the access to the bibliographic data was non-federated. Separate search was required under each type of documents (i.e. thesis and dissertations, working papers, seminar papers, census publications). In some libraries various research reports and other publications (i.e. books published by NGOs, institutes, and Government, bibliographies, etc.) were part of general book collection. Therefore each retrieved entry from book collection had to be checked by its bibliographic details to identify the GL on CBM.

Print copies of GL on CBM issues were arranged in classified order in all libraries except IGIDR library. This library had arranged the grey documents according to its accession number. Commonly in all the libraries, the collection of Thesis and Dissertations were kept separately which was then arranged accession number wise. MU Library did not bind the grey documents for greater longevity.

In IGIDR Library majority of the GL on CBM were stored as full text in electronic format either offline or online. The library has developed Kautilya Digital Repository, which includes Thesis & Dissertations, Working Papers and IGIDR's publications. IIPS library has developed a separate bibliographic level database (in devnagari script) for grey document in Hindi. It can be accessed through English language query from OPAC.

Users and Use:

GL on CBM were generally referred by the PG students, Researchers, faculty members, management authorities, policy makers etc. The usage of the GL on CBM issues differed from libraries to libraries. Regular usage of GL on CBM was found at IIPS Library, IGIDR Library, and NNCSW Library. In SNTD Library, MU Library, and TISS Library, GL on CBM were circulated sometimes; whereas at IIT Library, these were rarely used. Except Thesis and Dissertations, other grey documents were available for home reading as well as on ILL. However in IIT Library, all grey documents were restricted to current reading only.

Libraries have taken efforts to maximise circulation of GL on CBM. When users have queries on issues pertaining to general population, the libraries do make special efforts to include pertinent GL on CBM to mainstream the GL collection. These documents were referred regularly in literature search, preparation of bibliographies, reference and information services. To further research, NNCSW's Librarian had suggested to the student to select their project/ thesis topics which would follow up the earlier work done by other researchers. This helped to judge the success of implementation of the policies and programmes of government, NGOs, etc. Few of these studies became useful as evidence in some legal and governmental matters.

In conclusion, the GL collection on CBM available in libraries of Mumbai was unique. There was less than one percent duplication of the documents on CBM available in these seven libraries.

As GL on CBM was generally produced by CBM and used by CBM, special efforts should be made to mainstream their issues by being more open and inclusive for their conferences and seminar, etc. Publications of trusts, etc. have to be better publicized and made available for library to be able to develop their collection. There must be effort to develop bibliographic control such as union catalogue, subject specific repository, etc. GL published in regional languages need to be given more attention as it contains discussions at grass root level. Internet services and facilities need to be utilized by author as well as by libraries to share the e-GL on CBM to wider community. This would help to focus the attention of the world to CBM issues which in turn may help to empowerment of CBM in the coming decades.

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About the Authors

Jyoti Bhabal - Working as a Lecturer at SHPT School of Library Science, SNDT Women's University, Mumbai since 2000. She is Bachelor of Commerce, Masters in Library and Information Science and currently pursuing her PhD in Library and Information Science on 'Information Needs of Reserved Category Teachers in Colleges and Universities'. She has conducted minor research project on 'Library and Information needs of Reserved Category PG students of SNDT Women's University'. Her primary interests are 'Library Use and User Studies', 'Library Design' and 'Caste-Based Minority Issues'. At present she is teaching 'Library Management' and 'Subject Access to Documents' at Bachelor of Library and Information Science course.
Email: jyotibhabal@gmail.com

Heeyoon Choi is the director of Knowledge Information Center at Korea Institute of Science and Technology Information(KISTI), sponsored by the Korean government. Before coming to KISTI, she worked for POSCO Research Institute(POSRI) as the Director of Knowledge Asset Center. She is involved in various other projects such as serving as the Editor-in-Chief of a quarterly academic journal called "Information Management Research", the vice president of Korea Knowledge Innovation Association and the Public Relations Chief of WLIC 2006 Seoul. She is also the vice president of ICSTI(the International Council for Scientific and Technical Information) which is the unique forum for interaction between S&T information organizations all over the world. Her particular areas of interest are knowledge ecology, knowledge management, scholarly communications and collection development. She holds masters and PhD in Library & Information Science from Yonsei University in Korea, and post-master degree from Dominican University in United States.
Email: hychoi@kisti.re.kr

June Crowe is the Senior Researcher at Information International Associates, Inc. (IIA). She received her AMLS from the University of Michigan, Ann Arbor and her M.Ed. in geographic education from the University of Georgia, Athens. She has extensive experience in the management and operations of library services across government, public, academic, and special libraries. At IIA she performs open source research on a variety of topics and manages research projects involving web-based open source document identification, collection, and processing. Her primary interests are open source information in Grey Literature, repositories, and open source intelligence tools. Email: jcrowe@iiaweb.com

Thomas S. Davidson II was a Senior Military Intelligence Analyst at the Foreign Military Studies Office (FMSO) of the U.S. Army Training and Doctrine Command at Ft. Leavenworth, Kansas. He founded and led the FMSO Mexico and Southwest Border Security Team for exploitation of primary language Latin American open source material for items of interest to U.S. National and Border Security. His training includes coursework at the Defense Language Institute, Monterey, California, for Vietnamese, German, Korean, and Czech languages, as well as other military development courses, to include the Warrant Officer Advanced course in 1993. Davidson owned and operated a language institute, Languages of El Paso, which provided language services in five primary languages to the "maquiladora" industry in Cd. Juárez, Cd. Chihuahua, and Nogales, Sonora. In 1997 he supported Bechtel Corporation on its PEMEX contract as a human resource manager and liaison to Mexican border and customs agencies. CWO4 Davidson's awards include the Legion of Merit, the Meritorious Service Medal, the Joint Service Commendation Medal, two Army Commendation Medals, the Army Achievement Medal, and the German Army Marksmanship Award.
Email: thomas.davidson@us.army.mil

Yongtao Lin is the Librarian at Tom Baker Cancer Knowledge Center, Health Information Network, University of Calgary. Yongtao is responsible for managing the Tom Baker Cancer Knowledge Centre, where she provides library services to clinicians, staff, patients and families. Prior to this position, she worked as a hospital librarian in Nova Scotia, after graduating from the School of Information Management from Dalhousie University in 2004. She also has a Bachelor of Education and taught in the UK. Her research interests include evidence-based clinical practice, grey literature, problem-based learning, and health information literacy. Email: yolin@ucalgary.ca

Lynne Marie Rudasill holds a Master's Degree in Library and Information Science from the University of Illinois, with additional studies in political science from Illinois State University. She currently serves as Global Studies Librarian and subject specialist in political science and speech communication at the University of Illinois where she is an Associate Professor of Library Administration. Her current research is in the area of information use and production by non-governmental organizations and the archiving of grey literature. She continues her work in web usability and accessibility as well.
Email: rudasill@illinois.edu

About the Authors

CONTINUED

Joachim Schöpfel obtained his Ph.D. in psychology from the Hamburg University in 1992. During his studies in psychology, he participated in research on bilingual children of Turkish immigrants in Hamburg, of the German minority in Denmark, and in a French-German High School in Versailles, France. From 1991 to 2008, he worked at the French Institute for Scientific and Technical Information (INIST-CNRS) in different positions in database production and library management, at last as head of the e-publishing and document supply department. During the same time, he was lecturer at the University of Nancy. At present, he is senior lecturer in information and communication sciences at the Charles de Gaulle University of Lille 3. He published on GL, document delivery, digital libraries, scientific publishing, usage statistics and professional development. Email: joachim.schopfel@univ-lille3.fr

Kijeong Shin is the team leader of Knowledge Resources Team at Korea Institute of Science and Technology Information. He is also responsible for managing the KESLI consortium, developing information resource based on cooperative work as well as enlarging global circulation of domestic scholarly information. As the professional engineer, he led the project of developing web based integrated information service. He has been consulting and evaluating informatization projects of government and public institutes. His particular areas of interest are web services, XML, and U-library. He obtained his master's degree in Computer Science from Hanyang University. Email: kjshin@kisti.re.kr

Christiane Stock is the Head of the Monographs and Grey Literature service at INIST, in charge of the repositories LARA (reports), mémSIC (master's theses in information sciences) and OpenSIGLE. Member of the Technical Committee for the SIGLE database from 1993 to 2005, she also set up the national agency for ISRN (International Standard Report Number). She is member of the AFNOR expert group who prepared the recommended metadata scheme for French electronic theses (TEF). Email: christiane.stock@inist.fr

Marcus Vaska is a librarian at the University of Calgary's Health Sciences Library, where he provides research assistance and support to clients within the Faculty of Medicine and the Calgary Health Region. In addition to exploring innovative instruction techniques for his classes, he has developed newfound appreciation for the pursuit of literature that exists beyond traditional publishing channels. Marcus' current interests focus on the teaching methods and experiences of librarians involved in delivering grey literature searching sessions to academic audiences in a medical setting. Email: mmvaska@ucalgary.ca

Suhyeon Yoo is a researcher for the Knowledge Resources Team at Korea Institute of Science and Technology Information. She is responsible for developing overseas electronic information resources including electronic grey resources. She is also in charge of administration for national licenses of KESLI (Korean Electronic Site License Initiative) which is a group buying consortium of overseas electronic resources. Her particular areas of interest are copyright, document delivery, collaborative digital reference service and user interface design. She obtained her master's degree in Library & Information Science from Yonsei University. Email: yoosu@kisti.re.kr

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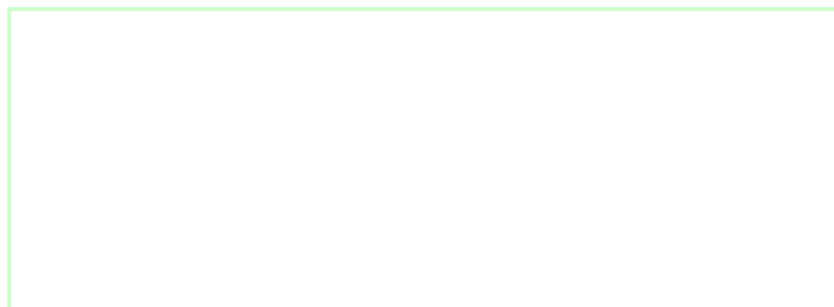
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