

# **Open Data Foundation Meeting Report** St. Helena, California, September 13 – 15, 2007

September 19, 2007

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# Introduction

This is a quick write-up describing the meeting held on September 13-15, 2007 at Director Bob Glushko's St. Helena Conference Center. The intent of the meeting was to discuss current work and brain-storm ideas for future projects, rather than to formally conduct the business of the organization. There will be a formal business meeting in December in Washington DC - information regarding that meeting will be sent out shortly. These minutes do not capture all of the discussions which took place, but attempt to describe the course of the meeting and to list ideas and action items for follow-up.

Due to limited space, only Directors, Advisors, and Managers were invited to the meeting, along with a few presenters from outside the organization. All meeting participants will be invited to join as ODaF members if they currently have no formal relationship with the organization.

ODaF wishes to express its thanks to Director Bob Glushko, who - in addition to giving us his insight as a director - made the meeting possible by giving us the use of his conference center, providing food and drink, and in all ways acting as a gracious host. Everyone was suitably impressed with the facilities and surroundings, which provided an excellent working atmosphere.

Attendees included:

Bob Glushko, Center for Document Engineering at Berkley/OASIS BoD, **Director and Host** Julia Lane, NORC, Director Arofan Gregory, Manager Pascal Heus, Manager Wendy Thomas, Minnesota Population Center, Advisor Dan Gillman, Bureau of Labor Statistics, Advisor Eduardo Gutentag, OASIS BoD, Advisor Louise Corti. UK Data Archive Herve Lhours. UK Data Archive Rene van Horik, DANS Kris Klykens, DANS Sara Wood, Swivel Huned Bottee, Swivel Charlton Barreto, Adobe (sitting in for Duane Nickull, Advisor) Denise Warzel, National Cancer Institute (called in) Chuck Humphrey, University of Alberta RDC (called in)



The agenda covered three days:

- Thursday Sept 13, noon 5 PM: Background and presentation of current ODaF activities
- Friday, September 14, 9:30 7:00 PM: Invited demonstrations/presentations by Swivel, Adobe, Canadian RDC Network, NCI's caBIG, UKDA, and DANS.
- Saturday Sept 15, 9:30 11:30AM: Wrap-up and discussion of action items.

We will be collecting all slide presentations from the meeting and posting them on the ODaF site.

# **Description of Proceedings**

# I. Thursday

#### A. Introduction of Participants and Meeting Overview

The themes for the meeting were presented:

(1) Focus on expanding the ODaF scope to include communities in the hard sciences (such as Cancer Research) as well as the qualitative side of social sciences research and humanities (UKDA QuDEx and MIXED).

(2) Introducing some of the technology players (OASIS, Swivel, Adobe) to other ODaF participants, and trying to forge a productive relationships with them.

(3) Looking at potential projects for establishing higher-level infrastructure around standards, with an eye towards registry-based implementation projects.

Some background was provided on the history of the organization, including a description of the current set of directors, managers, and advisors, and its project-oriented organization.

#### B. ODaF White Papers

The state of these activities was reviewed, including the existing DDI-SDMX white paper on the site, as well as plans for some others, including standards



mappings/positioning, and establishing a global infrastructure for sharing data and metadata.

## C. DDI Foundation Tools Program

The DDI Tools Program aims at the coordinated development of a foundation framework and utility toolkit to serve as a basis for tools development which will assist organizations in their implementation of the DDI standard.

The state of this project was reported: the Memorandum of Understanding (MOU) has been circulated and signed by initial members of the Program (Canada RDC, Danish DA, DDI Alliance, GESIS-ZUMA, NORC, ODaF, UKDA) and the project is in its initiation stage. The MOU is for a 2-year period and outlines the general objectives of the program, the development strategy, and a high-level outline of project deliverables.

This project is currently under-resourced; the initial phase will produce a detailed plan to explain what resources will be required to execute on each of the suggested deliverables, and to allow for coherent prioritization. The available resources will cover the planning and core deliverables such as a web site for the initiative, general guidelines for tools developers, a project repository and core java classes for manage DDI objects. The tools developed under the UKDA DExT project (see below) will be made available under the DDI Tools Program. Further development will be scheduled based on the availability of additional resources, but this will be a matter for the committee which governs that initiative per the MOU to decide.

#### **D. DExT Quantitative Developments**

Supported by the UKDA Data Exchange Tools (DExT) initiative, this project aims at the development of open-source utilities for the conversion of quantitative data into a standard archival format and for export to common statistical packages or database systems. This initial phase is a proof of concept that will focus on using SPSS as an input format and support export to SPSS, STATA, SAS and ASCII.

The current project is a prototype. While the deliverables are not required to be production-level tools, most components will be fully operational and reusable by others (in particular the SPSS reader). They will be made available in the ODaF repository and under the DDI Foundation Tools Program. This product is expected to be available by the end of the year.



#### E. DeXtris Development

The DeXtris utility was shown to participants, and current status described. It supports the pre-Candidate Release version of DDI 3.0, as well as 1/2.\* versions of DDI. No immediate work on this tool is anticipated, until the DDI 3.0 Candidate Release is finalized, but an update at that time is foreseen.

#### F. SDMX Browser Project

The SDMX-ML browser is an Eclipse RCP application to compile/browse/view a local SDMX repository, and manipulate, validate or upgrade SDMX-ML 2.0 documents. It builds on technologies like Oracle Berkeley DB-XML, Apache XML Beans and Adobe Flex. It will be released later this year under the ODaF web site.

The status of this project was reported: we expect to have the basic browser in beta by mid-October, and will be working to integrate the OECD and ECB Flex displays into the interface (as Eclipse plug-ins). The idea now is to find some people outside of ODaF to do some testing on the beta, and to incorporate any input generated into the tool.

#### **G.** Infrastructure

The current state of the organization's ICT infrastructure was described, including the recent addition of 2 dedicated servers and the deployment of a G-Forge based repository for hosting open source projects.

#### H. NORC Data Enclave Project

The Data Enclave Project is a state-of-the-art, high-security virtual data enclave established by NORC to provide access to sensitive survey data from US agencies.

ODaF's role is to provide technical assistance to NORC in the area of data/metadata management and ICT. The system just went live with a first group of selected researchers working on data from the US Department of Agriculture (USDA) ARMS surveys. Additional datasets from the National Institute of Technology Advanced Technology Program (NIST/ATP) and the Kauffman



Foundation are expected to become available in the near future (see http://dataenclave.norc.org)

#### I. Conferences

The conferences at which ODaF staff presented in the past year or plans to attend in the near future were discussed. These included the RDC Meeting in London, Ontario in March; IASSIST 2007 in Montreal in May; and the Open Forum on Metadata Registries held in New York in July. Future presentations may include the Digital Curation Conference to be held in DC in December; XML 2007 to be held in Boston in December (pending approval of our submitted talk); and a presentation at ISI 2009 in Durban (Wendy Thomas is one of the program organizers). Other ideas for presentations at various conferences are discussed below, under the relevant headings.

#### J. International Household Survey Network (IHSN)

An overview and update on recent activities of the IHSN was provided. This included the rapid deployment of the Microdata Management Toolkit and the DDI specification around the globe (see ADP newsletter available at <a href="http://www.surveynetwork.org/adp">http://www.surveynetwork.org/adp</a>) along with new open-source tools under development such as an Oracle Berkeley DB-based DDI Cataloguing Tool and plug-in for the Stata package to measure the risk of statistical data disclosure in surveys. The IHSN continues to play a major role in the adoption of best practices and the DDI at the global level, and is an organization which ODaF may wish to approach in future regarding development projects in this area.

#### K. General Discussion

There was some general discussion about the activities of the organization. Bob Glushko pointed out that there was no statement of the strategic vision of the organization, and that the projects consequently seemed to be proposed on an opportunistic basis, rather than in support of a coherent plan. This point was welltaken and formed the basis for much discussion throughout the meeting. Given a coherent strategy, it was felt that a strong marketing campaign could be launched to raise visibility of the organization and the issues it addresses. There was general agreement that taking action to resolve this situation was important moving forward.



Some other potential future projects were also discussed - see description of action items for the outcomes of these discussions.

# II. Friday

#### A. Swivel

Swivel (http://www.swivel.com) presented their latest website / interface, along with plans for future developments. It is clear that Swivel sees the current crop of Web 2.0 sites as lacking focus on serious issues, and feels it can materially help the general public appreciate these issues by providing access to statistical data of all sorts through an easy-to-use interface. The demonstration was impressive, and was positively remarked upon by those present. Swivel's support for SDMX as both an import and export format was discussed - features which are currently being implemented. Swivel appreciates that the SDMX model provides support not only for data import and export, but also for many important types of structural metadata such as mappings between concepts and codelists. Also, DDI has come up in Swivel's discussions with some academic data repositories (Harvard/MIT).

The idea of doing some collaborative work with them in support of the SDMX registry vision was discussed, and seemed to offer an interesting possibility for the future. One issue discussed was the reluctance of or legal constraints on many organizations providing official statistics to allow anyone else to house their data. Swivel's position was that the modern Web demands a more flexible attitude on the part of such data providers, while others felt that this problem could be a difficult one for Swivel to overcome. One advantage of the SDMX model is that it supports distributed sourcing of data, and this theme is one that will hopefully come up again in future discussions with Swivel.

Many participants were pleased to find that Sara Wood from Swivel has a background in official statistics, within the UN family of organizations, and has an understanding of many of the statistical (and related) issues which pure technologists sometimes fail to recognize. It was generally felt that Swivel is an organization which ODaF will want to collaborate with in future, based on their motivations vis-à-vis access to data, and their common understanding of statistics overall.



#### **B. Adobe Flex/AIR**

Charlton Barreto attended the meeting, as Duane Nickull (an ODaF advisor) was unable to be present. Charlton has a background in many standards activities within the web services space, as well as representing Adobe's technology tools. Flex is currently being used in the ODaF SDMX Browser project - specifically, the visualization work being done by the ECB and OECD with SDMX data will be integrated with that tool.

The overall functionality of the Flex toolset was demonstrated, showing support for tabular and graphic representations of data, as well as their integration with maps. AIR was demonstrated as a stand-alone framework to allow Flex applications to run across platforms, combining with other rendering formats (HTML, JavaScript/AJAX, RSS) and offline. (demonstrated by the Amgen Tour Tracker App hosted at http://www.amgentourofcalifornia.com/docroot/tourtracker2/index.html, which

http://www.amgentourofcalifornia.com/docroot/tourtracker2/index.html, which looks and feels like Flex but includes HTML, AJAX and RSS feeds). One feature of Flex which is interesting is its capacity to capture data, and act in an editing capacity. Even offline (in AIR), data can be captured and then uploaded after-thefact when online again.

The use of Flex/AIR for multi-media presentations was also demonstrated, which is applicable to some of the qualitative data as archived by UKDA in which interview text can be associated with video and/or audio files. The idea that UKDA might pursue an R&D project in this area was discussed.

The degree of effort required to build Flex applications was also mentioned, with typical statistical displays requiring a few days building (although more complex interfaces would take longer). The experience among ODaF staff with Flex reinforces the idea that it is very easy to work with, using a simple XML syntax to tie together the various modules used in the application interface. Because the presentation layer is handled in Flash/AIR, it is able to provide an attractive interface without requiring a lot of programming.

Because of the open-source licensing model of Flex/AIR, it is a toolset which is well-suited to the work of ODaF, and will probably feature in future development projects.

#### C. RDC Network

Chuck Humphrey from the University of Alberta Research Data Centre called in to give an update on progress for the DDI-based project ongoing within the



Canadian RDC Network. ODaF had earlier provided some advice to the RDC Network in framing this project, and plans to continue in this capacity in the future (there is another consultation to happen in the next few months). Having now established the hardware required to run the secure network, the RDC Network is soon to issue the first of its RFPs for work on three projects to be undertaken in two phases. This project is based on the functionality of DDI 3.0, although early steps have involved the use of DDI 2.0 to capture metadata about existing studies.

Also presented was an approach to using metadata to minimize disclosure risk. This approach was much discussed - Chuck Humphrey had presented this in a paper at a conference in Nuremburg this past summer, and it has implications for how ODaF views its approach to secure data centers generally. Given that ODaF is involved with both the RDC and the NORC virtual data center projects - and may get involved in other projects for secure data centers in future - this is important in determining how we recommend the management of metadata in these settings. While this subject had been discussed in ODaF's visit to Toronto to consult with the RDC Network, it is clear that Chuck's thinking on these issues has progressed beyond what was discussed there.

#### D. caBIG/caCORE

Denise Warzel from the National Cancer Institute informatics branch called in and gave a presentation on semantics and data management within the caBIG cancer research grid. This grid is based on caCORE, which itself is standardsbased foundation. There was some emphasis on the standards used within the grid, most notably ISO/IEC 11179. Terminology management is a very important issue within medical research, and the approach to using ISO/IEC 11179 was presented. This included the extensions needed in order to effectively use the standard in the large-scale grid setting, including rules about creating unique identifiers, and how these related to object semantics to provide a determination of exact correspondences and differences across different contexts.

The approach to interoperability was also presented, with differing levels of conformance identified. The overall effort was described, including the emphasis on education and training as well as specification and tools development. This initiative is based on the principles of model-driven development and the use of standards and open-source tools, an approach which is very much in line with ODaF's mission. It is hoped that we can benefit from their experience with ISO/IEC 11179, as this is seen as a critical standard by ODaF.



It should be mentioned that the cancer grid is currently evaluating SDMX as a possible way of transferring data sets - ODaF offered to provide whatever support it could in helping them to understand the applicability of the standard to their project.

## E. UK Data Archive QuDEx (Qualitative) Project

Louise Corti and Herve Lhours of the UK Data Archive presented the work they have been doing around producing a standard metadata format for qualitative data as analyzed in CAQDAS packages. ODaF has acted in an advisory capacity in this work, as part of the DExT project. The progress made in this effort was described, including meeting with the several vendors of these tools, and identifying the common elements of each tool's metadata model. This common model has been captured in a UML model and XML schema, intended to form a metadata section within the standard archival UKDA METS wrapper. It is also intended to act as a stand-alone format for exchange between CAQDAS packages.

Similar to the approach used for the quantitative work in the DExT project, this format should ideally allow a user of any of the various CAQDAS tools to use any other of those tools when working with archived qualitative data, acting as a neutral interchange format. There is currently no standard in place for performing this task, but the vendors have seemed willing to work with UKDA in this effort.

Further, the intention to produce some prototype tools for working with this metadata format was also reported, both for ingest into the archive and for browsing the resulting METS/QuDEx XML and its referenced files.

The time-scale for the funding of this project is limited, however, so it is seen as necessary to house this initiative in a standards forum where the work can be maintained. Further, a forum is needed so that archives and software vendors can agree on the future of the standard XML which they will be using.

One possibility here is to establish this as a standard produced by the DDI Alliance. Preliminary exchanges have established that the DDI Steering Committee is willing to consider this option, but follow-up is needed to more fully explore this possibility. An alternate possibility is to form an OASIS Technical Committee.

It is felt that the timing of this initiative is good - there seems to be an increased interest in qualitative data among several archives. Further, now that the bulk of the work on DDI 3.0 has been finished, this area has come to the front of the list



of possible areas for new work inside the DDI community. There is probably a 6month window of opportunity to establish the standard before archives begin to do their own thing independent of a standard. ODaF remains very supportive of this initiative, as it establishes a metadata standard in an area which currently has none, and will prevent the growth of a multiplicity of standards within this domain if promptly acted upon.

#### F. OASIS Technical Committees and Member Sections

Eduardo Gutentag, ODaF advisor and current chair of the OASIS Board of Directors gave a description of how OASIS functions, and what it might mean for a group such as the UKDA or DANS to put their work forward as the basis of an OASIS standard. The basic situation was described: membership in OASIS is required for all members of the committee; there are rules regarding openness (everything is publicly visible; any OASIS member may join the committee); process is essentially Robert's Rules of Order with an overlay of OASIS-specific rules, and voting is required to release an OASIS standard. Eduardo also described what OASIS offered in terms of visibility of the work, and in terms of infrastructure support (list-serve with archive, website, etc.). Further, the modes of IPR protection were also discussed. The OASIS approach was contrasted also with the less-formal "something.org" approach and the more-formal ISO process.

Changes to the way OASIS members' sections function were also discussed. They no longer have the same financial requirements as they did in the recent past. Now, they exist as coordination committees for the technical committees actually working on standards. The new SCA member section and technical committees were held up as an example of this - the member section may have a formal relationship with a number of technical committees, so that the overall work product is coherent. Eduardo did point out that OASIS as an organization is not in the business of coordinating the output of its technical committees. The overall coherence of the body of OASIS standards is the responsibility of the voting membership and the technical committees themselves.

This straightforward description of how OASIS functions and what it has to offer those wishing to establish a standard was appreciated, and will serve as input into further discussions regarding QuDEx and the DANS MIXED project's work.

#### G. Data Archival and Networked Services (DANS) MIXED Project

The MIXED project was presented, showing the work undertaken by DANS in the Netherlands to produce a more intelligent architecture for the migration of some



of an archive's holdings. Notably, this included office documents, spreadsheets, and relational databases. The basic idea is that a neutral format be established for each kind of archived document, so that instead of migrating multiple versions of proprietary content, translations to and from a single neutral format for each kind of document are created.

MIXED has looked at many related standards, and made an effort to avoid duplicating their work. DDI has been looked at (especially as it is used in the DExT project) for metadata about archived studies, and the various XML standards for office documents have been examined. The OASIS Open Document Format (ODF) was chosen as the basis for a profile to be used by archives for storing office types of documents; some earlier work from a University-based project was chosen as the (possibly temporary) basis of an XML format for archiving relational databases.

MIXED looks at more than just format standards - it also addresses SOAP, BPEL, OAIS, and other related standards in various areas. Although MIXED is a two-year project which aims to serve the requirements of DANS as its main goal, there is some interest in housing any original work which comes out of the project within a standards forum which can maintain the work moving forward. There has been discussion between the UKDA and DANS on this subject, and it is very possible that coordinated action will be taken as appropriate.

From an ODaF perspective, the archival formats put forward by DANS are potentially very useful within archives and in other interchange scenarios. Because DANS is also producing tools which will be distributed as open source, there is potential collaboration in this area. The DANS approach to migration makes sense, and is very consistent with the approach we have embraced for the use of DDI and QuDEx in the DExT project.

# III. Saturday

The process followed on Saturday was to review the agenda from the preceding two days and to identify action items to be taken moving forward. This process lead to some discussion, so that some ideas were generated that were not directly associated with a single presentation from the preceding days. Note that the new projects which may come out of this meeting are still in the investigative stages, and would have to be formally submitted to the Directors for approval, revision, or rejection before being formally launched.

The first action identified was the creation of an ODaF position paper outlining our strategic goals and thinking, and placing existing work into a meaningful



context relative to these. This document would also serve as an aid in prioritizing and approving or rejecting project proposals in the future. Further, it could form the basis of a marketing campaign. Bob asked if we were interested in his assistance in getting our message out more broadly, via the New York Times (where he has contacts) - the general feeling was that we would need to be very careful to have our message and organization ready before undertaking this type of marketing campaign, as it would lead to a much higher degree of visibility than has existed to this point. Such a campaign makes a good deal of sense in the near future, however, and the offer was viewed positively.

It was mentioned that those present at the meeting who do not formally have a relationship with ODaF should be asked to join as members, etc.

Other action items as discussed are described below:

#### A. DExT Project - Looking Ahead

Because the DExT project has time-limited resources, there was some discussion as to how this work could be continued. Several options were identified:

- As part of the overall DDI Foundation Tools Project, assuming resources can be found and the DExT contribution is identified as a priority for those resources.

- As part of the ongoing work at UKDA (mention was made of an XML programmer who may be added to the staff for a term of 5 years, with 30% time spent on qualitative work)

- It may be possible to get an R&D grant from UKDA's funding organization, to explore the use of Flex and similar technology in support of multi-media presentation of qualitative data, based on the QuDEx work. ODaF staff agreed to support the writing of this proposal as needed.

Several other good ideas also came out of this discussion:

- Looking for grant money to fund a Question Bank project based on the standards discussed (there has been a lot of discussion within the European community in this area, and there is funding available through the 7th Framework).

- Using/demonstrating the DeXT tools at the upcoming DDI meeting to be hosted by GESIS-ZUMA in Mannheim in October.



- Planning a session at IASSIST 2008 to demonstrate progress which has been made in both quantitative and qualitative areas, using the tools produced by the DExT project. This could take the form of a hands-on workshop.

- Further marketing activities were also discussed, covering publications and conferences to highlight this work. The ideas put forward included approaching various journals mentioned by Louise Corti and Wendy Thomas, presentation at the Association of Survey Computing Conference, and presentation at the Digital Curation Conference. The idea of having a logo campaign to advertise compliance with ODaF guidelines/recommendations was also discussed. (This had been brought up at the 2006 annual meeting, but no decision was made at that time. It will be raised again for 2007.)

## B. Data Enclave Work (NORC and RDC)

- ODaF has made itself available for further consultation with the RDC Network in helping to outline project approaches in line with standards and best practices in metadata management.

- Work relating to infrastructure might also come under the purview of CESSDA or other existing projects, especially as it relates to data enclaves and security. These connections need to be investigated, as there is ongoing work proposing the creation of data enclaves in Europe. ODaF will assist in writing the proposal where they have expertise (regarding standards and metadata management, etc.)

#### C. Swivel

Generally speaking, Swivel was seen as a very positive force for promoting adoption of SDMX and potentially DDI. Further, they were seen as a group we should try to work with in future.

- Bob Glushko may have some of his students from Berkley do projects at Swivel, which might potentially involve ODaF in some capacity (training, advisory). Bob also suggested more generally that we might have a job fair at Berkley to identify students who would be able to contribute to our projects as they are identified and resourced.

- It was suggested that Swivel might wish to present at IASSIST 2008, which will be held at Stanford, and thus be local to the company.



- The idea of collaborating with Swivel on work in support of a public SDMX registry was mentioned. The problems of updating data, managing sourcing metadata, and handling distributed sourcing were all seen as potentially useful topics for discussion in this area.

- Further discussions should be held with Swivel regarding data held in data libraries and digital archives, especially as these may involve support for the DDI standard. ODaF may be in a position to help Swivel understand and utilize the standard.

## D. Adobe Flex/AIR

Adobe has been very supportive of our work using Flex up to this point, and this fact was mentioned. Ideas for further using Flex included:

- Investigating their Academic Partner's Program, to see if any of the projects involving ODaF might benefit from this.

- Having UKDA (with support as needed from ODaF) write a proposal to do a Flex-based prototype based on QuDEx, to show how multi-media sources can be combined.

- There had been some discussion with Charlton Barreto regarding data confidentiality and privacy, as he is aware of some initiatives in the technology arena which touch on these subjects. ODaF agreed to investigate these further, and to put Julia Lane and Bob Glushko in copy on any discoveries, so that they might facilitate the awareness of UN Guidelines (and others) regarding data confidentiality in the appropriate fora, should this prove relevant.

# E. QuDEx/MIXED Projects

Several actions in the immediate and medium-term were agreed, particularly given the time scales anticipated in earlier discussion (6 months to place work into the standards arena, 1 year to start having tools, etc.):

- To work collaboratively on a white paper outlining best practices regarding archiving. This paper would be couched in terms of OAIS and other well-known reference models, and could include much of the writing already done by DANS as regards standard format and migration. The idea is to recommend an approach and various standard formats for various types of archived files, and to



publish this on the ODaF site (as well as elsewhere). This white paper might also address issues about the use of standards in gathering upstream metadata.

- To arrange a meeting between DDI TIC (of which Wendy Thomas is chair), UKDA (Louise Corti and Herve Lhours), ODaF, and Mary Vardigan of the DDI Alliance regarding the potential placement of the QuDEx work within DDI. This meeting would be followed up with a short paper describing the overall effort at UKDA regarding qualitative data and the QuDEx work.

- To have an ODaF meeting in Europe early in the new year to discuss how QuDEx, MIXED, and other ODaF efforts can be coordinated. This would include ideas regarding tools development. A location in the UK was suggested as a good place to hold the meeting, which could also serve to bring other European ODaF people together, and to investigate further other project ideas as well.

## F. caBIG/caCORE

Two actions were identified as important to follow up with Denise Warzel:

- To explore the idea of taking the open-source ISO/IEC 11179 Registry implementation, and possibly combine this with the new standard interfaces described in ISO/IEC 20944 (Dan Gillman is the chair of the US group responsible for this) to produce an open-source implementation for distribution through ODaF.
- To offer whatever support was needed in helping the NCI and others involved in caBIG/caCORE in understanding what SDMX offers them as a format for data exchange within their grid.

#### G. General

 ODaF has developed a draft of some guidelines for technology selection for open-source projects in the area of metadata management. This paper will be forwarded to Herve Lhours of UKDA for finishing as a draft which may prove useful outside of specific projects, and might form the basis of an ODaF publication in future.