



An International Journal on Grey Literature



Autumn 2008 – TGJ Volume 4, Number 3

‘MAKING GREY MORE VISIBLE’

GreyNet

The Grey Journal

An International Journal on Grey Literature

COLOPHON

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The Grey Journal (TGJ): An international journal on grey literature / D.J. Farace (Journal Editor); J. Frantzen (Technical Editor) ; GreyNet, Grey Literature Network Service. - Amsterdam: TextRelease, Volume 4, Number 3, autumn 2008. - *The British Library, INIST-CNRS, and NYAM are corporate authors and associate members of GreyNet. This serial publication appears three times a year - in spring, summer, and autumn. Each issue is thematic and deals with one or more related topics in the field of grey literature. The Grey Journal appears both in print and electronic formats.*
 ISSN 1574-1796 (Print)
 ISSN 1574-180X (E-Print/PDF)
 ISSN 1574-9320 (CD-Rom)

Subscription Rates:

€110 individual, including postage & handling
 €225 institutional, including postage & handling

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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



This Victorine van Schaick Prize 2008 awarded by the NVB, Netherlands Association for Library, Information and Knowledge Professionals was presented to TGJ's Journal Editor during the opening of this year's Online Conference Netherlands in the Amsterdam RAI.

As journal editor, I am both appreciative to the jury in their unanimous decision and to the various stakeholders who have contributed to the success of this journal. Namely, the Associate Editors, Technical Editor, Corporate Authors, Licensing Agent, and more than 100 authors who have published in The Grey Journal since its launch in 2005.

The Victorine van Schaick Prize was first awarded 30 years ago. Various types of publications in the field of library and information both in print and electronic formats are eligible for the national competition. Among the criteria stipulated in judging submissions include that the publication deal with a new subject area or demonstrate a new approach; that the publication speak to a broad group of professionals; and that it's language, style, and appearance lend to readership.

The Grey Journal was launched four years ago as the flagship for the grey literature community. Since then, it has found its way in course syllabi for schools and colleges of library and information studies as well as citation indexes. One of the initial goals of TGJ was "to make grey literature more visible". Recognition by the NVB together with the work of the authors in this issue will certainly help further this goal.

Dominic J. Farace, Journal Editor
journal@greynet.org

Enhancing Visibility: Integrating Grey Literature in the SOWIPORT Information Cycle *

Maximilian Stempfhuber, Philipp Schaer, Wei Shen
(Germany)

Abstract

Despite the fact that Grey Literature plays a key role in disseminating research results to the scientific community, it currently is not represented equally well in the established information landscape. While institutional information infrastructures supporting scholarly research (e.g. libraries or information centres) mostly focus on publications from traditional publishers or on what is published within their own institution, a parallel universe of services and servers for Grey Literature and Open Access publications has been established, which makes it hard for any user to only get an overview of what is available in his area of interest. Following a discipline-oriented approach, the newly established scientific information portal SOWIPORT not only integrates Grey Literature and Open Access publications from the social sciences with traditional ones, but also establishes support for the whole research lifecycle, where research, publication and discourse are interconnected and make use of the direct and electronic availability of these types of publications.

Introduction

With the advent of the World Wide Web and lowered technical and financial barriers that come with it, scholarly publishing in the last decade more and more shifted from print media to forms of electronic distribution. While this new technology allowed delivering a larger number of publications more timely and directly to the readers, it also put up a new challenge for those involved in collecting, documenting, managing and distributing information, namely libraries, information centres and information brokers. Not only were researchers and research institutes now able to electronically publish research outcomes or learning materials on the Web – by doing so they often circumvented the established workflow of documentation, archiving and distribution normally handled by libraries or information centres (figure 1).

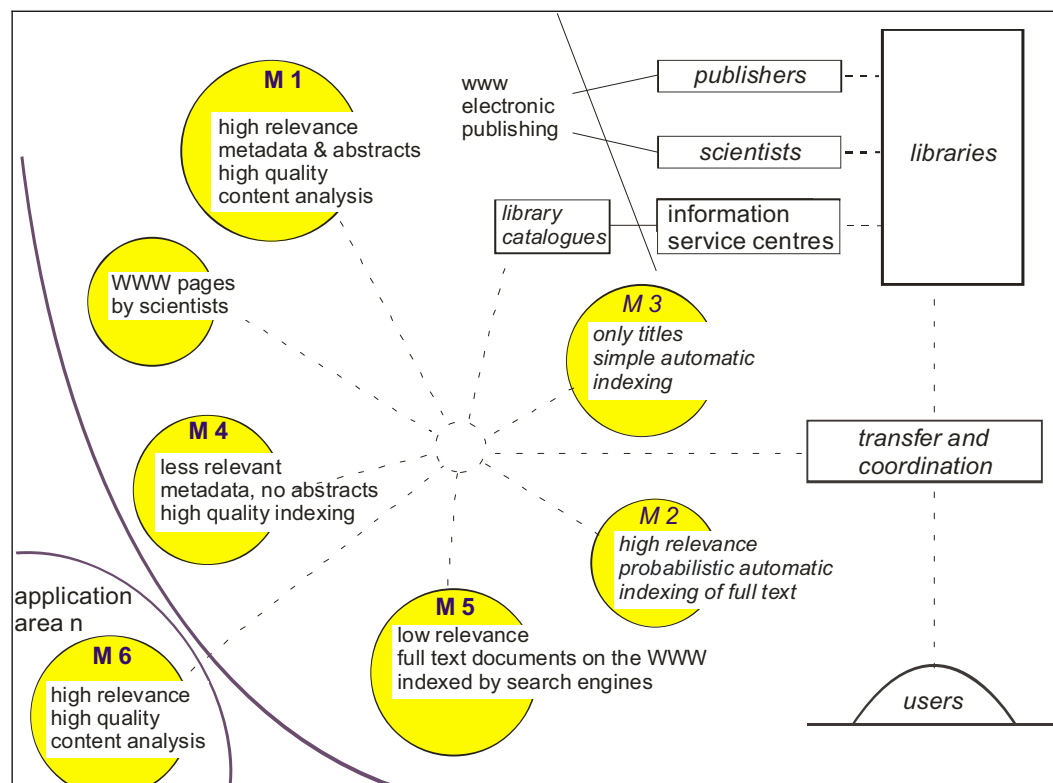


Figure 1: The changing information landscape in scholarly publishing (cf. Krause 2006, modified)

* First published in the GL9 Conference Proceedings, February 2008

The role of libraries as agents, buying or collecting publications from commercial publishers or researchers of their own institution (e.g. technical reports) and making them available within the own institution (e.g. universities or research organizations) and to the outside world still is in effect, but there are much more sources of publications out on the Web now and many of them are not accessible through the established publication channels. The consequences for information agents like libraries and information centres and for the user are pretty much the same:

- A constantly growing number of information sources have to be accessed to get an overview of available publications on a topic. Due to the fact that there is no central register for web sites distributing electronic publications, general web search engines like Google¹ or Microsoft Life Search² are popular means of accessing Grey Literature. This in turn means that there is no kind of quality control in effect to guide users to trustworthy information. New services like Google Scholar³, Microsoft Live Search Academic⁴, Bielefeld Academic Search (BASE⁵) or the EU-funded DRIVER project⁶ (Digital Repository Infrastructure Vision for European Research) try to cope with this challenge in that they harvest or network digital archives with scientific content only. But still it is difficult for the user to judge the completeness of such an information service.
- The documentation (and storage) of the publications is very heterogeneous. From homepages with embedded documents without any bibliographic metadata to digital archives with standardized metadata elements (e.g. Dublin Core Metadata Element Set⁷) freely accessible for harvesting over a technical interface (e.g. OAI-PMH⁸, the Open Archives Initiative's Protocol for Metadata Harvesting), every mix of bibliographic information, content indexing, classification and abstracts can be found. But not only is the structure of the metadata very heterogeneous, also the semantics do vary because of the use of different controlled (classifications and thesauri) and uncontrolled (author keywords) vocabularies for classification and content indexing. Together with the different natural languages used in the metadata, this leads to a very complex situation for indexing and retrieval and puts up challenges for the user when trying to search several sites for relevant publications and also for information providers when trying to harvest metadata and integrating them into a new service.
- The scope of traditional publications, journals and series is most of the time focussed on a specific domain or discipline, making it relatively easy for a user interested in a dedicated topic to identify relevant sources of information. For Grey Literature and Open Access publications, a large number of institutional repositories have been established, many of them focussing on the publication output of a whole organization rather on the discipline the individual publication belongs to. This, in combination with the heterogeneity of metadata across repositories, makes it sometimes very difficult to select publications by discipline even from a single repository. When integrating content from multiple repositories, the effort for filtering information by discipline is even higher.
- Grey Literature and Open Access publications are still seen as second-class publications in regard to scientific career and promotion across all disciplines, despite the fact that many of these publications went through the same type of peer review as traditional publications (cf. JISC/OSI 2004, Swan and Brown 2004, Rowlands et al. 2004, Rowlands&Nicholas 2005). One of the reasons for this might be the fact that many of these publications are not documented in the established and well known reference databases and library catalogues, which limits their visibility and credibility.

The challenges raised by the Web's infrastructure for electronic publishing must also be seen in the light of users' expectations towards (scientific) information services. Several surveys on user satisfaction and demands towards library information services (cf. RSLG 2002, Poll 2004) indicate, that especially the discipline-oriented view on information and the integration of all available types of information is what attracts them:

- Domain-specific organization: Users demand for domain-specific organization of information, so they have a single point of access to all potentially relevant materials from their discipline. There should be deep content indexing, allowing for precise search and sophisticated search strategies.
- Interdisciplinary connections: At the same time, users see the need for crossing the borders between domains and disciplines. Provisions should be made for

letting users expand their queries beyond the scope of the information service they are currently accessing.

- **Broad scope of information:** To satisfy most information needs, all relevant types of information should be made accessible at one place: Primary data (e.g. surveys and other raw data), secondary data (e.g. aggregate and time series data), and references to literature, research projects, internet resources, experts, networks, software etc.
- **Quality of service:** To help users satisfy their information needs, results should be limited to a manageable amount of relevant information (no information overflow), noise and low quality content should be avoided and all materials should be instantly accessible right from the desktop ("now-or-never" paradigm) or they might not be used at all.
- **Informal communication:** Besides the need for accessing information for carrying out research there is also a strong need for communication, like discussing results with colleagues in discussion boards or exchanging information and papers via e-mail. This informal communication (in contrast to the formal communication by means of traditional publications) is of more dynamic nature, subject to small and even closed groups of researches (invisible colleges), and currently often separated from the general information services offered to a discipline. The growing importance of this type of interaction for the generation of new ideas and even of new types of research and publications (Harnad, 1991; Nentwich, 2003) makes it inevitable to integrate it more seamlessly with traditional offerings.

The SOWIPORT Information Cycle

With the new social science information portal SOWIPORT⁹, GESIS¹⁰ (German Social Science Infrastructure Services) and its partner organizations try to overcome the problems outlined above and to satisfy the needs and demands of scientific users. The main goals of SOWIPORT, which is based on the results of several research projects funded by Deutsche Forschungsgemeinschaft (DFG) and German Federal Ministry for Education and Research (BMBF), are to provide central access to social science information from distributed sources, to tightly integrate this heterogeneous information and to enable new ways of scholarly publishing and communication.

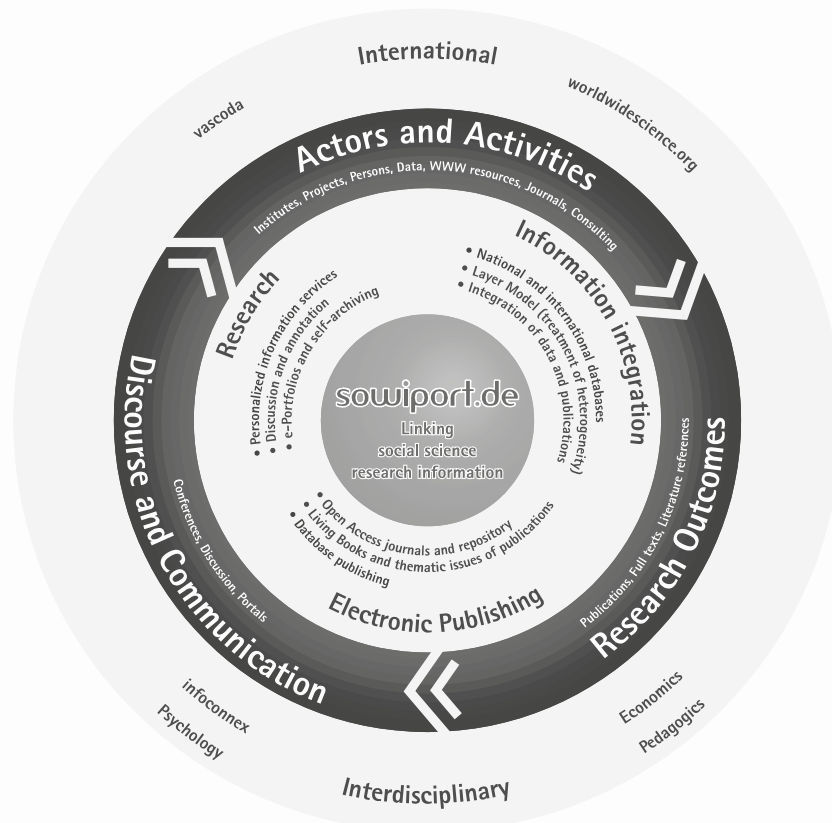


Figure 2: The SOWIPORT information cycle

The concept of SOWIPORT is based on an information cycle (figure 2) which – in contrast to other models in the context of libraries or research information systems – does not focus on different categories of publications or data (e.g. primary, secondary and tertiary sources), or on the demand for or creation of specific types of data or publications at different stages during research activities. Rather it divides scientific information and services for researchers into three groups, each representing a different activity associated with being part of a scientific community:

- **Actors and activities (making up the community):** This group contains all structural information about a domain or discipline, like the persons and institutes doing research, the projects they are carrying out, the services available to researchers in this discipline (e.g. consulting for questionnaire design, archiving of data, computing resources), the most important journals or publishers, available datasets etc. The focus here is on information which gives an overview of the domain and helps researchers in networking and organizing their research.
- **Research outcomes (publishing results):** This group of information currently includes publications as the most important type of research outcomes. An important aspect here is that published research outcomes are approved by the scientific community, normally through some kind of reviewing process. Since more and funding organizations are discussing whether to require researchers to also publish their primary data along with their publications, the diversity of research outcomes might increase in the future.
- **Discourse and communication (interacting with colleagues):** This group consists of information about conferences, discussion boards and mailing lists, and of thematically focussed information services like current awareness services or special interest portals which might include editorials and selected information from “actors and activities” and “research outcomes”.

Embedding Grey Literature and Open Access publications in SOWIPORT

These three groups of information are tightly integrated by several services provided to users in the context of SOWIPORT. From the perspective of integrated information access, the treatment of the heterogeneous metadata for entities like publications, research projects, data and institution profiles is a necessary precondition to overcome the current situation, where users have to access heterogeneous data sources either sequentially (requiring them to re-formulate their query several times) or the data is simply pooled and it is left to the user to come up with all potentially relevant keywords for his information need. In SOWIPORT, cross-concordances between the multi-lingual thesauri of currently around 15 databases are used to automatically translate a user's query terms to the controlled vocabularies used to index these databases. Cross-concordances are bi-lateral mappings between pairs of thesauri and consist of relations like equivalence, broader terms or narrower terms between the descriptors of the thesauri. This semantic technology also allows us to translate concepts from the social sciences to the terminology used in other disciplines and therefore to expand a user's search across different disciplines, e.g. psychology and pedagogics. The portal infoconnex¹¹ already contains this type of interdisciplinary search which also will be integrated in a future version of SOWIPORT. The technology will also be used for searching in harvested metadata from institutional repositories (Grey Literature and Open Access publications), in which often keywords instead of controlled vocabularies are used for content indexing (often done by the authors themselves instead of librarians). By expanding a user's original query using cross-concordances and using the expanded query for searching in harvested metadata, the recall can be improved and users will get results for queries which otherwise might have yielded no results in these collections because of the broad variety of keywords used there in comparison to the standardized vocabularies of library catalogues and reference databases.

The concept of electronic publishing connects research outcomes with scholarly discourse and communication in SOWIPORT. One central component here is the Social Science Open Access Repository (SSOAR¹²), which will be integrated in SOWIPORT in early 2008. SSOAR is a project funded by Deutsche Forschungsgemeinschaft and carried out by GESIS-IZ and Freie Universität Berlin with the goal not only to set up a repository for freely available publications, but also to integrate the repository with the established information infrastructures like reference databases and library catalogues. SSOAR seeks to establish a workflow where materials uploaded by authors are first checked for domain-specificity and technical quality by peers from the community and then – after passing additional formal criteria – are documented in reference databases at the same level traditional publications from journals are documented (full

set of bibliographic information, content indexing with thesauri, creating abstracts, linking to full text etc.). For the duration of the project, Grey Literature and Open Access publications with at least one German author or editor are processed this way to gain some data about the amount of resources needed for documenting these types of literature. For publications beyond this well-defined scope, the help of the scientific community will be required and there are already signs that some libraries are interested in supporting the project. Hope is, that not only visibility and accessibility of Grey and Open Access Literature will increase by improving the level of documentation and including it in reference databases, but also that authors and institutes without own repositories will be motivated to upload their publications to SSOAR. For long-term preservation, negotiations with the German National Library are on their way.

To foster discourse and communication between the actors of a discipline, SOWIPORT tries to include several ways to let researchers take part in the creation of content. One example are personal homepages (currently under development) where researchers can publish their CV, scientific profile, publications and research projects they are working on. Most of the information is already contained in SOWIPORT (with a focus on German-speaking countries), so that researchers do not have to enter all the information from scratch but can link from their homepages to the content of SOWIPORT's databases. They will for example be able to search in all of the SOWIPORT databases for their publications and just select them for inclusion in their personal homepage. At the same time they will be able to upload the full text of their publications into the SSOAR repository and add all publications currently not covered by any of the databases. The general hypothesis is, that by overcoming the currently predominant separation of personal homepages, institutional repositories and established databases, and integrating them within a single portal, the systems researchers normally use for acquiring information would merge with the systems they use for distributing their research outcomes or information about themselves. Self archiving of Grey and Open Access literature by authors would automatically improve the timeliness of databases and library catalogues, the inclusion of these materials in those systems would at the same time improve their visibility.

Using the potential of digital publications

Grey Literature and Open Access publications have due to their machine-readable format and electronic availability the potential to become the basis of new types of scientific publications in which scientific discourse and collaboration play a central role (cf. Nentwich, 2003). Within SOWIPORT, prototypes of such new forms of publications are under development, with in-context discussion for journal articles being the first.

The basic idea for in-context discussion started with the observation that in many disciplines, online discussion about scientific publications is by far less frequent compared to online discussion in news portals, where in some cases several hundreds of comments can be read just within hours after a news item is published. Beside differences between disciplines in the culture of public scientific discourse some interesting formal differences between scientific articles and news can be seen, with the big difference in text length being the most obvious one. From a human factors point of view, the separation of the context of a discussion (the article or news item displayed in the user's browser) and the actual discussion (which takes place in some other browser window or web page) puts a huge cognitive load on the user which will increase with the length of the article, the complexity of its content and the distance (measured in pages, windows or mouse clicks) between the article and the online discussion. The longer the article, the more difficult it gets to refer from one point in the discussion to the precise location in the article which is currently being talked about, and the more mouse clicks necessary to switch back and forth between article and discussion the bigger the load on a user's short term memory to either remember what was written in the article (when reviewing or writing comments) or what was said in the discussion (when comparing statements made by other readers with the content of the actual article). The design goal for online discussion about electronic publications in SOWIPORT therefore was to bridge the gap between the two media – the article and the discussion – and to combine them into a new, single media. At the same time, the formal communication represented by the published article should be merged with the non-formal communication as used in online discussion.

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Zeitschriften Newsletter

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Discussion

Comments: 24

You can discuss this article with your colleagues by clicking on the icons:

Show comments for this paragraph/article (if available). The number shows the amount of comments about the whole article or each paragraph.

Compose a new comment (You have to register first). Please Register first to participate in the discussion.

You are not logged in. Please log in here:

Username:

Password:

Login

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Volume 6, No. 3, Art. 34 – September 2005

Qualitative Methods in Europe: The Variety of Social Research

Hubert Knoblauch, Uwe Flick & Christoph Maeder

Abstract: This paper serves as an introduction to the special issue of FQS on "Qualitative Methods in Europe". It outlines the particular situation of qualitative research in this realm, which is characterised by diversity and unity. Diversity since the different intellectual traditions and institutional structures of the social sciences, which form the background of qualitative research differ significantly between the various countries. This variation indicates a number of traditional ways to do qualitative research that complement and complete the well-known Anglo-Saxon development. Unity, since despite all the differences, the various ways of doing research are characterised by the interpretive paradigm, a way of "doing" social sciences that builds on meaning, understanding and context.

qualitative research (Friday, November 17, 2006 at 12:22:51 PM from: reader1)

Unity, since despite all the differences, the various ways of doing research are characterised by the interpretive paradigm, a way of "doing" social sciences that builds on meaning, understanding and context.

Re: qualitative research (Friday, November 17, 2006 at 12:23:21 PM from: reader2)

Re: qualitative research (Thursday, October 04, 2007 at 13:59:58 PM from: sw)

Re: qualitative research (Thursday, October 04, 2007 at 14:00:01 PM from: sw)

Figure 3: Integration of online discussion into a published article

Figure 3 shows how the integration has been realized in SOWI PORT so far. The left margin of the article display indicates with an icon at each paragraph that a reader may discuss this section of the article after registering in the portal or that there already exist comments for the specific paragraph of the article (indicated by an icon and the number of existing comments). The paragraph as granularity for discussion has been chosen because of the fact that publications may be multi-language and translation will often modify sentence structure to allow for better style of the translation. Therefore it can not generally be assumed that e.g. sentence number 14 in the English version will be the literal translation of sentence number 14 of the Spanish original. The comments are dynamically displayed just between the two adjacent paragraphs without any reload of the page and can be hidden again in much the same way, which gives users the impression of a static display of the article which can be enriched with information about the ongoing discussion at any time, thus putting the user into full control of the time and amount of the information displayed.

sowiport.de Sozialwissenschaften auf den Punkt gebracht

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Unity, since despite all the differences, the various ways of doing research are characterised by the interpretive paradigm, a way of "doing" social sciences that builds on meaning, understanding and context.

Subject: Re: qualitative research

Comment:

Add quote Clear Cancel Send

Figure 4: Following up with new comments

In the same way as comments are displayed between paragraphs, an entry form is dynamically inserted into the article, letting users create new comments while still being able to read the comments they are answering to or the paragraph they want to discuss about (figure 4). All the non-formal communication (the discussion) takes place within the frame of the formal communication (the published article) thus making the discussion an integral part of the article (and therefore referable) without destroying the integrity of the surrounding article.

Conclusion

The social science information portal SOWIPORT seeks to integrate Grey Literature and Open Access publications much more with the established information products like reference databases or library catalogues than it is currently the case in many disciplines. The approaches used to realize this are motivated by a more functional or action-oriented view to the information cycle, bridging different groups of information by functional features like integrated search, electronic publishing and scientific discourse. By integrating self-archiving of publications into SOWIPORT and connecting these often non-traditional and hard to find types of publications with the established reference systems for the discipline, we hope to raise their visibility to the community and to create an incentive for authors to make them available. The availability of many different types of information on one platform holds the potential to create new information products or new types of publications by the users themselves. The in-context discussion in electronic publications is a first step which will be evaluated concerning usability and acceptance by the users. As an enhancement to this feature we are planning to integrate references into the users' comments, which will allow to directly point to other publications, data sets or entities contained in the SOWIPORT databases.

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Notes

1. <http://www.google.com>
2. <http://www.live.com>
3. <http://scholar.google.com>
4. <http://academic.live.com>
5. <http://www.base-search.net>
6. <http://www.driver-repository.eu>
7. <http://dublincore.org/>
8. <http://www.openarchives.org>
9. <http://www.sowiport.de>
10. <http://www.gesis.org>
11. <http://www.sowiport.de>
12. <http://www.ssoar.info>

Assessment and Improvement of a Corporate Research Information System *

Maria Castriotta, Daniela Luzi, and Mariarosaria Manco
(Italy)

Abstract

In 2003 the Italian National Institute for Occupational Prevention and Safety (ISPESL) developed a Research Information System in the field of Occupational Safety and Health (RisOSH) through a project in collaboration with the Italian National Research Council (CNR). RisOSH became operational in 2005 and it is now embedded in the Institute webpage dedicated to Research Activities (www.ispesl.it/ricercheOSH/ext/). Its double-fold interface supplies information on conditions and modalities to participate in project calls, permits the electronic input of research results, and allows users to search for ongoing and finalized projects. It can also constitute an access point for internal users, through a reserved area, to directly contribute to the collection and validation of data within the project lifecycle.

The webpage has shown a very positive trend in terms of access, counting a total of more than 15000 connections per year, with high numbers of users performing searches in the database with the use of descriptors (> 4000/year). This trend is very encouraging because it shows the interest of users in looking for qualitative information; further access data regarding the quantity of pages exploited browsing through the results (>22000/year) and for printing the full record (>1200/year), confirm the users' need of an exhaustive information on research projects.

The aim of the present study is the evaluation of the RisOSH system after more than two years of maintenance, in particular regarding the number of projects concluded and the quality of the results obtained. The system was designed and developed describing in detail the project lifecycle based on ISPESL organisation and giving a particular emphasis on the phase of collection of projects results. This is in our opinion the principal intent of a Current Research Information System (CRIS): providing the users not only with information on project aims, rationales and participating organisations, but giving them a comprehensive picture of the achievements of the projects, in terms of project result descriptions, availability of the final project deliverable, as well as product descriptions and publications. In this way the multiple purposes of a research information system can be obtained: diffusion of research results to the scientific community; providing the top-management and/or policy makers with information on scientific field to be granted; building an instrument that is able to improve technological transfer.

Following this line, an assessment was carried out after the development and publication of a new template for the web collection of project results, containing new editing areas that describe, more exhaustively than the previous form, the outcomes of research projects. The paper describes the results of the evaluation analysing on one hand the effectiveness of the new electronic template, and on the other, the quality and quantity of the data gathered through this tool. A further step was put into action, consisting in a plan of contacts within the Institute scientific community, aimed at making researchers more aware of the system use and involving them in providing missing information or in integrating or amending the available data. The assessment resulted in the identification of the system technological and organisational strengths and weaknesses, confirming, even within the limits of a scarce commitment of the Institute as a whole, the important role played by RisOSH in the construction of an ISPESL institutional repository, with its features of transferability and interoperability with other intramural and extramural information systems.

Objectives and methodology

The collection of project results has been considered by many authors a real challenge [CRIS2006, EUR2004, JEF2002] for CRISs, as in several cases an initial detailed description of project objectives, work packages and information on the institutions involved does not often match with an adequate reporting of projects results and

* First published in the GL9 Conference Proceedings, February 2008

products. Moreover, deliverables and/or publications produced within the project are rarely available. This causes a loss of information for both researchers and research policy makers, who could take advantage of these results to develop new projects and foster activities in specific promising research fields. This information loss also makes the technological transfer to potential users far more complicated. For this reason, we consider the collection of projects results as an outstanding feature of CRISs quality.

Therefore, our evaluation activity was based upon the project result descriptions and had the aim of:

- analysing RisOSH information content both from a quantitative and qualitative point of view;
- verifying the efficacy of the information system, considering in particular the new electronic template developed to collect the project results.

Our general intent was to improve the communication flow of the information producers in order to increase the number and enhance the quality of the collection of project results, identifying the best practice for a direct involvement of the ISPESL's scientific referees of projects as well as a greater commitment of external project assignees.

To reach this goal we first analysed the data contained in the system before we started the evaluation activity, i.e. before February 2007 and identified the projects with missing result descriptions. Then we contacted ISPESL's scientific referees via e-mail and asked them to update information. Afterwards, we analysed the answers received, focusing on the quality of project results, and in particular:

- Consistency of result descriptions (i.e. Grey information)
- Availability of deliverables (i.e. Grey Literature)
- Availability and description of products (i.e. Grey information)
- Publications produced during the project.

Main features of the RisOSH system

Before dealing with the evaluation process carried out in the present study, an overview of the main issues considered in the design of RisOSH is presented, showing the solutions adopted in its first planning and development. A preliminary analysis of the information systems for the collection of research projects identified the following main features: the existing standards; the classification systems available in the specific sector; the information producers, tightly connected with the organizational structure; the modalities of diffusion to be activated.

The analysis of the existing standards was carried out with the aim of identifying a standard model allowing the development of open systems for the integration with different databases; such analysis brought to the identification of the database schema: the CERIF2000 standard (Common European Research Information Format) [CER2000] was adopted, which gives a detailed description of R&D projects and is used in CRISs. This makes the system interoperable with other CRISs.

As to the choice of classification systems for the indexing of the projects, the Classification of Economic Activities [ATECO2002] was identified to facilitate the technological transfer and the Occupational Safety and Health Agency OSHA Thesaurus was chosen to describe the aspects related to safety and health at work. Both classifications have multilingual versions and this facilitates the exchange of information especially at an international level.

A thorough analysis was also carried out on the information sources produced in the course of the realization of research projects, in order to facilitate the system feeding and updating as soon as the information is produced; this brought to the identification of the information producers, who are involved in the project lifecycle, from the phase of project proposal to the collection and evaluation of project results. Through the description of the project lifecycle and of the related information flow, it was possible to identify the actors, task performed, time scheduling and exchange of information and documents of the entire process.

Tightly connected with the information sources is the organizational structure, analysed in order to identify possible bottlenecks as well as parts of the process which need the development of specific system functionalities that will help the organization model becoming more effective. For this reason, RisOSH reconstructs a workspace, both in the functionality and in the interface design, which is very similar to that used before its introduction. The similarity with the daily workflow has the advantage of facilitating user interaction with the new information tool, and at the same time, of

increasing motivation to use it. The backoffice structure of RisOSH is based on the workflow methodology.

Figure 1 represents - in the sequence of the menus as well as graphically - the different phases of the process: the elaboration of the proposal ("Proposta"), the editing and publication of the activity plan ("Piano") and of the call for proposals ("Bando"), the project assignment ("Assegnazione"), and the collection of the research results ("Risultati"). The only menu, which can be accessed at any phase of the process it that related to the assignment of the descriptors which classify the project ("Indici"): indexing can either be performed in the phase of the proposal elaboration, and/or updated by the external research institution once the project is concluded.

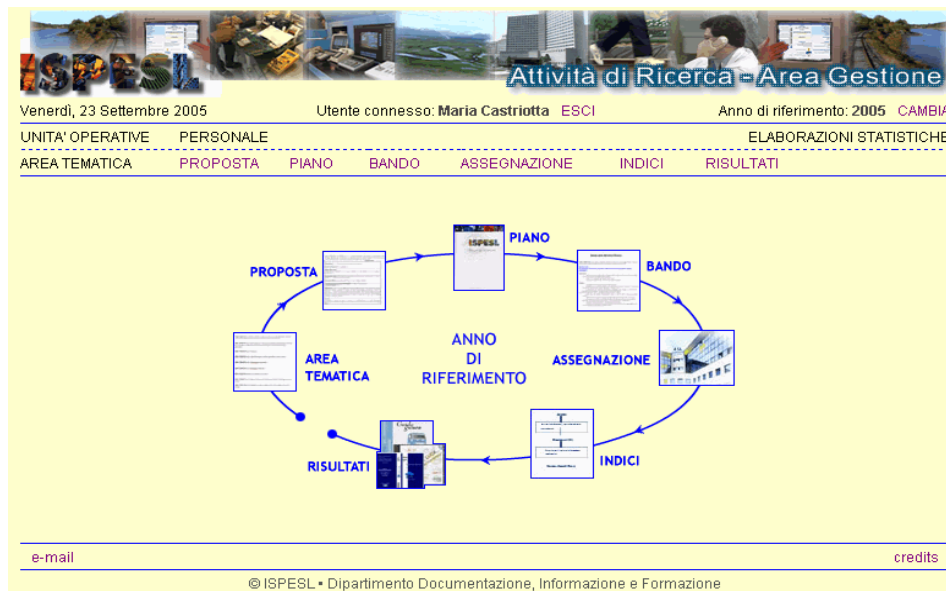


Figure 1 – Main menus of the RisOSH system

Concerning the modalities of diffusion of research results, a friendly web interface was created with the incorporation of RisOSH. The system can therefore be accessed from the ISPEL's homepage "Research Activities", which allows retrieval of projects using the following options: the browsing of NACE/ATECO codes; the browsing of OSHA descriptors; a simple textual search, a guided search (Fig. 2).



Figure 2 – Webpage "Research Activities" within ISPEL website

The system also provides the users with further information on the modalities of participation to projects calls, on the list of projects assignees that will have to sign a contract with ISPEL, as well as with a predefined template that gathers the project results ("Scheda di sintesi"), to be filled once a project is finalized.

Improvement and assessment of the system

The number of projects funded by ISPESL to external institutions, that is the object of the RisOSH system up to now, has steadily decreased in recent years because of progressive reduction of general research funding. Moreover, a trend is observed toward the concentration of money on a reduced number of bigger projects, lasting for many years.

RisOSH currently contains more than 600 descriptions of research projects funded by ISPESL in the period 2000 to 2004. The descriptions of projects, most of which started respectively in the years 2002, 2003, 2004 and 2006, were inserted during the system development taking the information from official documents, such as the ISPESL's Activity Plan and the publication of the list of assigned projects to external organisations that carry out the research in collaboration with ISPESL. The input of data on project objectives, rationale, project staff and organisation was done centrally in order to test the system functionalities as well as to provide users with core information that could facilitate its future updating.

However, coherently with the technological approach adopted, that privileged a distributed input of data by the information producers, two steps were planned in the finalization of the project: the collection of results through an online template, to be filled in by the project assignee; the assessment of the results by the ISPESL scientific referee, who, once validated the data, could be able to directly publish the project results on the internet, deciding also whether publishing the full-text of the final deliverable.

Moreover, anticipating the development of the RisOSH system, ISPESL administrative offices accepted to include among the research contract clauses, the request of compilation, by the project assignee, of an online template containing a synthesis of research results, together with the hard copy of the final full deliverable. Therefore, a first template was created for the acquisition of projects results and made available on the Institute's website since 2002.

With the aim of improving the number and quality of project result collection, in 2005 a new more complete version of the template was developed and published on the internet in substitution of the former version. Such template is a subset of the database schema and the data collected are at the moment saved in a subfile for their processing at a centralized level; the system is however ready for a shared input.

In the development of the new version of the template, particular emphasis was given to the collection of data regarding products and publications produced in carrying out the project. The request of downloading the full-text of the project deliverable was also a new important feature of the template.

Figure 3 shows the new template for the acquisition of research results, containing six editing areas: general data ("Dati Generali"); final deliverable ("Elaborato finale"); classification ("Classificazione"); products ("Prodotti"); publications ("Pubblicazioni"); technological transfer ("Trasferimento tecnologico").

ISPESL

Martedì, 7 Febbraio 2006

Cerca vai

Ti trovi in: ISPESL > Attività di Ricerca > Partecipa ai progetti

Scheda di sintesi

Introduzione | Dati Generali | Elaborato Finale | Classificazione | Prodotti | Pubblicazioni | Trasferimento Tecnologico

Per poter migliorare la raccolta e la diffusione dei progetti delle ricerche, l'ISPESL ha elaborato e introdotto una **scheda di sintesi** che ne descriva i risultati la cui compilazione è richiesta all'Ente **commissionario**, secondo quanto previsto al punto 10/A del contratto di ricerca.

Nel compilare la scheda di sintesi si raccomanda di porre particolare attenzione a:

- riportare correttamente i dati di identificazione del progetto **rilevandoli dal contratto di ricerca** (numero di convenzione, titolo della ricerca, denominazione ufficiale dell'Ente commissionario);
- riportare in modo esauriente i dati bibliografici dell'**elaborato finale** ed elaborare un breve **abstract**;
- assegnare i **descriptori del Thesaurus multilingue OSH** e i **codici NACE/ATECO**, utili ad identificare e classificare i progetti sia nell'ambito delle tematiche OSH sia rispetto alle attività economiche.

Per uniformare la veste editoriale degli elaborati finali si consiglia di utilizzare il seguente **frontespizio**.

Si ricorda che i campi obbligatori sono contrassegnati da **asterisco**.

L'invio della scheda è preceduto da una **verifica** sulla presenza di campi obbligatori e sulla congruenza delle informazioni inserite nelle sezioni **prodotti** e **pubblicazioni**.

L'invio è consentito solo quando la scheda viene compilata correttamente.

GRAZIE PER LA COLLABORAZIONE!

Sezione << 1 >> di 7

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Figure 3 – Introductory page of the projects results template to be filled online

The final deliverable area collects the bibliographic description of the final report, as well as an abstract of the project results. These data are in English and in Italian; actually, the database schema supports multilingual versions and this allows the implementation of an English version of RisOSH. For the completion of the information chain represented by the project lifecycle, the integration with the ISPESL Grey Literature Database [LUZ2005] was also realized, with the aim to use in an efficient way the data coming from different channels. This integration is based on a software that transfers the final report bibliographic data into the Grey Literature Database after checking and matching it.

The classification area collects the descriptors that the assignee has to identify in the OSHA Thesaurus to classify his project. The system helps the user in choosing descriptors: selecting the thesaurus button, the main categories are shown and searchable. If a descriptor is selected, it is copied in the project template. A similar procedure is present in the technological transfer area, where the project is classified through NACE codes [ATECO2002]. This classification is of outstanding importance for the types of projects carried out in the OSH sector, that mainly cover research applied to productive activities.

Finally, two sections are dedicated to a kind of data that we consider as fundamental for a qualitative description of projects results: the sections collect descriptions of guidelines, databases, websites, training modules, etc. produced as realizations of the project, as well as articles and papers published in reference to the project results. A lot of aids have been created for the right compilation of the template, together with checks and validation of data before the online submission.

Results of the assessment

In the first part of our assessment activity, we analysed the RisOSH information content. The data contained in RisOSH until February 2007 are shown in figure 4.

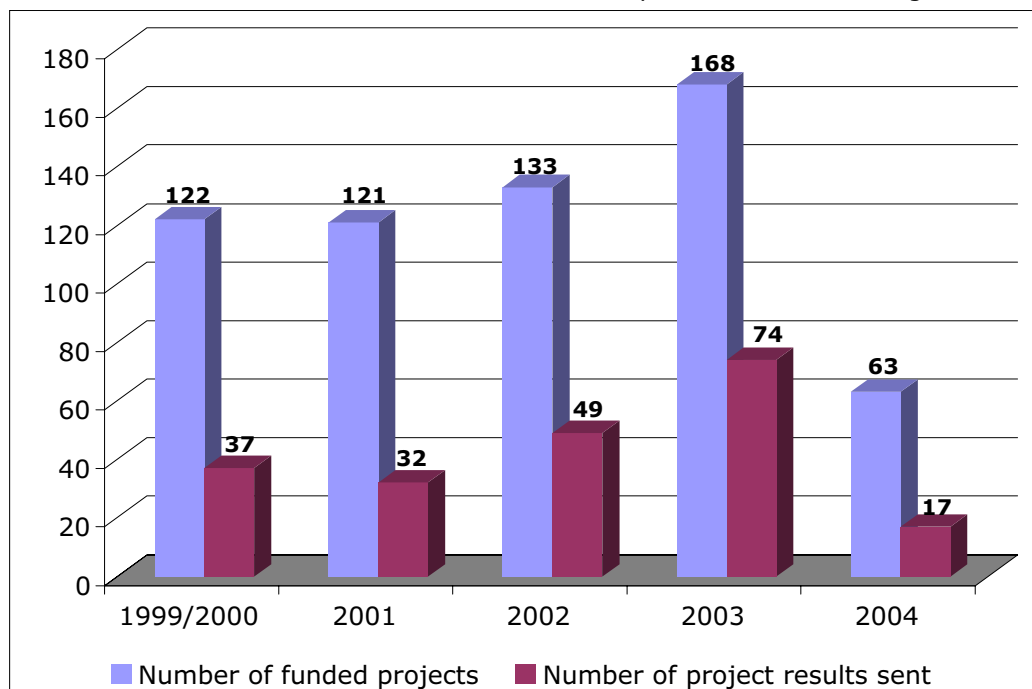


Fig. 4 - RisOSH data until February 2007 distributed by year of project funded and description of project results

Since 1999 ISPESL funded 607 projects; 34.4% of them (209) contains information about project results. It is not a high percentage, but we can observe a slight increase which is especially remarkable for the projects funded in 2003, whose result descriptions reach 44% (74 out of 168); while the majority of projects funded in 2004 are not concluded yet. The percentage is also not quite high because the clause included in the research contract (online transmission of project results) is not really checked in the phase of assessment of the project results, nor is the necessary condition to get the final project funding.

A more promising picture of the result descriptions sent by the assignees is given by the quality of the information reported in the electronic format. Only a minority of these formats could not be inserted because of lack and/or inconsistency of the data

reported. Moreover, the result descriptions collected with the revised formats allows the assignees to report bibliographic data of publications produced during the projects (30% of the project funded in 2003 and 47% of the projects funded in 2004) and describe the products development, such as software, databases, guidelines, etc (44% of the projects funded in 2003 and 23% of the projects funded in 2004).

It is also interesting to note that a very high percentage (more than 85%) of the assignees, download the full text of the final deliverable using the facility provided by the new electronic format. In this way the repository of ISPESL's GL database is going to increase.

In the second phase of our evaluation activity we prepared the e-mails to be sent to ISPESL's referees soliciting them to review and update information on project results using the available electronic format. We received about 20% of answers, which allowed us to update RisOSH as well as to receive important information about changes in the organisation of the project and/or about projects that has been prolonged. The number of answers received was lower than our expectations, but the process resulted very positive in terms of new contacts, suggestions and appreciation.

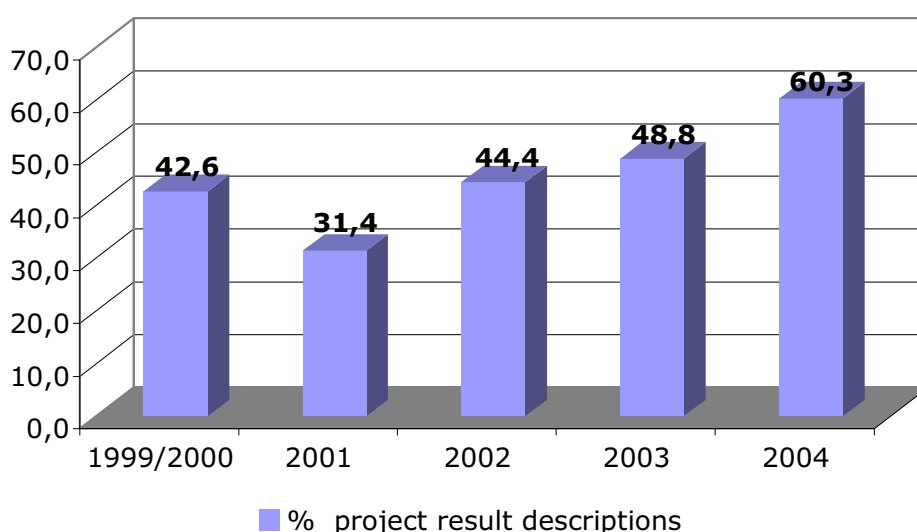


Fig. 5 - RisOSH project description in November 2007 distributed by year of project funding

Once again, more encouraging is the quality of the project descriptions that we have obtained, both as a result of our e-mails and as normal insertions by the project assignees. Looking at projects funded in 2003 and 2004 (Fig. 5), that are about to be concluded at the end of this year, we notice that there is a "natural" increase in the use of the electronic format by the project assignees: at the moment we have gathered more than 60% of the project results for the year 2004, and 48.8% of those funded in 2003. Our request to ISPESL's scientific referees has surprisingly given us more information about the results of "old" projects (42.6% for projects funded in 1999/2000), while for those funded in 2001 and 2002 the increase of information provided couldn't allow us to fill the information gap. As a matter of fact, the new mode of gathering research results through the electronic format had just been introduced in that period, and project assignees were either not used or "encouraged" by the contract to send project results electronically. The quality of the information received seems accurate: long free text descriptions of project results, both in Italian and English, descriptions of products, good use of the project classification applying ATECO and OSHA thesaurus.

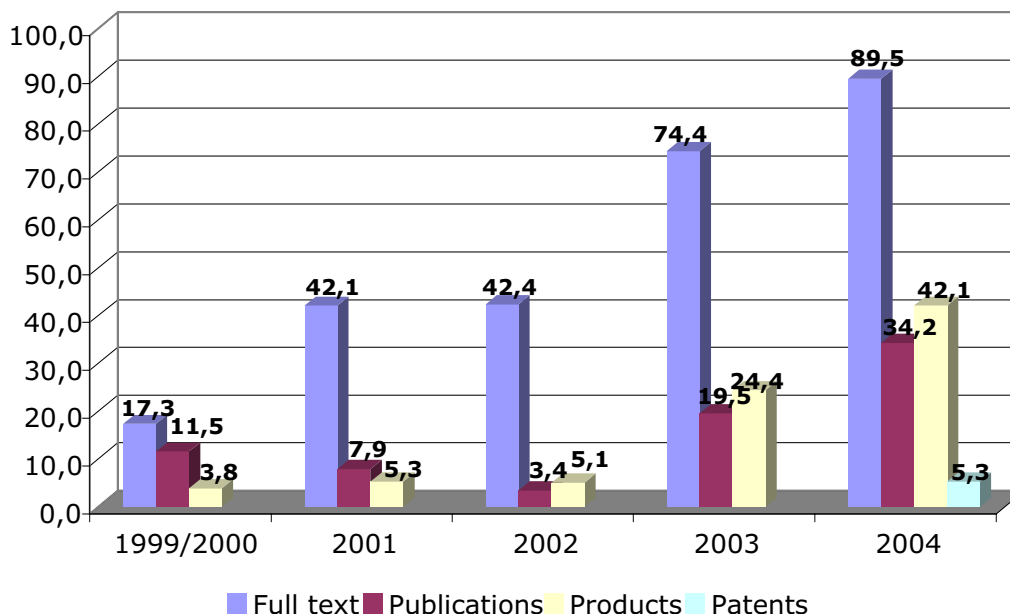


Fig. 6. – RisOSH contents in November 2007 distributed by year of project funding

Moreover, there is a high increase in the download of the full text of the final deliverables, which reach 89.5% (Fig. 6) for the projects funded in 2004 and 74.4% for those funded in 2003. This shows that researchers are getting used to share their results electronically.

Figure 6 also shows the data about publications and products. The figure reports only the presence of products and/or publications and does not give their exact number. Generally we have noticed that there is more than one publication (papers presented at international conferences and journal articles) and sometimes there are different types of products (databases and web pages, etc.), outlining a group of very “productive” and well documented project result descriptions. Interesting to note that the descriptions of products are also increasing in the last years and that they are reported more frequently than publications.

Discussion and conclusion

The results of our evaluation procedure show that the RisOSH system seems to be in a phase of take-off and this means that experimentations and improvements along two years can be considered very positively. The communication flow with external assignees is now working quite well and the information content of the new template has proved to be a valid tool for the collection of projects key data. In the most recent years, we can also observe that external assignees are getting more and more used to autonomously send project results.

Moreover, there is an increasing propensity to make the full-text of the final report available, that constitutes a precious source of GL documents and makes the system capable of representing an important portion of the ISPEL institutional repository. In this context, the development of the institutional communication is of outstanding importance for the realization of an effective information flow and for the planning of an editorial policy that reflects and gives added value to the scientific production of the Institute.

The improvement of such communication flow should go, however, above all toward the direction of a greater involvement of the internal community of researchers, who has shown, in our evaluation process, a good interest in the system, although not “obliged” to participate in the collection of results. As a matter of fact, the updating of the database is still performed in a centralized way because of various management reasons. What is needed is probably a greater commitment of the Institute’s top management not only in “sponsoring” the RisOSH system, but also in promoting the standardization of several institutional information systems, created for different objectives, in order to make them capable of being integrated.

As a general conclusion, the evaluation carried out has stimulated our discussion on the identification of the best models to support maintenance of information systems. Actually, system updating, especially if the data entry is distributed among different information producers, constitutes one of the main problems of sustainability: suffice it

to think of open access archives or institutional repositories [XIA2007, DAV2007, SURF2005]. As a matter of fact, in disciplinary fields where authors are not yet used to submit their work to open access sources, they have to be encouraged and committed to post their papers.

The open access movement, which was started on the basis of precise needs of the scholars community, and which was foreseen as a complete revolution of the traditional communication chain, first of all concerning publishers, is therefore likely to change its original organisational model, mostly in some scientific fields. In our opinion this means that between the two opposite organizational models normally found (centralised versus distributed), with the diffusion of institutional repositories on the internet, libraries and information centres are again in the front line in their role of continuous stimulation and communication with information producers, imposing a new intermediate model that requires greater flexibility of roles.

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Greyscale *

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Abstract

This paper addresses the place of grey not only in the landscape of information, but also of knowledge, wealth creation and improvement of the quality of life. It builds on work by the authors published in previous GL conferences.

The very notion of grey is linked conceptually with dull and dismal. It refers to a concept between recognised states. It is also linked with age and distinction, even the magical (Gandalf the Grey). The hypothesis is that grey objects exhibit all these properties, and they can be used to advantage.

Typically Grey literature consists of technical research documentation (although many different kinds of material have been classified as grey). This – by its nature – tends to be dull. The material is usually not peer-reviewed as is white literature. Yet it is not usually the unstructured, unauthorised output from a single source; it may well be commercial in confidence and certainly is likely to contain IP (intellectual property) of value to the organisation. It is between states i.e. between 'an idea' and 'white'. Some grey literature has age and distinction, although this usually is neither recognised nor appreciated widely until it becomes white – analogously to the final step in the human ageing process. Finally some grey literature is indeed magical in providing an organisation with a wealth of knowledge for problem solving, strategy inspiration or know-how.

This paper attempts to demonstrate that grey is the very foundation of the knowledge base both for internal use of an individual organisation (where it may well remain grey) and of world knowledge (where it is transformed to white). The information landscape (which when applied becomes the knowledge landscape) has exposed uplands (white) and hidden valleys (grey).

The dynamics of the landscape concern the way in which an idea, concept or knowledge is generated and transformed: from grey to grey (internal discussion within an organisation with improvement), from grey to white (publication, public relations for an organisation, improved evaluation scores for an organisation), from grey to product or service (wealth creation or improvement in the quality of life within an organisation), from white to product or service (wealth creation or improvement in the quality of life by knowledge or technology transfer).

The prerequisites for these dynamics to work are (1) excellent metadata (to improve discovery and control usage), (2) an institutional document repository of grey, (3) an institutional CRIS for the contextual research information, (4) linkage between the document repository and the CRIS of an institution and thence (in a controlled manner with formal descriptive and restrictive metadata) to other institutions, (5) an e-research repository of research datasets and software, (6) linkage between the e-research repository and the CRIS of an institution and thence (in a controlled manner with formal descriptive and restrictive metadata) to other institutions, (7) an institutional policy to mandate deposition of the material with appropriate metadata.

From foundation to dynamics, grey is the key ingredient for the knowledge society.

Background

Previous papers on Grey literature (or more widely – and used hereafter to mean - grey objects such as hypermedia) by the authors (in the GL Conference Series) have described:

1. the need for formal metadata to allow machine understanding and therefore scalable operations (Jeffery 1999);
2. the enhancement of repositories of grey (and other) e-publications by linking with CRIS (Current Research Information Systems) (Jeffery and Asserson 2004);
3. the use of the research process to collect metadata incrementally reducing the threshold barrier for end-users and improving quality in an ambient GRIDS environment (Jeffery and Asserson 2005);

* First published in the GL9 Conference Proceedings, February 2008

4. an architectural model for scaleable, highly distributed, workflowed repositories of grey literature based on hyperactive 'intelligent' documents (Jeffery and Asserson 2006).

This paper takes a 'from 10,000 metres altitude' view of the grey information landscape (hence 'Greyscape') based on the hypothesis that grey literature is the foundation for the knowledge economy. The paper develops recommendations for realizing the potential of the hypothesis.

The Hypothesis

The hypothesis is that grey literature can provide the foundational material for knowledge transfer leading to wealth creation and improvement of the quality of life, i.e. the 'knowledge economy'. Furthermore, we propose that the dynamics of 'grey' must be captured as the grey object (e.g. technical report, PhD thesis, brochure) transforms during its life from grey to grey or grey to white. We also propose that the grey object must be linked via semantic relations not only to other grey objects and white objects but also to information on persons, organizations, funding, projects, facilities, equipment, products, patents, events... in fact all the contextual information required to understand the relevance of the grey object of interest. The current state of the art does not support this vision yet but is moving in this direction. We propose the Greyscape Architecture to solve the problems and provide a unifying platform for the world of grey to reach its potential.

The Notion

The concept of 'grey' leads to associations in various dictionaries and thesauri. These include:

- dull and dismal: as in a grey day implying clouds and rain or to describe the character of a person;
- obscured: implying only partly seen as in 'greyed out';
- between states: as in a grey area implying some uncertainty or fuzziness such as not clearly legal but neither strictly illegal;
- age and distinction: as implied by grey hair indicating ageing and wisdom;
- magical: as in Gandalf the Grey or associated with the colour of the cloaks of some religious orders;

In fact these characterizations apply well to grey literature. Commonly embracing material such as technical reports, catalogues, brochures, ephemera (but also doctoral and master's theses), learning materials, photographs, video and audio clips the epithet 'dull' is probably apposite. Commonly grey literature is obscured – hidden away, poorly catalogued, not advertised and difficult to find. It usually is considered less important than white, published literature and receives less attention. Certainly grey literature may be between states; the contents of a technical report (grey) or a doctoral thesis (grey) may well be transformed into a published research paper (white). Similarly there may be a transition from grey to grey (hopefully with added information / improvement). Grey literature may acquire the characteristics of age and distinction; early technical reports may be highly acclaimed once they are recognised and there are instances of old doctoral theses being cited and used once the author has started to publish white research papers on the topic. Interestingly, are old photographs of Einstein with equations written on the blackboard considered as grey literature? Finally some grey literature is indeed magical; a technical report may well - for a company - lead to a product making large sales and profits.

This paper addresses the IT systems architecture required to maximise the value of grey literature in wealth creation and improvement of the quality of life.

State of the Art

Despite some interesting counter-examples – mainly as research ideas or prototypes - in general the world of grey literature is characterized by: limited digitization (i.e. much on paper); limited fill of repositories (i.e. even if the grey object is digital it is stored in a user location without appropriate metadata); various repositories of material with different characteristics; different standards for metadata to describe or catalog the material; different query languages and capabilities; differing facilities to present the results. Furthermore, there is a lack of integration with repositories of white literature, research datasets and software and a lack of integration with CRIS which provide contextual information. Finally the different grey literature repositories commonly do not interoperate (or do not interoperate effectively). The bottom line is

that grey literature is not sufficiently indexed by metadata and even when it is so indexed, the metadata are insufficient to provide sufficient context, provenance and other linkages.

This is a somewhat grey (in the sense of dismal) landscape. However, it can be improved rapidly and effectively by bringing together the excellent – but isolated – work that has been done into an integrated architecture allowing for heterogeneity dictated by local requirements but managing the heterogeneity for interoperability benefit.

Requirement

Easy to deposit

The first requirement – without which no grey literature repositories exist – is that it must be easy to deposit grey objects with associated metadata. This is best achieved by reducing the threshold barrier for the end-user; appropriate techniques include workflow and incremental metadata provision, automated metadata extraction and re-use and knowledge-assisted metadata input so reducing the amount of actual input required from the end-user.

Easy to retrieve

The major purpose of a grey literature repository is to provide grey objects upon request; the request usually being for one or more 'full text' objects (it may of course be hypermedia) of which the metadata satisfies the criteria of the search. Exceptionally a service may be provided for full-text search of the object itself for a word or phrase; however this is expensive and time-consuming and is much less easy to do when the grey object contains hypermedia including images, video and audio. It is clear that the relevance (accuracy, precision) of the response to the request and the recall (completeness) of the response both depend critically on the quality of the metadata. Furthermore, the request may have a scope not only of the local repository but global; in this case excellent metadata is required for effective interoperability achieved by transforming the request into the syntax (character set, language, grammar or structure) and semantics (meaning, especially meaning in context) of each target grey source.

Easy to transition

Grey objects usually record a stage or step in a research process. They are related to earlier grey material and white material. They are related to future grey and white material. The relationships or linkages are critically important to understanding the relevance of a grey object to the request (or more specifically to the intent of the request). Moreover tracking the evolution of research thought through a time-series of grey and white objects is instructive. It may also be important legally in claims of prior publication and other rights.

Easy to track provenance

Related to the above, provenance information may improve the ability of the end-user to assess the quality and relevance of the grey object of interest. Provenance includes not only predecessor objects but also the contextual information mentioned above. It is important to have correct recording of versions of a grey object for the same reasons. Finally, for provenance information to be provided it is essential that facilities for preservation and curation are provided.

Easy to relate

From the foregoing it is clear that relationships (hyperlinks) are of the greatest importance for effective and efficient provision of grey resources. The relationships concern not only other objects in the grey repository (which should be open access and institutional) but also in the CRIS (which provides the research context) and also in research repositories of datasets and software. The relationships require:

- to have a consistent structured syntax for automation (hence precision, accuracy and scalability) of their management and usage and for interoperation;
- to be annotated with consistent semantic information so that they may be interpreted automatically by computer to achieve scalability;

An example might be as follows:

```
<person> 'Einstein, Albert' <datetimestart> '19160000:0000' <datetimeend>
'19160000:0000' <role> 'lecturer' <publication> 'Einstein, Albert (1916). "Photograph
of lecture 1916"

<person> 'Einstein, Albert' <datetimestart> '19160000:0000' <datetimeend>
'19160000:0000' <role> 'author' <publication> 'Einstein, Albert (1916). "The
Foundation of the General Theory of Relativity" Annalen der Physik.'

<publication> 'Einstein, Albert (1916). "The Foundation of the General Theory of
Relativity" Annalen der Physik.' <datetimestart> '19160000:0000' <datetimeend>
'19160000:0000' <role> 'presented' <publication> 'Einstein, Albert (1916).
"Photograph of lecture 1916"

<person> 'Einstein, Albert' <datetimestart> '19050630:0000' <datetimeend>
'19050926:0000' <role> 'author' <publication> 'Einstein, Albert (1905) "Zur
Elektrodynamik bewegter Körper" Annalen der Physik 17(1905), 891-921. Received June
30, published September 26, 1905.'

<publication> 'Einstein, Albert (1916). "The Foundation of the General Theory of
Relativity" (PDF). Annalen der Physik.' <datetimestart> '19160000:0000' <datetimeend>
'19160000:0000' <role> 'theory improvement' <publication> 'Zur Elektrodynamik
bewegter Körper, Annalen der Physik 17(1905), 891-921. Received June 30, published
September 26, 1905.'

<person> 'Einstein, Albert' <datetimestart> '19030000:0000' <datetimeend>
'19110000:0000' <role> 'employee' <organisationalunit> 'Swiss Patent Office Bern'

<person> 'Einstein, Albert' <datetimestart> '19030000:0000' <datetimeend>
'19050000:0000' <role> 'postgraduate' <organisationalunit> 'University of Zurich'
```

This example could be extended with other grey and white publications, Einstein's undergraduate studies at ETH Zurich, his famous 'thought experiments' (as projects), subsequent books and papers by other authors citing his work and other entities.

This example demonstrates clearly several aspects required of metadata:

- the syntax must be formal and precise;
- the semantics must be present, formal and precise (usually using a domain ontology to assure a controlled structure of terms and inter-relationships of meaning);
- the relationships form a fully-connected graph; hierarchic representations are insufficient. This excludes XML (XML) in its 'native' form; if XML represents relationships as relations (rather than using its native linkage mechanism XLINK) then the full syntax can be reconstructed;
- the relationships require an annotation richer than the triples of RDF (RDF) so once again RDF is insufficient (although RDF overcomes the primary limitations of XML);

From this we conclude that the information should be represented using a relational database system although it may be presented (with a reduction in dimensions of the information space) on web pages at the user interface via XML. Furthermore, a logic programming environment is required to manage the semantics (derived from the domain ontology) in the expressions.

The Proposed Architecture

The proposed architecture has three major components:

- a CRIS to provide formal metadata (for scaleable and quality interoperability) and to provide contextual information;
- a repository of grey objects (and ideally white objects) and ideally associated (via the CRIS) with a repository of research datasets and software;

- a workflow system providing incremental metadata update through the research process to reduce the threshold effort to get material into the repository;
- This proposal is no more than an integration of separate aspects proposed in previous papers by the authors and discussed under 'Background' above.

We reject at this stage (but will re-introduce later) the architecture based on hyperactive grey objects (Jeffery and Asserson 2006) because for many existing grey resources the technology is just too advanced and the required e-infrastructure is commonly missing at institutions concerned with grey literature. However, technology based on integration of repositories using CRIS, and associated processes to fill the repositories using workflow, are reasonably well understood, accepted and implemented.

This leads to the architecture proposed for implementation at any one institution (Figure 1):

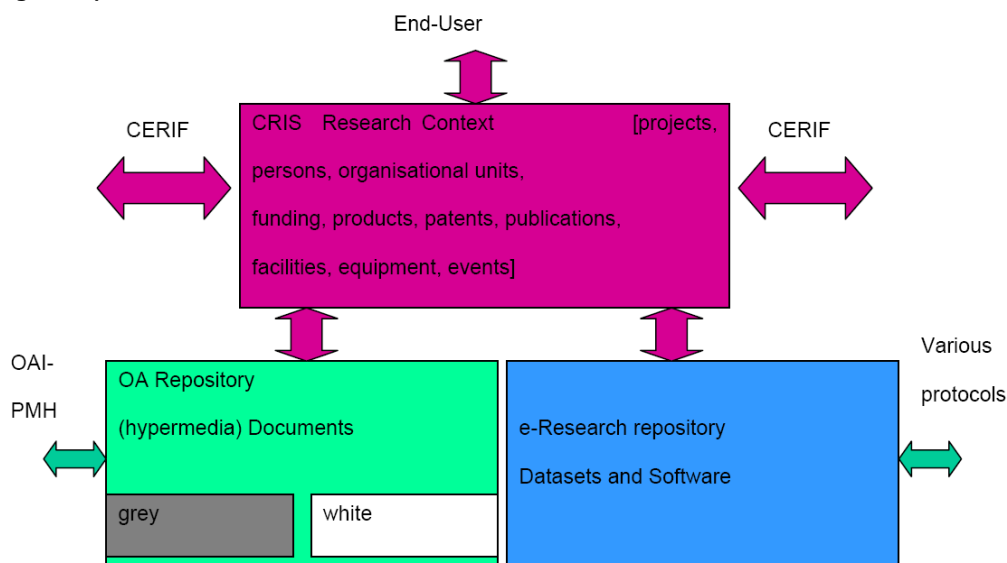


Figure 1: Architecture at One Institution

It should be noted that this architecture puts the CRIS 'centre stage'. This is because of its more formal syntax and semantics (CERIF). This formality is required for optimal management of the information in the repositories and the CRIS and especially in the interlinking, expressed as time-period-stamped, role-based relationships. This (CERIF) metadata also provides an optimal method for interlinking multiple institutions, each with the CRIS and repositories as indicated for one institution. Indeed, the proposal is that CERIF can provide a better (more formal, more complete, more descriptive) interoperation mechanism than OAI-PMH (for repositories of publications) or the many different protocols for interoperation of research repositories of datasets and software (Figure 2).

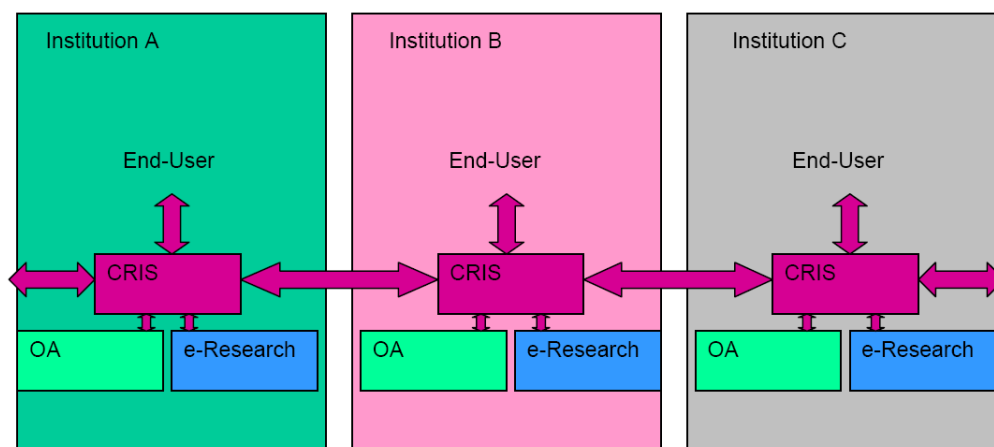


Figure 2: Architecture at multiple institutions

A Stepwise Approach To Greyscape

We propose a set of steps or workpackages to achieve Greyscape.

- (1) discussion and agreement on a standard for excellent (formal syntax and semantics) metadata (to improve discovery and control usage);
- (2) an institutional document repository of grey set up at each participating organization;
- (3) an institutional CRIS for the contextual research information set up at each participating organization;
- (4) linkage between the document repository and the CRIS of an institution (using a unique identifier attached to metadata generated and stored in the CRIS and replicated to the repository) and thence (in a controlled manner with formal descriptive and restrictive metadata) to other institutions,
- (5) an e-research repository of research datasets and software set up at each participating organization;
- (6) linkage between the e-research repository and the CRIS of an institution and thence (in a controlled manner with formal descriptive and restrictive metadata) to other institutions as well as to the repository of grey objects,
- (7) an institutional policy to mandate deposition of the material with appropriate metadata (to encourage filling of the repositories so providing more and better information to support research and innovation);
- (8) Information management, analysis and prediction services for the CRIS and the two repositories to provide end-users with the information required for research, for finding collaborators, for finding innovative ideas or products, for assessing research and many other uses;
- (9) Workflow processes to connect services and users to reduce effort for users with data re-use.

When all of this version of Greyscape is in place, all interested organizations can move up together to utilizing – within the same basic e-infrastructure - hyperactive grey objects as proposed in (Jeffery and Asserson 2006); furthermore the architecture allows backward compatibility to the architectural version proposed here from any subsequent version based on hyperactive grey objects.

Conclusion

Now is the time for 'grey' to change its image from negative to positive and benefit wealth creation and improvement in the quality of life. A blueprint is proposed here to achieve Greyscape.

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Awareness and empowerment in document production and distribution as a "must" for open access: Experiences from the "Nancy style" to guarantee quality *

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Abstract

The debate on Grey Literature (GL) has now a very long tradition going from uncertainty and confusion, in the last century, to new certainties and appraisal in the open access era. This implies the general acquisition of the awareness of the importance of GL as a fundamental primary source of information, hence the necessity to empower authors and issuing organization to guarantee quality in both production and diffusion of GL. During the last international conference on GL held in Nancy in 2005, the proposal for the adoption of an ad hoc GL production style was discussed and most welcome by the grey community. This led to the creation of the Grey Literature International Steering Committee (GLISC) which issued, in March 2006, the Guidelines for the production of scientific and technical reports, informally known as "Nancy style" (freely available from www.glisc.info). In the creation of the Guidelines, suggestions arising from different realities were closely evaluated and it was not always so easy to reach an agreement that would satisfy all requirements. When the first version was released, there was awareness that some missing points should be developed soon, particularly all issues related to digital GL and metadata.

Background

The debate on Grey Literature (GL) has now a very long tradition going from uncertainty and confusion, in the last century, to new certainties and appraisal in the open access era. This implies the general acquisition of the awareness of the importance of GL as a fundamental primary source of information, hence the necessity to empower authors and issuing organization to guarantee quality in both production and diffusion of GL. During the last international conference on GL held in Nancy in 2005, the proposal for the adoption of an *ad hoc* GL production style was discussed and most welcome by the grey community.¹ This led to the creation of the Grey Literature International Steering Committee (GLISC) which issued, in March 2006, the *Guidelines for the production of scientific and technical reports*,² informally known as "Nancy style" (freely available from www.glisc.info). In the creation of the *Guidelines*, suggestions arising from different realities were closely evaluated and it was not always so easy to reach an agreement that would satisfy all requirements. When the first version was released, there was awareness that some missing points should be developed soon, particularly all issues related to digital GL and metadata.

Goal

This paper intends to reflect on the necessity to update the *Guidelines*, one year after the first draft was presented in Nancy, taking into consideration the rapid changes in the information market. We are convinced that the *Guidelines* may represent a useful tool to improve quality of GL, increase the general awareness of its value, and empower authors and issuing organizations to allow a correct autonomous production of documents to be spread and exploited at best through the Internet. For the same reason, the best strategies to promote the adoption of the *Guidelines* will be investigated: involving GL authors and institutions, making translations available in different languages, establishing useful contacts with key persons in the information arena.

Actions developed

With the objective to create major awareness on quality issues in GL creators, users, and policy makers, the following actions were developed:

- analysis of GL in the changing context;
- reflections on the development of the "Nancy style";
- comparison between "Nancy style" and ANSI/NISO Z39.18;
- promotion of the "Nancy style".

* First published in the GL8 Conference Proceedings, February 2007

Analysis of GL in the changing context

Within the hierarchy of information sources, GL has traditionally occupied a less prestigious status than peer-reviewed papers published in scholarly journals. During the print-only era, this was a valid distinction. Even though GL has always provided access to valuable and unique content, the costs in time and money of obtaining it were formidable. In such a climate, the regularity and reliability of peer-reviewed journals were significant advantages, irrespective of the quality of published papers.

The contemporary ease of electronic distribution has erased a key condition for the traditional hierarchy between grey and white literature. Although this point has not been reached yet, theoretically all scholarly content – be it a data set, a working paper, or a formal paper – could instantly be posted online.

The “open access” movement has focussed on increasing online availability of formal papers, but its general principle is applicable to all scholarly content. Even though distribution of all content has eased dramatically, the firm preference among many scholars for formally peer-reviewed content continues. This is true despite evidence that the consideration of GL enriches many scholarly investigations;^{3,4} one of its most valuable characteristics is that it is more likely to report negative results, and to discuss studies that concluded prematurely.⁵ Compared to relying only on published articles, also accessing GL offers a much more comprehensive picture of the state of knowledge for any topic.

Because GL is so useful, raising its profile is imperative. One way that the authors of reports can achieve this is to adhere to well-developed production standards. This was the motivation for the development in Europe of the “Nancy style” at the GL7 Conference in December 2005, and for refinement of this style in 2006. In the USA, the *ANSI/NISO Standard Z39.18-2005 Scientific and Technical Reports – Preparation, Presentation, and Preservation*,⁶ serves a similar purpose.

The encouragement of quality production standards is an “internal” advance among GL producers. Current developments in the external information landscape also point to an enhanced public awareness. In October 2006 the Canadian Institutes of Health Research (CIHR) released a “Draft Policy on Access to CIHR-funded Research Outputs”, which operates from the premise that “the primary purpose of all research in the public domain is the creation of new knowledge in an environment that embodies the principles of freedom of inquiry and unrestricted dissemination of research results” (<http://www.cihr-irsc.gc.ca/e/32326.html>). The draft policy calls for peer-reviewed articles based upon CIHR-funded research to be openly available online no longer than six months after publication. This is similar to the currently pending “Federal Research Public Access Act of 2006” in the US (http://cornyn.senate.gov/doc_archive/05-02-2006_COE06461_xml.pdf). The US measure only applies to peer-reviewed journals. Critically, the Canadian measure *also* requires grant recipients to provide access to “research materials” and “research data”. Research materials might include cell lines, nucleic acids, or research tools for evaluation. Research data would usually be an electronic data set, but could also include interview transcripts and survey results.

These research materials and research data are different examples of “grey content”, which is the kernel of GL. If the Canadian policy goes into effect, and grey content is exchanged among researchers as a matter of course, this would revolutionize scholarly norms. The Canadian proposal is one example of the movement toward “open data” in science, which seeks to ensure maximum access to several types of data:

- *scientific data* “deemed to belong to the commons” (i.e., the human genome);
- *infrastructural data* such as that provided by geographic information systems;
- *factual data* that is not copyrightable

(<http://wwmm.ch.cam.ac.uk/blogs/murrayrust/?p=32>).

GL producers and users should become strong proponents of the open data movement as well. The Open Data Foundation is one organization working in this area (<http://www.opendatafoundation.org/>).

A leading proponent of the open data movement is Peter Murray-Rust of the University of Cambridge. Murray-Rust is also one of the developers of the concept of “datuments”, which are scientific papers enriched with data elements that can only be accessed and interpreted electronically (<http://jodi.tamu.edu/Articles/v05/i01/Murray-Rust/>). Datuments integrate traditionally grey and white content into one package, and their proliferation would be strong evidence of the end of the distinction between grey and white literature. As argued at GL7,⁷ this distinction would eventually fade with time.

Time will tell whether all this is correct. In the meantime, paying careful attention to the “Nancy style” and ANSI/NISO standard is an excellent way to support the promotion of GL.

Reflections on the development of the "Nancy style"

The difficulties encountered during the creation of the *Guidelines* were analysed to reflect on the selection process required to reach consensus at international level, even within a small group of experts in a specific field. The major points of discussion mainly regarded the electronic GL and adoption strategy:

• Electronic grey literature

The "Nancy style" is mostly paper oriented, because editorial consistency and ethical considerations recommended for traditional documents do apply also to digital publications. Yet, progressively more and more GL is being produced, stored, published and made available electronically and in order to manage relevant GL publications, metadata are required. The importance of metadata, as the natural evolution of library catalogue records, had been already stressed in the first version of the "Nancy style" (when dealing with report structure: Section 4.2 of the *Guidelines*), but no metadata schema was then provided since it was difficult to find a formula that would satisfy all requirements. At present, much GL is catalogued using the Dublin Core Metadata Standard (DC). However – as Keith Jeffery of the UK Council for the Central Laboratory of the Research Councils (CCLRC) pointed out working on the "Nancy style" draft – this standard suffers from several problems: a) it is machine-readable but not machine-understandable; b) it does not have a formalised syntax or semantics and therefore is open to ambiguous interpretations. Therefore, he proposed a formalised metadata standard (an umbrella standard, mainly generated from Dublin Core metadata: "Formalised DC" based on the concepts of the CERIF Model (www.eurocris.org/Cerif)). Yet, as the traditional cataloguing practice has different rules, similarly different communities may adopt different metadata schema. Nowadays the World Wide Web provides the possibility to search for information across heterogeneous archives/databases/catalogues, but the systems managing different information resources must be "interoperable" (capable to work together), and interoperability requires that the same metadata schema be used. As Stefania Biagioni (of the Italian Istituto di Scienza e Tecnologie dell'Informazione - ISTI, Consiglio Nazionale delle Ricerche) clearly commented, there is much work towards standardization and the Dublin Core Initiative (<http://dublincore.org/>) is receiving worldwide consensus as it suggests adding a very simple metadata record to any specialized one.

• Adoption strategy

When consensus was to be reached to release the first version of the *Guidelines*, a formal approval was asked to all organizations wishing to officially adopt them. Contrary to expectations, consensus was given only by a small number of institutions as the official adoption was sometimes a difficult step. Yet, support and encouragement did not lack: a less formal approach in launching the *Guidelines* and getting them adopted was soon granted by all institutions involved in their creation. For example, a large international organization (Organisation for Economic Co-operation and Development - OECD), which took part in the development of the *Guidelines*, expressed concern to officially endorse them (and in fact, it did not), because that would require a great deal of internal debate and discussion with their own members. Suggestions were made to follow a voluntary system backed up by an official recognition of compliance to facilitate the adoption of the *Guidelines*. This would encourage like-minded supporters within an organisation to informally use the *Guidelines* and then gain the official "stamp of approval" to show that they are really following them. Actually, other organizations policies take a voluntary approach in the documents they recommend, such as the Association of Learned and Professional Society Publishers (ALPSP) with more than 230 not-for-profit publishers. As suggested by the OECD, voluntary sign-up is a less demanding step for organisations to take, but the effect is the same – more and more publishers will opt to use them. In the next version of the "Nancy style" the adoption strategy may be revised, envisaging a voluntary approach followed by a subsequent official endorsement, once the organisation can show that *Guidelines* are actually followed.

Comparison between "Nancy style" and ANSI/NISO Z39.18

During the working process leading to the production of the *Guidelines*, and also in the period soon after their publication, we came in touch with other standards, guidelines, house styles, etc.

All useful documents were further studied in view of the future updating of the *Guidelines*. In particular, the *ANSI/NISO Standard Z39.18-2005 Scientific and Technical Reports – Preparation, Presentation, and Preservation* (released in 2005) has been

considered a valuable source for comparison; therefore, we carefully analysed it and pointed out the main differences listing them under the following headings.

General considerations

The major differences concerning the two documents as a whole regard:

- **Document type**

They are different in that the "Nancy style" represents *guidelines* – that is general principles agreed upon by a small group of experts, to be followed as an indication or outline of policy or conduct –, while the ANSI/NISO Z39.18 is a proper *standard*, developed by the Standards Committees of the US National Information Standards Organization (NISO), subject to rigorous control and approval process including peer review. This is why also the structure of the two documents is different since the standard may repeat concepts in different sections which may be used separately, while the *Guidelines* are intended as an easy to read document giving the general idea for recommended items. The *Guidelines*, different from standards, do not give full details on format and style. Moreover, the "Nancy style" represents *international* guidelines developed by a corporate author (GLISC), which worked on the draft proposed by the Istituto Superiore di Sanità, and signed approval of this best practice on behalf of their respective organizations, while the ANSI/NISO Z39.18 is a *national* standard approved by the American National Standards Institute through a number of Voting Members.

- **Paper vs digital document medium**

The "Nancy style" is mostly paper oriented giving recommendations on report preparation mainly reflecting a traditional paper structure, while the organization pattern of the ANSI/NISO Z39.18 is user-based more than content-based. The key concepts incorporated in the American standard mainly refer to metadata, persistence of links, interoperability, creation, discovery/retrieval, presentation in digital format (DTD, XML, XSL), maintenance and preservation (original content, software and media); it also contains a metadata schema, which is absent in the *Guidelines*.

- **Annexes**

All material included in the "Nancy style" is approved by the GLISC, while the ANSI/NISO Z39.18 provides a large amount of additional information (almost half of the pages) that is not part of the Standard (Appendices including selected annotated bibliography, glossary, Dublin Core data elements, etc.).

Content considerations

In general, the "Nancy style" contains technical requirements for a report, but does not include full details (i.e. format, style, etc.); yet, it provides important elements, which are not present or not fully described in the ANSI/NISO Z39.18:

- **Ethical issues**

An initial section is explicitly devoted to authorship, editorship, peer review, conflicts of interest, privacy and confidentiality.

- **Instructions to authors**

Producers are strongly recommended to issue instructions to guide authors in the production of a formally correct document containing ethical and editorial issues as well as indications for formats, styles, illustrations, etc.

- **Revision**

Special attention is given to revision editing as GL is not generally peer reviewed, or produced with editorial support; therefore, it is fundamental that authors be aware of the importance of a careful revision of their texts before diffusion.

- **Reference style**

The adoption of the "Vancouver style" is recommended and examples and rules are given as a fundamental step for information retrieval.

As regards document structure, it is basically the same in "Nancy style" and ANSI/NISO Z39.18, with minor terminological variations. Yet, the American standard explicitly gives indication on:

- Report Documentation Page (since it is used by some agencies within the federal government, and also some sample pages are given).
- Distribution list.
- Glossary (although not part of the Standard).
- Executive abstract.

Technical recommendations

Since the "Nancy style" represents guidelines and not a standard, all technical considerations are limited to the essential, while the ANSI/NISO Z39.18 gives indications (all absent in the "Nancy style") on:

- **Print-specific/non-print-specific recommendations**
The Section 6 "Presentation and display" describes standard methods for ensuring consistency in presentation including designing visual and tabular matter, formatting, etc. and makes a distinction between rules applicable to all reports regardless of mode of publication (paper or digital) and rules applicable to reports published in paper form only.
- **Format**
Specific information is provided on fonts, line length, margins, page numbering, style, units and numbers, formulas and equations, paper (format and type), printing equipment, ink.

The ANSI/NISO Z39.18 also includes specifications on index entries and errata, which are not present in the "Nancy style".

Promotion of the "Nancy style"

When the "Nancy style" was released, we tried to promote it at best through all possible channels: announcements circulated in different forums; a logo for GLISC was created and its site was developed (now appearing high ranked in Google and also generating many links); translations in French (by the Institut de l'Information Scientifique et Technique) and Italian (by the Istituto Superiore di Sanità) were made available; and training courses were held using the *Guidelines* as a reference tool.

All these initiatives permitted to spread information about GL in environments where very little was known on this emerging communication channel or it was completely disregarded. Most often, people realized that they used and produced GL without being aware of all the implications laying behind it.

In particular, within the world of scientific editors, much interest in grey matters was shown by professional editors, who were generally unaware of all concerns relating to GL. Following such interest, they even asked to write a chapter on GL for the *Science Editors Handbook*.⁸ This book is edited by the European Association of Science Editors (EASE), the major professional association of editors in Europe, defining itself as "an internationally oriented community of individuals from diverse backgrounds, linguistic traditions and professional experience who share an interest in science communication and editing". This chapter was most welcome by all members of the Association and they also asked to spread more information on GL through the journal *European Science Editing*.⁹

The possibility was also envisaged that the new born "Nancy style", like "Vancouver style", might develop into a *de facto* standard, representing uniform requirements for the production of technical reports produced by an international group (GLISC), in the effort to combat ignorance of the best editorial practices and permit integration, cooperation and standardization. Following such enthusiasm, a proposal was made that the direct promotion of the "Nancy style" by EASE might be included in the wider programme of penetration into the world of European science editing, even if GL is traditionally considered as a *sui generis* editorial product.

In the scientific arena, where career is guaranteed by publications in high impact journals, GL plays an important role not only as a vehicle of information, but also as a first step towards autonomous productions of editorially sound documents. Training inexperienced authors to allow a correct production of grey material may represent the best way to reach publications of higher levels. Tutoring in scientific writing and data presentation, in fact, also helps improving research methodology. The experience,

gained in years of writing courses in the biomedical field, gives evidence that when scientists understand the reasons why editorial rules and standards must be applied (for both grey or white production), their publication output will rapidly improve as well as the challenges to have an article accepted by mainstream journals.

To date, most of the promotional efforts for the "Nancy style" have occurred in Europe. At the GL8 Conference in New Orleans, authors of this paper will discuss how to increase awareness of the "Nancy style" in North America.

Proposals for updating the "Nancy style"

From the analysis of the above described actions (Analysis of GL in the changing context; Reflections on the development of the "Nancy style"; Comparison between "Nancy style" and ANSI/NISO Z39.18; Promotion of the "Nancy style"), we propose the following suggestions to update the *Guidelines*, which we recognise to be the best tool to promote awareness and empowerment of GL creators:

- **Adding an Appendix on metadata**
As regards electronic GL, the adding up of an Appendix containing metadata based on Dublin Core is proposed. The Appendix will give a very simple structure representing a general model to follow without going into details. An example for descriptive (bibliographic) metadata regarding an entire issue and a contribution is given in Table 1. This possible form (based on Biagioni's suggestions) will be discussed at GL8. These metadata should be integrated with administrative (rights and software) and structural metadata (hierarchical levels, information used to display and navigate digital resources, etc.), according to the ANSI/NISO Z39.18 structure.

Table 1. Descriptive metadata schema suggested for an entire issue and a contribution (to be discussed at GL8)

Type of document	Descriptive metadata based on Dublin core
Entire issue	dc:title dc:date.issued dc:date.issued.human dc:relation.ispartof.publication.desc dc:relation.ispartof.publication dc:relation.ispartof.volume dc:relation.ispartof.year dc:publisher dc:contributor dc:source dc:format
Contribution in an issue	dc:title dc:creator dc:identifier dc:description.fulltext dc:description.abstract dc:format.extent.pagination dc:date.created dc:date.human dc:type dc:relation.ispartof.publication.desc dc:relation.ispartof.publication dc:source dc:relation.ispartof.volume dc:relation.ispartof.issue dc:relation.ispartof.year dc:subject dc:subject.msc dc:subject.jel dc:publisher dc:contributor dc:language dc:relation.ispartof.publication dc:format.extent.pagination

- **Creating a Subject index**
A Subject index will be very useful to facilitate retrieval of specific items although the online availability permits an easy navigation through the text.
- **Providing more technical advice on digital format**
Although the philosophy guiding the production of paper documents is unchanged in digital ones, the suggestions given by the ANSI/NISO Z39.18 in Section 6 "Presentation and display" represent a good example to follow as a distinction is made between rules applicable to all reports regardless of mode of publication (e.g., paper, CD-ROM, or Web) and rules applicable to reports published in paper form. A simple table will be added for easy readability including mandatory or optional elements with print-specific and non-print-specific indications.
- **Facilitating reference**
Since GL is often incorrectly cited, it should be useful to give an indication on how to cite the document using the phrase "To be cited as" followed by the correct citation.
The GLISC site (www.glisc.info) contains the most up-dated version of the "Nancy Style" which take into account the above considerations and also other suggestions coming from different sources.

Final considerations

As promoters of the *Guidelines* and members of the GLISC, the experience of working with national and international realities permitted us to reflect more closely on the importance of creating a useful reference document applicable to different contexts.

The *Guidelines* are to be considered as a suggested model rather than a model in itself; they represent a basic step to improve quality in the different stages of GL production in view of its wider electronic circulation. The proposals for their updating will make them more effective, although a regular revision is required to keep pace with the changing ITC scenarios and information policies.

Traditionally editorial rules and ethical considerations were disregarded in the production of GL with negative implications on its quality. The members of the GL community should promote their diffusion mainly within GL issuing organizations that are less aware of existing standards regulating GL production and distribution.

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Nancy STYLE

a tool to improve the production of Grey Literature

What is Nancy Style?

It is the informal name given to the

Guidelines for the production of scientific and technical reports: How to write and distribute Grey Literature

formally presented by the Istituto Superiore di Sanità (Rome, Italy) during the 7th International Conference on Grey Literature held in Nancy (France) in December 2005.

Who can use this tool?

Authors and GL producers
in their mutual task of creating and distributing
accurate, clear, easily accessible reports in different fields.



Which goal?

Permit an independent and correct
production of institutional reports
in the respect of the basic editorial principles.

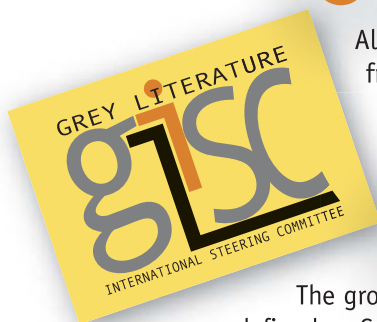
Which language?

The original version is in English. Its translations are in:

- Italian (by Istituto Superiore di Sanità)
- French (by Institut de l'Information Scientifique et Technique)
- German (by Technische Informationsbibliothek/Universitätsbibliothek)
- Spanish (by Universidad de Salamanca, *in preparation*)

Where can you get it?

All the versions are available
from the official site of the GLISC:
www.glisc.info.



What is GLISC?

The group approving these Guidelines is formally
defined as Grey Literature International Steering Committee,
composed of:



Istituto Superiore di Sanità
(ISS), Italy

Institut de l'Information Scientifique et Technique
(INIST-CNRS), France



Grey Literature Network Service
(GreyNet), The Netherlands

What is it about?

- Ethical principles related to the process of evaluating, improving, and making available reports, and the relationships between GL producers and authors.
- Technical aspects of preparing and submitting reports.

For information:
www.glisc.info
secretariat@glisc.info

Some Types of Grey Literature: A Polish Context *

Marek Nahotko (Poland)

Abstract

Grey literature consists of documents of very different types. There are some types typical of grey literature, such as scientific and technical reports, and also some types which evoke different opinions. This latter type, such as DŹS documents (documents pertaining to society), standards and patents, can be included in grey literature only because of the specific point of views held in these documents. There are also some specific types of grey literature mentioned particularly by Polish authors and collected by Polish libraries. There are a variety of different historical, economic and social reasons for this. The discussion of these documents' difference from other grey literature begins with a definition of grey literature. For an effective discussion of the different types of grey literature it is important to have an exact definition of the group of literature. A well-known definition was adopted outlining that grey literature consists of those publications "produced at all levels by government, academia, business and industry, both in print and electronic formats, but which is not controlled by commercial publishing interests, and where publishing is not the primary business activity of the organization." Based on this definition, different types of documents can be identified, starting with prohibited (underground) literature, particularly that originating from the 1939-45 period of German occupation and the Communist period. Second, economic-focused materials useful for small business allowing them a quick technology transfer. Third, documents such as unpublished translations into Polish and fourth, articles published in small but locally important journals inaccessible outside of a specific area of the country such as a town or an even smaller locale. Every identified document type includes a description of the document's origin, its role for users, its level of 'greyiness,' and its organization and accessibility. Different information systems, both traditional as well computerized, concerned with the types of grey literature outlined above are explored in this paper.

The main goal of this paper is to describe different, and rarely mentioned, types of grey literature examining them from several points of view including the degree to which they fit the grey literature definition, the reasons for their production and use, and the reasons for their local importance. The paper will conclude by highlighting the differences in grey literature types revealed by my research, differences resulting from the varied local needs of non-official communication. Some of the types are stabile and do not tend to disappear. They are usually documents used for technical and economic development. Other documents, resulting from abnormal situations in which there is a lack of legal opportunities to publish social and political, as well as philosophical and historical literature, cease to be developed after the overall situation has changed.

Introduction

The term 'grey literature' first appeared in scientific publications in the 1970s. Prior to this period, the term was equated solely with reports because it was technical, scientific and economic reports which dominated the materials referred to by label. At the same time, there were also other terms in use to describe the literature, such as 'informal,' 'non-conventional,' 'running away,' 'invisible' or 'half-published.' Attempts to define grey literature are not easy because of the low uniformity of the group of publications. Materials are distinguished mainly by their most important features which differentiate them from other groups. Among the most frequently enumerated features we can find the following common characteristics:

- They are difficult to identify;
- They are difficult to access;
- They are difficult to locate;
- They often come in the form of limited editions;
- They are often inaccessible in bookstores;
- They lack of bibliography registration;
- They are absent in library collections and catalogues;
- They are absent in a publisher's catalogues;
- They are difficult to acquire in libraries;
- They tend to be unpublished or published with delay;
- They are rapidly distributed.

* First published in the GL9 Conference Proceedings, February 2008

In 1997 during the Third International Conference on grey literature, discussions on the most important and distinctive features of the literature were concluded and a generally agreed definition was reached, which describes grey literature as publications produced at all levels by government, academia, business and industry, both in print and electronic formats, but which are not controlled by commercial publishing interests [Carvalho 2001]. In 1999 at the Washington conference this definition was amended to include the qualification "and where publishing is not the primary business activity of the organization." Currently it is agreed that grey literature is distinguished by the following two criteria: scope, they are usually confined to government, scientific, technological or business publications; and the type of publisher, usually a non-commercial publisher, for whom publishing is not their main form of activity.

We can understand that the form of publication (whether it is traditional or electronic) is not an important or distinctive feature for the purposes of defining grey literature. I wish be clear about this definition of grey literature because it determines the structure of the rest of my paper. Drawing on this well-known definition, my paper will contain a description of some of the different kinds of documents in Poland which can be placed in the category of grey literature. Some features of the document's types will then be compared with features described in the definition, determining that document's level of "greyiness" and to what extent it fits the generally accepted criteria.

The definition introduced above allows us to name documents of different types as grey literature. Polish publications often describe some types of document not enumerated in other resources. Based on information made available on the web pages of the Polish Information Processing Centre (OPI) in Warsaw,¹ the system designers identified the following types of grey literature:

1. Scientific, technical, economic, social and other reports developed in national and private institutions.
2. Unpublished conference materials inaccessible via bookstore trade networks.
3. Standards and technical recommendations.
4. Unpublished translations.
5. Papers published in journals issued in a small edition, distributed free of charge, with only local importance.
6. Some official documents.
7. Technical, promotion and advertising documentation.
8. Documents in an electronic form.

The majority of the document types outlined above - i.e. numbers 1, 2, 6, 7, and 8 - are usually named as grey literature and their membership within the literature is typically unquestioned. Other document types - in particular numbers 4 and 5 - are more controversial because their placement on the list is due to the specific needs of the Polish users of the materials.² In Polish professional publications on the subject we can also find some other, even more specific, types of documents which are included in the category of grey literature [Pindlowa, Cisek 1999]. We can, therefore, add the following to our list of grey literature:

9. Grey literature used by small and medium-sized enterprises (MSP), which have a greater importance in Poland in comparison to other countries.
10. Underground (prohibited) literature, published against individuals and regime authorities occupying Polish territory during different periods.³

Drawing on these outlined document types, in the next part of the paper I will focus on four of the specific types of grey literature described above, examining the reasons for their specificity, as well as their place in Polish collections. Each of these document types were chosen because of their different features and usefulness for different groups of users. These characteristics enable these examples to be separated from other types of documents. The chosen document types are: Prohibited (underground) literature, especially originating from the 1939-45 period of German occupation and communist period; Materials useful for small business allowing a faster technology transfer; Unpublished translations into Polish; and finally, Articles published in small journals of local importance, inaccessible outside of a specific town or locale. Every chosen type of grey literature will be described with the use of several predefined criteria. The criteria are as follows:

- | | |
|-----------------------------------|-----------------------------------|
| • The adequacy of the definition; | • Local importance; |
| • Origin; | • Level of 'greyiness'; |
| • Role for users; | • Organization and accessibility. |

Prohibited (underground) literature in the context of Polish history

The Adequacy of the Definition

Prohibited literature does not meet the definition requirements exactly as it has not been produced in by government, business or industry. On the contrary, prohibited literature was usually produced to fight against official governmental bodies in Poland. They were not governmental, but rather anti-governmental publications, and yet in a sense they can be treated as associated with official national institutions. The second part of the definition can be fulfilled without reservations. Prohibited literature was created by political and social organizations, for whom the main aim was to fight for independence, democracy and political changes. Publishing was only a means of achieving these goals. This is why the literature is characterised by a large diversity of political, historical, literary, social and cultural subjects.

Origin

For the purposes of this paper, discussion of prohibited literature will be confined to two periods: the German occupation (1939-1945) and the period of imposed Communist rule (1946-1990). In response to the censorship and political-economic violation common during the German occupation of Polish territory and the later Communist regime, a large number of leaflets, brochures, books and journals were produced and diffused through a system of so-called "second circulation." Publication was limited to a small circle of individuals for reasons of safety and security. An underground Polish state came into being during the German occupation of Polish territory, independent from official German authorities, that undertook secret publishing. Publishing output during the period of occupation is estimated to be about 1500 books and brochures [Kałudzka 2001] and we can divide these publishers into three types: military; political; and civil.

After World War Two was finished, the Polish People's State (PRL) came into power. Described as an independent entity, in reality the PRL was subordinate to the Soviet Union. The resulting, new, antidemocratic orders aroused resistance in Polish inhabitants. To deliver opinions other than those officially approved by the authorities of that time was impossible. After 1946, the Communist Polish state had full control of paper production and distribution, as well as printing and audiovisual equipment [Roliński 2006]. Censorship defined the content and edition of publications and also controlled the final contents of spectacles and films. There were registers of authors prohibited from publication and banned topics of discussion. At the same time, spontaneous publishing activities accompanied every PRL political imposition and were continuously growing. Publishing activities were especially intensive during the events of March 1968. During the second half of the 1970s a rapid growth of independent publications could be observed due mainly to the rise of well organized, illegal, opposition, which led to the later rise of the Solidarity Trade Union.

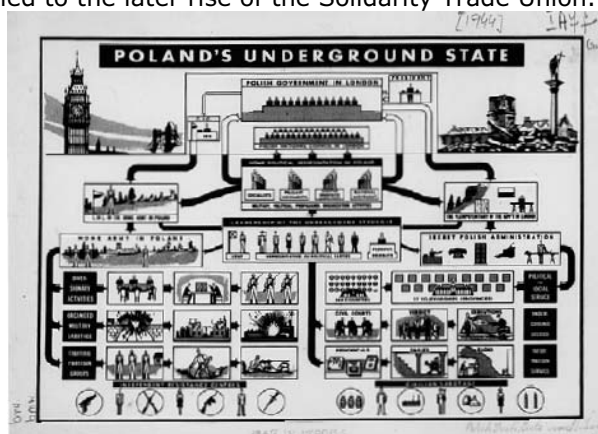


Fig. 1. Leaflet with organizational schema of Polish Underground State [Klamut 2004]

Role for users

Prohibited literature's importance for its users during the period it was published differs from its importance today. During the first period it was useful for actual social and political aims, and it supported progressive changes taking place in periods when it was impossible to make changes to the political system and authorities through democratic methods. In the present these publications hold a more historic value as mementoes of a difficult struggle for independence from alien hegemonies.

Local importance

The materials under discussion here are of bibliophile character. Libraries acquiring such collections are circulating them for scientific and editorial purposes. Because of the rarity of the publications and their deteriorating state (they were produced with the materials to hand, usually of the worst quality) they are stored in specially protected collections.

Level of 'greyness'

There are different forms of prohibited literature. Apart from books, brochures and journals, leaflets, posters, and collections of caricatures were also published. This literature was commonly prepared with the use of a duplicating machine, rather than being printed, and because of this the typography of these documents was completely amateurish. These documents can be rated among grey literature for the reason that neither official nor commercial publishers produced it, consequently they illustrate all the characteristic of grey literature such as difficulty of access and the lack of bibliographic control.

Organization and accessibility

The National Library in Warsaw and the Jagiellonian Library in Krakow hold the biggest collections of prohibited literature. However, neither library possesses a complete set of collections. In the both libraries bibliographies of the publications were prepared. In Warsaw NL a bibliography of underground prints produced during the period 1939-1945 has been developed, and the library also has a central catalogue of the publications. There is also a bibliography of 6500 books unofficially issued during the years 1976 to 1989. The Jagiellonian Library has created a database holding information on "second circulation" publications.⁴ There are quite sizable collections of the literature located in private resources as well.

Small business in a Polish economic context

The Adequacy of the Definition

The small business application of grey literature is closely related to the field of business and often has additional technical applications, so it easily fulfils the first part of the definition. Also, the paper will examine materials published by non-commercial publishers (often individual authors or teams of authors playing the publisher role), for whom it is not a basic type of activity.

Origin

The source of grey literature for small and medium-size enterprises⁵ (MSP) are typically governmental, scientific and industrial institutions as outlined in the definition described earlier in the paper. These institutions develop different types of documents. Some of the most common types of grey literature are research reports, conference materials, doctoral and master's theses, sale and trade catalogues, expert's reports and translations. So many different types of unpublished documents are useful for MSP and all of them are important from their main activity point of view.

Role for users

Grey literature plays a very important role for MSP. MSP entrepreneurs are mainly looking for the following:

- Information about companies, institutions, and organizations. They are looking for information as basic as addresses, level of employment, the names of the board of directors, the organization's economic profile, as well as more complex information such as a comparison of the company's financial results with one or a number of different business lines;
- Information about markets. Data on changes in domestic and foreign markets, a competitor's promotions and marketing strategy, existing and new products, any potential clients, and any possible development directions;
- Information about finances, i.e. about money and financial instruments;
- Information about products and services, such as patents and trade marks protection, and assistance for monitoring new technical solutions;
- General information about the economy, any political changes which might have an influence on the economy, macroeconomic indicators like the inflation indicator, economic growth indicator, taxes and so on [Cisek 2002].

MSP take many different forms and need a variety of types of advice and mediation. They are largely concerned with information activity and are looking for assistance in the following areas:

- Information on domestic and foreign contracting parties;
- Methods and means of surviving market competition;
- Practical advice.

Most often MSPs make use of textbooks, educational literature, journals and catalogues of different types which offer advice and are useful in solving actual business problems. Business literature which delivers technical information, such as sale and trade catalogues, brochures, and advertising leaflets are also useful. For instance, sale and trade catalogues are utilized by about 90% of companies. In addition, master's and doctoral theses can offer research material for further investigations, especially if the theses include descriptions of a method or sources that are unknown and difficult to access.

Local importance

As mentioned earlier, MSPs fulfil a special role in Poland due a lack of large private enterprises. After more than half a century of a socialist economy, large post-national companies found it hard to cope with a free market economy (see Fig. 2). It is therefore necessary to reconstruct this lost group of enterprises and to ensure the possibility of a rapid growth in their participation level in national economy. Because of the small size of these MSP, firms cannot afford to access expensive traditional publications. Grey literature could be an affordable way for them to access and implement information about new technologies.

One of the main factors enabling MSPs fast development is technical, economic and business information, which contain problem-solving ideas connected with production and enterprise issues in the economy [Strojek 2000]. For several years, we can observe a very fast development of information services and products on the subject, as well as the growth of the potential information users. The main users are MSP, as information obtained at an appropriate place and time is often crucial for their potential development and even survival. The main problem, however, is that there is not sufficient MSP discernment in the local (and foreign) information market.

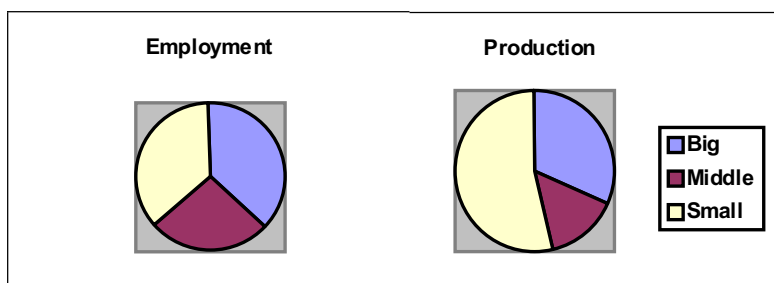


Fig. 2. Importance of MSP: % of employment and production for different enterprises.

Level of 'greyness'

MSP uses different types of materials rated among a grey literature, as well as among more traditional publications. The extent to which a document fulfils user needs is, therefore, far more important than a consideration of literature by type alone. Below is a table containing material types used by MSP, together with an indication whether it is grey literature or not.

Materials used during MSP activities	Grey literature Y/N
Research and conferences reports	Y
Doctor and master thesis	Y
Patents and standards	N
Expert evaluations	Y
Translations	Y
Yearly reports of joint-stock companies	Y
Textbooks, handbooks	N
Journals	N
Sale and trade catalogues	Y
Prospectus	Y
Advertising leaflets	Y
Companies address books	Y

Fig. 3. Grey literature for MSP

Organization and accessibility

Demand for grey literature is very large and constantly growing. Entrepreneurs find them a valuable source which helps them to improve their firm's activities and sometimes to survive in a competitive market. This is why it would be useful to develop an information system in Poland about the information delivered to MSP by grey literature. Such a system was planned to be developed by OPI (referred to earlier as POLSIGLE). One of the main aims of the system was to support MSP but unfortunately the project was not fully executed.

Unpublished translations in a Polish context

The Adequacy of the Definition

Here we will look at translations of foreign publications into Polish, but we will narrow the scope of the paper's examination to the areas of technology, economics, organization and the problems encountered by ministers and their dependent organizational units in relation to information activities. It is not about the translations of books or journal papers, standards nor patents. The materials fulfil the requirements of the grey literature definition because they are translations prepared for scientific, technical or business aims. They are also unpublished because the institutions who prepare these translations do not plan to distribute them outside of their organisations.

Origin

Translations are prepared by units of central administration, scientific institutions, foundations and other organizations supporting enterprise development. They are usually prepared by experienced translators who are knowledgeable about foreign languages. In practice scientific workers who have the appropriate language qualifications undertake the task on an individual order basis. Translations are prepared more and more seldom in libraries and information centres because of existence of a large commercial market for such a services, particularly online.

Role for users

Translations in science have decreasing importance because of the common use of English in publications. At the same time, translations have become more important for business, where there is a need to use foreign language documents outlining new technologies, equipment, methods and applications imported from abroad. Translations from Asian languages are especially important. Lack of access to translations may be a significant information barrier for MSP because it then prevents access to the materials themselves.

Local importance

Translations are useful means of breaking information barriers. Currently there are at least thirteen major languages in use by two thirds of the human population. The rest of the world's population use about three thousand different languages including Polish [Chmielewska-Gorczyca, Sosińska-Kalata 1991]. Translations from foreign languages in Poland are important because all documentation and materials accompanying imported technology and equipment has to be translated into Polish by the producer, importer or user. This is why translations are directly connected with economic development.

Level of 'greyness'

Unpublished translations can be considered typical grey literature publications and they usually are described in such a way in specialist publications.

Organization and accessibility

To the end of 1980s information about Polish unpublished translations was sent to Centre for Scientific Technical and Economic Information (CINTE) in Warsaw, where a special card index was developed. In the past, CINTE has distributed information about translations but unfortunately the Centre was suppressed. Currently there is no information system in existence. The Main Technical Organization (NOT) maintains a list of authorized translators of technical texts. Translations are produced also by specialized firms and they are then the property of the ordering institution. Translations made by human translators prolong the information circulation cycle as it is an especially time-consuming and arduous process. Changes are expected in the field thanks to automatic translation application.

Small local journals

The Adequacy of the definition

Local journals are low-edition periodicals usually encompassing a parish, housing estate, school, commune, or town district, and addressing a specific, mainly local, social group. They are published by very different bodies including schoolboys, churches and religion associations, social societies, local inhabitants, political parties, industrial plants and other institutions, and persons of different kinds of minorities. In such a differentiated group of publishers we can also find the institutions mentioned by definition of grey literature, like government (local) or business. In practice, the publisher is always non-commercial, a large percentage of the initiatives are not financially self-sufficient (they survive by donations), the others maintain their activities through income gained by advertisements. In a group of local journal publishers 26% of them are independent magazines published by private persons or companies, 36% are local government journals, 22% are parish publications, 10% are produced by societies and foundations, 2% by political periodicals, and 4% are industrial publications (see Fig. 4). The estimated overall amount of local journals in Poland is 2500 titles. Local weeklies amount to around eighty six titles with a total edition of about 530,000 issues. These local weeklies produced outside the eighteen biggest Polish towns have established contacts and cooperation through an advertising agreement entitled Local Weekly. The magazines are independent of local authorities thanks to the payments of their subscribers.

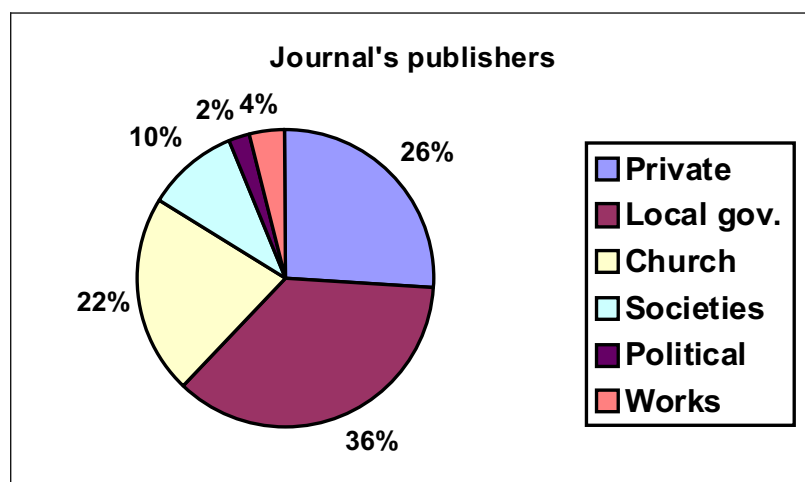


Fig. 4. Local journals publishers

The subject matter of the journals is as different as its publishers. Generally they consist of information interesting to local communities and in particular the community they are made for.

Origin

Local journals appeared in Poland as early as nineteenth century. They were also published in the interwar period and many of them were developed in 1930s. Their most rapid period of development came after 1997 when freedom of speech was restored and also public institutions and authorities of all levels were obliged to present full information about their activities to citizens. The journals were created in participation with the inhabitants of the region, with the most active groups usually being employees of offices, clubs, libraries and so on.. They are developed in places where appropriate intellectual environments exist, which can include small towns and other place but is often near great towns where it is possible to find polygraph services. As a result, the largest number of local journals exists in the most developed regions, areas with a strong industry, knowledge institutions or administration centres (e.g. Warsaw, Krakow, Poznan, and the Silesian Region).

Role for users

There is a social demand for local journals. In small towns there are more users of local journals than all-Polish or regional titles. They satisfy the information needs of local users and offer a view of events from a local perspective, the places where the readers spend most of their lives. They enrich local cultural, and the social, political and professional conditions of an inhabitant's life. They also promote the consolidation

of interpersonal ties, helping to develop local people's feelings of worth, as well as assisting with development of so-called small homelands and local patriotism.

Local importance

Local journals play an important role in the local environment. They are often the main source of knowledge about local problems and are an important consultative factor. The market of these publications looks stable with a consistent level of growth. Their basic tasks are:

- Support of versatile, actual and local information;
- Supervising local authorities;
- Promotion of local initiatives;
- Expressing local social opinions;
- Contributing to the integration of local environment;
- Helping to form local opinion;
- The support of local culture and scholarly activities;
- The promotion of small homelands and economic education;
- Providing a forum for advertisements and announcements;
- Entertainment.

Level of 'greyness'

Generally journals are not rated among grey literature. However, local journals have yet to make up a specific group because of the non-commercial nature of their publishers and the limited range of their influence. Both of these features are typical of grey literature. We can decide which local journals successfully meet the grey literature definition by dividing them by their type of publisher (and profile):

Publisher /profile of local journal	Grey literature Y/N
Council journals	Y
School journals (e.g. in high schools)	Y
Religious and church journals	N
Private journals	N
Society (both learned and social organizations journals)	Y?
Political parties journals	N
Industrial plant journals	Y
Economic organizations journals	Y
Minorities journals	N

Fig. 5. Local journals as grey literature

As mentioned earlier, in terms of their contents local journals present a very diverse range of publications including publications in the scientific, technical and social domains.

Organization and accessibility

These kind of publications are quite often acquired and circulated for free by local public libraries. Based on the journals the libraries are documenting contemporary history and development on the lowest level of the administrative division. Thanks to the promotion of local journals carried out by public libraries, the readership of these journals continues to grow. The growth of readership is an important factor in the increasing influence these journals have on local society.

Conclusion

The paper describes four kinds of publications, rated among grey literature, which are especially important for Polish users and rarely created and used in other countries. I do not mean to suggest that these kinds of publications do not exist elsewhere, we can find them in other countries, particularly those with similar history and level of development to Poland. However, the Polish users access to, and use of, these forms of grey literature is of particular importance. The reasons for which users make use of the different forms of grey literature discussed in this paper vary with type. Prohibited literature is important because of its historical significance and importance as archival and bibliophile materials. They testify about the past times of Poland and are numbered amongst grey literature because of how difficult they are to access, and their lack of full information and professional publishers. In contrast, the literature for small businesses is important because of the current needs of the Polish economy in which MSP play an essential role. Unpublished translations are important in Poland where a non-congress language is in use and, like literature for small businesses, they

are important to the economy. Lastly, local journals ensure the continuing development of local societies and democracy on a low administrative level. These journals are rated amongst grey literature for similar reasons to that of prohibited literature, because of their limited access and circulation.

Most of the publication types mentioned here are not completely grey: prohibited literature also consists of reprints from books and journals, which in a normal situation would not be accounted into grey literature; small businesses use different and more traditional types of publications such as standards and patents; and in the case of local journals, journals as a publication type are not usually counted as grey literature. In terms of the publication types discussed by this paper, unpublished translations are the most 'grey' form of literature.

In spite of the important roles these publication types play outlined by this paper, there is no operating information system for any of them in Poland. Earlier existing systems stopped their activity (translations), while other planned systems were not realized (local journals). Some information resources exist for prohibited literature and for MSP literature, yet these resources are dispersed. I, therefore, wish to end my paper by articulating the need for a uniform information system about all types (described here and elsewhere) of grey literature development. In the domestic arena this problem is currently ignored and we cannot count on international information systems to solve the problem for us because crucially those systems are not constructed to satisfy specific local information needs.

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¹ See <http://www.opi.org.pl> for more information. The Polish Information Processing Centre (OPI) was designated as the cooperating centre for the international SIGLE system in a scope of All-Country Polish Information System on Grey Literature (POLSIGLE) design and development.

² Also, the Standards mentioned as the third document type above are often not numbered among grey literature because of their specific features, for example very good organized bibliographic control, which conflict with one of the defined features of grey literature. Also, Standards cannot be treated as specifically polish because the standardisation system in Poland is a part of a global system.

³ This paper will focus specifically on the period 1939 to 1990.

⁴ See <http://www.bj.uj.edu.pl/~plok/portal/php/o_obiegu.php> for more information.

⁵ In the Polish context a MSP is a company which 1) Employs up to 250 persons (up to 50 is small, between 50 and 250 is medium size) 2) Whose net yearly income from sale of goods, products and services is below 40 million Euros.



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Virtual Reality and Establishing a Presence in Second Life: New Forms of Grey Literature? *

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Abstract

The virtual reality program Second Life poses new challenges to its more than 3 million users that include economic interactions, methods of communication, and documentation. This paper assesses the range of activities taking place in Second Life, proposes how Second Life may be viewed as a form of emergent grey literature, discusses the tools used to discover, document, and preserve it.

Just five years ago, we would not have such a presentation as I am to share with you today. Virtual Reality, much less, Second Life was just in the embryonic stages of development, making today, just beyond toddler years. The early stages we have seen pioneered have brought to the forefront some new roles that have now become mainstream in education and learning and that is what the focus is today. Virtual reality is defined as a technology which allows a user to interact with a computer-simulated environment, be it a real or imagined one, and can be similar to the real world or differ significantly from reality. Common methods of engaging in virtual reality is via computer games and the technical limitations of creating certain kinds of environments is shrinking daily as faster and more advanced computer processors, improved imaging and data communication technologies become more ubiquitous and affordable in each new release.

Early experiences in virtual reality have been captured and developed in several now classical books, including those by Howard Rheingold (*Virtual Reality*, 1991; *Virtual Community*, 1993) who demystified the subject and made it part of the average college student's lexicon. Many different applications of computer graphics depicted over the last decade led to advancements in audio and sound amplification and thus a higher quality simulation was possible. As entertainment and education entered the world of virtual reality in a profound way, the futurist Mychilo Stephenson Cline (2004) offers how cognitive and behavior scientists were exploring how virtual reality leads to a number of important changes in human life and activity by being more integrated into daily life with patterns and techniques to influence human behavior, interpersonal communication and cognition.

Science fiction, film, music videos, computer games, art, marketing and promotions each are representative examples how experiments in 3D opened up new creative opportunities. By 2003, when Philip Rosedale started Linden Research, now known as Linden Labs to launch Second Life (<http://secondlife.com/>) virtual worlds were well on the generation of youth's radar and it was the new environment in which people could interact, play, engage in business, study and learn, and otherwise do business, and it was this concept "that Second Life would be like reality, but kinder and gentler" (Maney, 2007). By populating it with residents, genuine people who have names and powers and known as avatars, a new civilization was born that could be of either sex, customized to produce a wide variety of humanoid and other forms in a variety of costumes to resemble both real and imaginary life (Second Life avatars and their real life, 2007).

Second Life has its own method of commerce trading in Linden dollars and the environment is divided into islands forming different real estate parcels that can be bought and sold, resembling the rise and tumble of real life real estate transactions in this volatile age of disputes over land use. Residents must develop skills to build virtual objects or anything that they want on or to furnish their parcel and a 3D modeling tool helps do that, or now in a more mature virtual world, one can buy services and products already produced but the resident avatars are responsible for creating their environments.

Commitment to SL in Business

Brick and mortar businesses have been quick to take advantage of Second Life as a virtual environment to conduct both their internal and external business. Companies such as IBM and Reuters are using this virtual world to conduct recruiting for a variety of positions (Corporations use Second Life as recruitment tool, 2007). Some in human resources even believe that virtual worlds like Second Life can't be beat as a non-

* First published in the GL9 Conference Proceedings, February 2008

discriminatory method of interacting with potential employees and clients (Krell, 2007). In addition, companies are using Second Life as a tool to conduct meetings among geographically dispersed workers. American Apparel was one of the first companies to set up shop in Second Life and begin selling its virtual merchandise. Other companies are now offering products and services for sale from clothes to law advice. For profit businesses aren't the only ones getting involved. Charitable organizations such as the American Cancer Society are also actively involved. The American Cancer Society hopes to raise \$75,000 in 2007 (Murray, 2007). In fact magazines and journals devoted to those in the non-profit world are now offering advice on how to make the most of this new frontier underlining that it is not one that should be ignored (Rigby, 2007).

That being said, much work needs to be done in studying how people and organizations are behaving in Second Life. Are they following the same social norms as they do in the real world? Is there anarchy or is everyone living together peacefully? Is anyone watching out for people or is everyone on their own? There are some articles beginning to appear that discuss how behavior in the virtual world should or should not be similar to the real world. These issues and more are being explored. Linden Labs has created a document called its Community Standards that outlines six behaviors that will not be permitted within Second Life: intolerance, harassment, assault, disclosure, indecency and disturbing the peace. How can businesses or people conducting their own business make sure they are following such standards? One example of a corporation doing what they can is IBM who has issued etiquette guidelines for its employees to use when in Second Life (McConnon, 2007). However residents have to be responsible for their own actions and safety to some extent just as they do in the real world. Harm could come in the form of any of the behaviors Linden Labs outlaws. Most noticeable so far has been fraud. An article in the Illinois Business Law Journal describes how one of the banks within second life is most likely a Ponzi scheme which pays off original investors with money contributed by new investors. In such schemes the new investors don't end up getting paid. How can people or should we say, avatars, protect themselves? There is a mechanism in Second Life that allows residents to report abuse and abusers can actually be banished from this virtual world but it is unclear if they could be punished legally in the real world. Legal disputes are starting to show up pertaining to Second Life but taking place in real courts including cases involving land disputes and copyright infringements. For example, people are creating objects that could infringe on trademark law by using famous logos on virtual versions of their favorite stuff (Ward, 2007). Lawyers are preparing for a possible increase in this trend. An article recently appeared in the Brooklyn Law Review discussing the legal implications of participating in Second Life (Chin, 2007) showing that they think this phenomenon is not going away. Britain's Fraud Advisory Panel has gone so far as to advise the government to put real-life financial regulations into place saying Second Life is "a parallel universe with almost no external rule of law, no enforced banking regulations or compliance, no policing and no governmental oversight" (Leapman, 2007).

Geography is important in Second Life. Address, adjacencies and location play vital roles as navigation is achieved by different methods, for an avatar can walk, run, and fly to different points. These methods of transportation help define the organizational life and become one of the ways that business and industry, government, public policy and educational life have each flourished in Second Life. Today, many different forms of learning and teaching take place in Second Life and non-profit organizations have a strong presence. The full range of education can be tracked ranging from juvenile or Second Life for Kids where permissions are required for residents under age 16, and among the more active educators appears to be librarians. There is an InfoIsland region where many libraries have invested and established themselves, and still many others have a presence elsewhere. The directories that try and monitor the range of institutional property holders are never accurate and the best way to find this information is to search within Second Life.

Grey literature, also known as fugitive, hidden, invisible content, in the deep web or hard to identify, find, acquire and access, has some parallels in learning how to determine what is actually transpiring in these examples of virtual worlds. As they proliferate and more organizations and individuals are identifying a presence there, it becomes increasingly curious and of interest to assess the level of activity and by whom, when and where in environments such as Second Life. Some analogies of other new forms of electronic communication and new media that require and now offer indexing and finding tools are blogs, wikis, podcasts, among others, forming new frameworks for reference resources. The Web 2.0 tools allow one to better organize and describe elements at a more finite or macro level and permute, expand and

cascade relationships of terminology and vocabulary. Metadata, once the domain of indexing and the assignment of descriptors have expanded into user or reader initiated social tagging and tag clouding to personalize content an individual has found, wants to save, recall, and potentially repurpose or reuse. Bibliographic management software packages were an attempt to organize traditional literature by creating databases of citations and entries from multiple sources that could be saved, recalled and cited in various ways in future writing needs. With bookmarking, music tracks or compositions and image finding tools such as del.icio.us, Last.fm or Flickr tagging has come to be associated with pieces of relevant information that is just one component of a bigger enterprise, such as a photograph, map location, blog entry or video clip with customized keyword-based classification methods. These resources are more personal, using the terminology the user adopts to describe content rather than a dictionary that may be foreign or less familiar and thus intimidating, and contribute to the new suite of folksonomies and user-based tagging that is increasingly common.

Applying this form of categorization to Second Life to determine if something there may be of interest has great potential and utility. If classes, webinars, tours, business transactions, and information sharing take place in Second Life, how does one find them?

We cannot know whether Second Life, or any virtual reality for that matter, is gray literature and not ephemera, because as technology develops and our expectations of document longevity and legitimacy shift, the differences between them become ever murkier. Virtual reality is a wonderful expression of postmodernism, even though we know that postmodernism cannot exist outside of historical context – a conundrum. Virtual reality in Second Life, as elsewhere, then, is a kind of folded mirror in a funhouse. The meaning of Second Life as both a virtual reality and a grey literature relies on its replication, modeling or collapsing of the original experience into recognizable symbols and signs over time. What signs, symbols, and documents can represent something that so closely resembles our lives, our thoughts and impressions in such a venue without being the thing itself?

So, to answer that question within the context of Second Life, like archaeologists we dig up conventional and unconventional markers that constitute its existence as a form of literature. As a consequence of its literary infancy, we find ourselves having to locate Second Life's authenticity in older forms – we relied on books to explain the World Wide Web, now we rely on the Web to explain and validate Second Life and its activities. Looking at our "dig," we can infer why Second Life is in this liminal state. Grey literature, or any medium for that matter, requires at least four interlocking and overlapping components: a community of individuals; a sustained period of learning that generates outside referents; a certain amount of time for that medium to exist; and a "presence" that has both longevity and persistence.

Outside of Second Life, grey literature is created and maintained by community members who are early adopters, people who live and perform multiple literacies and who are living in a liminal state. These early adopters provide the impetus for sustained growth and help others to create negotiated meanings. They are the ones who straddle both worlds by leaving behind material evidence of the newer form in other media and who use organizational schema to describe it. Not surprisingly, we find librarians and educators, adapting and sustaining the medium.

There can't be just a few people though, the community must grow to some critical mass that generates materials and tools to make functioning in that new environment more accessible and entertaining to develop social networks that have meaning. So, Linden Labs offers with easily customizable avatars that take on characteristics and abilities that are more interesting than that of our first lives. We can fly. We can teleport. We can make objects that interact. We can destroy. We can express many stories and live narratives by being several selves, with our multiple avatars represented not just by text, but by radically different appearances and abilities.

Most significantly for a community, however, we can interact with others. More (or less) importantly to history, we can bring those experiences back into other venues such as books, blogs, and other social networks to name a few. In the midst of this ready-made production, community members with greater skills that allow them to build objects and experiences scaffold and enrich the Second Life experience for newer initiates who, in turn, continue to reshape the community. This liminality is the birth of desire, and of replication.

This desire to replicate comes at a high cost, though. It takes a long time to acclimate to the use of Second Life, and it requires sustained learning to contribute to a social network of this kind. It is very similar to drawing easels and typewriters, with no quickly discernable utility, but with a lot of creative potential. There are things to learn

about the environment; such as building objects and communicating through notecards, text, gesture, and sound; such as the mutable identities that can be assumed. That information has been necessarily replicated and changed outside of the new context. Linden Labs knew this when it wrote a book and created its blog, and others quickly enforced that replication by following suit with websites, YouTube productions and Machinima (aka virtual filming). The detritus of this learning has longevity and contributes to what we think of as grey literature.

The popularity and the effort put into creation must be sustained over time to develop meanings. Second Life has been in existence since 2003, but has this been long enough for it to be literature of any kind? It has and it has not if we begin to consider recent forms and mediums. At this juncture, most of us can barely remember the existence of a life without the World Wide Web, established a decade before Second Life. But, how many of us remember with great clarity the browsers of old, like Mosaic or Opera? If we are to believe that technology progresses in a geometric fashion, and that Second Life is sufficiently robust to continue to dominate this platform, then it will survive in some form to translate into other forms of virtual reality. So, Second Life has a limited amount of market dominance time to create persistent presence.

Presence is embodied within Second Life in conventional and unconventional manners. Signs are posted on land; "notecards" are obtained from objects – both conventional texts. Unconventionally, however, the experience of a tour, the layout of land, and the description of the self, are also presences. Even events could be considered a presence. The documentation of all of these rests both within the object and outside of it. How such objects and experiences are found create the "greyiness" of literature and it shares attributes with ephemera. However, we can see that activity and commitment within Second Life, and other virtual realities, is robust based on the economic investments that are being made.

Second Life's search features are currently limited in scope. Only certain kinds of data are currently indexed and searchable within Second Life, and the user-supplied metadata that informs these searches is often incomplete and unreliable.

In the current version of Second Life Search, a user can search for places, events, people, and classified ads. Objects are not currently searchable within Second Life; however, to compensate for this, some third party companies such as Electric Sheep (<http://www.electricsheepcompany.com/>) index objects, but only for-sale objects on "public" land parcels.

Searching in Second Life is soon to see some major changes and improvements. Linden Labs announced on October 19, 2007 (blog.secondlife.com/2007/10/19/new-search-currently-under-development/) that a new in-world search mechanism is being developed and may be available in late 2007. Linden Labs has built a system that extracts Second Life data to HTML Web pages and uploads these Web pages to a Web server, where they will be indexed using Google Search Appliances, an off-the-shelf product which Google makes available for purchase. This relationship remains curious, as Second Life Linden Labs is not in a working partnership with Google. The new search mechanism promises to include land parcels, resident profiles, groups, Second Life wiki articles, events, and some objects present on "public" parcels. This will be the first time objects will be searchable within Second Life's search function. Users will have the ability to specify whether certain avatar profile information and objects will be searchable. Because of the search functionality that comes with using a Google product, more advanced search queries will be possible, based on Google search operators. In addition to in-world searching, anyone with a Web browser will also be able to conduct the same searches on the Second Life Web site, and search results may also be indexed by external search engines such as Google and Yahoo.

Places in Second Life are currently keyword searchable by two indexed user-supplied metadata fields: Name and Description. However, places are only searchable if the land owner selects "show in search," which costs 30 Linden dollars per week (approximately \$0.10). Therefore, places in Second Life are by default not searchable; land owners must opt in to Place Search by paying a fee. Parcels in which the land owner has opted to pay for search are referred to as "public" parcels. The land owner must supply a parcel name, but a free text description (up to 120 characters) is optional. Land owners could certainly increase their land's findability by enriching the data in the Description field, but some users leave this area blank. The new search will not significantly change Place Search.

User profiles are currently only searchable by avatar name. In the new Second Life search, additional descriptive information in user profiles will also be keyword searchable, but only if users opt in to allow their profile information to be included. For users who opt in and also provide detailed profile information, this potentially creates

increased social networking opportunities, where users may be able to find each other based on common interests and activities.

Second Life "objects" are currently not searchable by the Second Life search function. The new search mechanism will include some objects, but not all. Objects that are listed as "for sale" and that reside on "public" (paid to be searchable) parcels will be searchable by default. Residents will be able to change the settings for both for-sale and not-for-sale objects so that they will show or not show in search, but objects will only show in search if the land itself is also set to show in search (by paying to be listed). Objects are even more problematic than land parcels in terms of user-supplied metadata. Similar to land parcels, two fields are available to describe objects: Name and Description. By default, the name of an object is "Object" and the description is blank. Many users do not bother to change the default text or supply additional descriptive metadata for the objects they create. When the new search is launched and a large number of objects simply named "Object" are displayed in search results, perhaps some users will pay more attention to the data in these fields to increase relevant search results.

Notecards are a major category of content contained in Second Life and are not now searchable, nor will this functionality be included in the new Second Life search. Notecards themselves have Name and Description metadata fields, for which, similar to objects, many users do not fill in or change the default text. Besides these fields, notecards are a rich source of textual information in the body of the notecard itself. Some libraries having a presence in Second Life have created "books" in Second Life, in which the text of the book is made up by notecards. Many Second Life sites offer informational notecards of various sorts, but this content is not full text searchable in any way.

In addition to problems of searching within Second Life, Second Life content is not truly preservable or accessible outside of Second Life. Avatars, objects, notecards, and landscapes cannot be exported out of Second Life in their native form (though Linden Labs is interested in the concept of "universal avatars" that could be used in other Web and gaming applications - <http://www.virtualworldsnews.com/2007/10/ibm-and-linde-1.html>). If an event takes place in Second Life, several means could be employed to attempt to record it: taking screenshots and posting them on sites such as Flickr; recording the audio content, if any, and offering it online as a sound file; using video recording software to create a digital video or "Machinima" of the event, and posting the video content on sites such as YouTube; and saving the text of a chat transcript and pasting it to a document file, Web page, or blog post. In some ways, this attempt to make Second Life experiences available outside of Second Life may be more retrievable outside Second Life than within it, due in part to user tagging/folksonomies available on Web 2.0 sites and due to the superiority of most Internet search engines to Second Life's built in search capabilities. However, these attempts to replicate Second Life experience outside of Second Life are scattered on the Web and users' personal computers and cannot fully reconstitute the Second Life experience.

The problems associated with searching within and preserving Second Life content may be partially explained by a model that is geared towards commerce rather than information seeking and organization. The assumption implicit in Second Life's built in search function, whether the current search or the soon-to-be-unveiled new and improved search, seems to be that the primary things for which users are searching are things to buy and sell. However, there are a great many Second Life users creating content in Second Life that has an educational focus and exists for reasons other than being bought and sold. This informational content is lost in the current model.

Despite the pending improvements in Second Life search, several key issues ensure that Second Life content will remain in the realm of grey literature:

- User-supplied metadata is incomplete and of inconsistent quality, which decreases searchability ("garbage in, garbage out").
- Relative to the content available in Second Life, very few types of information are searchable; most notable may be the lack of full text searching on notecard content.
- Much Second Life content, including land parcels and objects, is not searchable by default; residents must pay a fee, however nominal, for this privilege.
- Second Life content and experiences cannot truly exist out of Second Life; attempts to replicate parts of it are scattered throughout the Internet.

Conclusion

We are uncertain that Second Life creates or is a grey literature, but we know that it shares attributes with the standard definition of grey literature (Luxemburg). The markers of a new form: communities, education, longevity, presence, exist, but not necessarily to the extent that we would expect.

Second Life's documentation and bibliographic control continues to shift and is somewhat hampered by its early commercial origins. Because it is explicitly, but not entirely, a commercial venture it has potential. Commercial ventures evaporate without the support of noncommercial motivation. The things that most clearly delineate our understanding of Second Life are comparatively more "bibliographically" controlled than the thing itself. Monopolistic search engines like Google may overwhelm or ensure its existence. Its popularity and diffusion rate remains in flux.

Second Life's incorporation into real life economics and the growth of a purely virtual marketplace ensures that some mark will be made, but not necessarily anything outside the purchase of a few McMansions. We remain uncertain of its validity as a form of literature and unclear that its documentation or preservation is the responsibility of any particular entities, however it will retain a sense of space.

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An International Journal on Grey Literature

‘MAKING GREY MORE VISIBLE’

AUTUMN 2008 – TGJ VOLUME 4, NUMBER 3

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