

KNOWLEDGE MANAGEMENT IN NON-GOVERNMENTAL ORGANISATIONS

A Partnership for the Future

José Braga de Vasconcelos, Paulo Castro Seixas, Paulo Gens Lemos
University Fernando Pessoa, Porto, Portugal

Chris Kimble
Department of Computer Science, University of York, York, UK

Keywords: Knowledge Management, Communities of Practice, Non-Governmental Organisations, Civil Society Organisations, Information Society, Humanitarian Aid, Social Development.

Abstract: This paper explores Knowledge Management (KM) practices for use with portal technologies in Non-Governmental Organizations (NGOs). The aim is to help NGOs become true Civil Society Organizations (CSOs). In order to deal with more donors (at the top) and more beneficiaries (at the bottom), NGOs working in Humanitarian Aid and Social Development increasingly need systems to manage the creation, accessing and deployment information: within the NGOs themselves, between different NGOs that work together and, ultimately, between NGOs and Society as a whole. Put simply, NGOs are organizations that need an effective KM solution to tackle the problems that arise from both their local-global nature and from the difficulties of effective communication between and within NGOs and Civil Society. To address these problems, the underlying objectives, entities, activities, workflow and processes of the NGO will be considered from a KM framework. This paper presents the needs of a responsible, cooperative and participative NGO from a KM perspective, in order to promote the growth of Communities of Practice in local as well as in global network.

1 INTRODUCTION

Knowledge in an organization is the collection of expertise, experience and information that individuals and workgroups use during the execution of their tasks. It is produced and stored by individual minds, or implicitly encoded and documented in organizational processes, services and systems. Non-Governmental Organizations (NGOs) dealing with Humanitarian Aid and Social Development face a paradox concerning the production of knowledge: interventions require particular, even specialized expertise, and, at the same time, must be a participative undertaking in which each and every individual, group and organization must be involved, regardless of its own particular skills. This technical paradox could be seen as an ideological one, where NGOs are viewed either “as voices of global civil society and

democratic change”, or as agencies for carrying out “political agendas of foreign interests” (Tvedt, 2002: 363). This technical/ideological paradox reveals the problem of the participative-democratic versus specialized-directive approach to development. Nevertheless, more and more one cannot ignore the important role of the development NGOs in shaping national and global civil societies.

The purpose of the applied research we present here is to pursue for a stronger network between NGOs and Civil Society in order to turn them into Civil Society Organizations (CSOs) in which a global network of citizens and institutions can interact and intervene in a local and global – a so-called glocal – way.

Supported by a University-NGOs network and built on existing NGOs workflows, this applied research aims to promote the application of KM practices across individuals, groups, institutions and

communities in order to bridge citizens and development through a proper web tool KM for development turning NGOs into CSOs. For this purpose, a web prototype system (section 4) is being developed in order to enhance knowledge sharing and reusing mechanisms for a selected set of NGOs, and their related networks, based in Portugal and Brazil.

The following section presents the main mission and objectives of a NGO, the third section introduces the KM research area and our KM approach in NGOs and the fourth section analyses KM shortfalls and related problems within and between NGOs. Finally, the fifth section presents a web-based KM prototype for the management of NGOs activities, concluding this paper with some final remarks and future directions for this research field.

2 HUMANITARIAN AID AND NON-GOVERNMENTAL ORGANISATIONS

In the history of humanitarian aid and social development, "aid to others" and "bilateral aid" were the predecessors of present partnerships or affiliations and even of development cooperation. At the beginning of 21st century, we must try to reflect on what humanitarian and emergency aid as well as social development means based on the rejection of all and any naïveté regarding goodwill, altruism and solidarity of western white man. We must also reject the manipulation that hinders aid to the "Other" and aid among one's own from becoming an extreme anthropological element, in other words, from becoming a part of the foundations of human sociability (Seixas, 2003).

It has become necessary to assume a global culture based on assumption of the right of all to have rights, so that the aid for others may be replaced by a binding contract of multilateral cooperation based on the certainty that the defence of the rights of any person in any part of the world is the defence of the rights of all human beings (Seixas, 2003).

Bearing this in mind Knowledge Management (KM) through information society could represent a partnership for the future in order to promote a glocal counter-hegemonic continuous intervention. Although local, regional and world (as well as the several thematic) Forums have created a strong reflexive and intervention tool either in counter-hegemonic "cosmopolitanism", either towards a "common heritage for humanity" (Santos, 2000) this revolution should make his way within and between organizations in a local-global continuum.

Aid and development workers of NGOs build up a invaluable stock of local knowledge as are in permanent contact with local needs and aims, assessing them and building on them in their day-to-day interventions. However, this priceless knowledge is often sidetracked and misplaced in the complexity of the communication hierarchy, forgotten over the length of field missions, dispersed due to the high level of turn-over associated with many NGOs or, as Winograd and Flores (1986) put it, simply 'lost in the unfathomable depths of obviousness'.

The recent incentive, even obligation, for local partnerships in development cooperation and for consortiums of NGOs is, obviously, a way of enhancing and promoting either a local knowledge network or an international knowledge network to improve development practices. However, local partnerships are often just a *presence* and international consortiums are simply ways of getting more money without creating this desired exchange of knowledge. Thus, development urgently needs a civic infrastructure (from village to global scale) in which "glocal" knowledge exchange promotes a continuous sustained appropriation and use of knowledge in a more democratic way.

The proposal that we present here sustains that KM and NGOs through the Information Society and could constitute a very relevant civic tool that would give back development to citizens, grass roots organizations and local communities without losing the training and specialization which are required in professionalized development work. Information Society should be extensible in a planetary way enhancing shared knowledge and practices concerning concrete local development projects in which local and international NGOs, as well as other organizations, are involved. This local web turns global as the information flows through organizational hierarchies, bridging up the problems as they are accessed not only by development workers but also, in a more relevant way, by local citizens and grass roots organizations. KM through the Information Society in partnership with NGOs may therefore enhance a web for development and turning therefore, NGOs into CSOs.

3 THE KNOWLEDGE MANAGEMENT APPROACH: From NGO to CSOs

The KM approach views knowledge as the key asset of an organization and systematically develops activities to manage it efficiently. The main objectives of Knowledge Management are to

promote knowledge growth, knowledge communication and knowledge preservation (Steels 1993). KM is a topic of great interest in the management and organizational sciences and it is argued that KM should be appropriately supported by enterprise information infrastructures (Wiig 1993, Davenport & Prusak 2000).

3.1 Knowledge Management Systems

In many organisations, the knowledge used to solve problems, to direct actions and to make decisions, together with any lessons learnt, are lost in the 'noise' of a turbulent business environment (Vasconcelos et al, 2003). In addition, knowledge may be geographically distributed and stored in a variety of different representations, e.g. tacit knowledge in people minds and structured information in databases. To be successful a KM initiative must address both the 'hard' knowledge in databases and the 'soft' knowledge in people's minds (Hildreth and Kimble, 2000). A Knowledge Management System (KMS) addresses these problems by providing a mechanism to capture, retain and distribute knowledge assets within and between organizational agents (e.g., employees and information systems). KMS generally deal with several phases of the KM life cycle (Abecker et al 1998): identification, acquisition, development, dissemination, use and preservation of knowledge. This KM life cycle will be applied in this research work regarding with the NGO's mission and objectives.

Individuals and workgroups are the prime location where the knowledge assets of an organization are located. KMS can easily deal with, for example, explicit (encoded) representations of organizational structures, and process descriptions, however this research work offers a KM approach to tackle specific problems concerning the activities of NGOs. This will involve the integration of another approach to KM: Communities of Practice (CoPs)

3.2 Communities of Practice

Communities of Practice are often described as an approach to KM that creates the proper environment for groups to come together to exchange existing knowledge and create new knowledge. These groups have similar goals and a shared understanding of their activities (Brown and Gray 1998, Greer et al. 2001); this often leads to CoPs becoming the basis for so-called "Knowledge Networks" (Hildreth and Kimble, 2004).

The term Community of Practice (CoP) was coined in 1991 when Jean Lave and Etienne Wenger (Lave and Wenger, 1991). Lave and Wenger saw the acquisition of knowledge as a social process in which people participated in communal learning at different levels depending on their authority in a group, i.e. whether they were a newcomer to the group or had been an active participant for some time. The linking of CoPs to KM came in 1998, when Wenger (1998) published the results of a study of a large insurance company. According to Wenger (2002), CoPs are groups of people who share common problems and interests, and their knowledge and expertise in specific areas is shared by interacting on an ongoing basis. Over time, the main objective is the dynamic creation of a common body of knowledge, practices and approaches. These informal networks can act in several ways, such as resolving conflicting goals or disseminating best practices across communities.

The development of Internet-based networking technologies, which can provide a convenient single platform for groups or networks of groups to form within larger organizations, have led to a proliferation of various forms of virtual groups and communities. Subsequently, there has been much discussion about virtual CoPs (Kimble et al, 2001). These virtual CoPs depend on a common communication platform, and an organization to support this by providing both the communications infrastructure and the means to easily find and join the CoP (Lock Lee and Neff, 2004). This concept of a CoP is applied in the web based prototype system presented in the following section.

3.3 Knowledge Management Shortfalls

The underlying objective of this research is to develop mechanisms to minimize KM problems that happen across NGOs. Both academic and corporate KM literature has identified a set of KM deficits that happen at the organizational and corporate level; this literature can also be adapted and applied to NGOs.

Macintosh's (1997) work on knowledge asset management identified a set of organizational impediments to more productivity and performance in knowledge-based companies were:

"Highly paid workers spend much of their time looking for needed information".

"Essential know-how is available only in the heads of few employees".

"Valuable information is buried in piles of documents and data".

"Costly errors are repeated due to disregard of previous experiences".

“Delays and suboptimal product quality result from insufficient flow of information”.

Based in these statements, Dieng et al. (1998) elicited possible motivations to build a KMS based on Organizational Memories.

- To avoid the loss of corporate expertise when a specialist leave the company;
- To explore and reuse the experience acquired in past projects in order to avoid the repetition of previous mistakes;
- To improve the information circulation and communication across the company;
- To integrate the know-how from different sources in the company;
- To ultimately to improve the process of individual and organizational learning.

In what concerns NGOs, big business NGOs (so-called “BINGOs”) already dealt with the “KM for development” problem and created their own internal devices to respond to those problems. Nevertheless, great number of small and medium size NGOs deal with constant constraints that are presented in detail below. Our KM tool addresses, in particular, these issues.

3.4 KM Constraints in NGOs

Contextual Global and National information

NGOs, either international or national, frequently become involved in missions without a deep background knowledge of the global/national/local problem and without skilled personal or proper accessible methodologies.

Some specific problems are absence of just in time access to:

- a) Specific information concerning the countries where NGOs will (or already have) a mission;
- b) Skilled specialized personal in a particular country or linguistic grouping;
- c) Manuals, checklists and other sources of managing knowledge needed to enhance the efficacy of project elaboration, formulation and implementation.

Field-mission information

NGOs projects and missions are often “go and run away” missions, that depend too much on the personalities that are send to the field, with scarce time too much focused on bureaucratic/operational work and with difficult beginnings and final periods to each of the mission field-workers. Great lost of knowledge and capital is the usual balance.

Some specific problems are:

- a) Personalization of the information resulting in non accounted overheads moreover when field-missions are 6 to 10 months length;
- b) Loss of non bureaucratic/operational information (social and cultural) which isn't refereed in standard reports;
- c) Loss of information in mission team turnover.

Communication between the field mission and the main office

NGOs have a multi-level Knowledge Management which goes, in the field, from the Project manager to the Program manager / Country manager and in the main office, from the Project Director and Finances Director to the Direction Board. Through this several local, national and international steps, too much information is lost.

Some specific problems are that there might be

- a) A strict hierarchical top to bottom decision-making, which works against a more participative approach to decision making built through local knowledge;
- b) The autonomy of field missions, which could lead, sometimes, to an information crisis in the management of the project or even an crisis in the NGO it self;
- c) An absence of a communication platform accessible by levels of responsibilities for a just in time proper information flow and information register.

Communication between NGOs

To often several NGOs, work in the same country, or even in the same region, without knowing about each other organizational purposes, projects and activities.

Some specific problems are an absence of access to:

- a) A map of previous NGO interventions, if possible through purpose and projects;
- b) Simple and direct access to communication forums or to create one which could invite and congregate NGOs professionals through purpose, project or activities a Community of Practice in the and in each field;
- c) Best practices databases of projects selected by NGOs Direction Boards in order to have an identification card of each NGO as well as to publicise a problem-solving database for development.

Communication between NGOs and the beneficiaries

NGOs relations with beneficiaries of the projects are not so easy and well done as they should be and frequently a project is elaborated and formulated without sufficient participative enrolment by the community of beneficiaries. In addition, in the implementation phase, authorities are often more aware of the project purposes and activities than the ones the project will direct supposedly benefit. Interface between NGOs and beneficiaries should be done probably moreover in a face-to-face basis, nevertheless, Knowledge Management through web interface tools could be an asset because besides and beyond information concerning the project, beneficiaries should have a continuous possibility of taking positions in relation to it.

Some specific problems:

- a) Inadequate, un-participative analysis of the needs felt by a particular population in which a NGO pinpoint an intervention;
- b) Inadequate, un-participative representation of the beneficiary community in the formulation and implementation of the project
- c) Required of a development concept as a citizen tool (an interactive day-to-day activity) through which everyone could have a word and participate in action.

Communication between NGOs and the donors

Although institutional donors usually have their own ways of controlling the uses of applied funds and the impacts of the projects, the non-organized social responsibility response of civil society through NGOs is much less informed in what concerns either the concrete development projects supported, or their real impact in the field. NGOs are usually much more concerned with reports to institutions like World Bank or EU Offices than with Civil Society donors.

Some specific problems:

- a) Absence of a communication toll through which donors have direct link with the project in the field and with its impacts;
- b) High levels of turn over in NGOs, personalization of the information in the field, as well as problems with storage of information often lead to difficulties either in internal supervision, either in external auditing by sponsors and donors;
- c) Information coming from the field mission concerning the project is, to many times, sent

only the country, mission or project manager without any kind of feed-back by the population who were impacted by the project.

Communication between NGOs and Civil Society

Each individual and each organization should, must and could be an active development actor and agent if only could have the proper knowledge capital (understood as social, symbolic and, therefore, economic capital) to make a difference. This utopia could be built through a good communication network between Development NGOs and Civil Society in order to turn themselves into CSOs, Civil Society Organizations. Therefore, we believe, KM through information society could be the tool to turn NGOs into CSOs, being this purpose the engine of the present project.

Some specific problems:

- a) Absence of a KMS to enrol individuals and organizations in order to a participative effort toward development, both in a local and in a global sense. Such a systems should deploy of information concerning 1) basic continuously renewed geo-strategic and anthropological situation of countries in risk; 2) basic training towards citizen and organizational intervention; 3) intervention protocols and counselling; 4) cultural online counselling and 5) psychological support.
- b) Absence of a development best practices database that could be used as an intervention guide not only to NGO experts but also to any citizen enrolled in a local development process or with global development concerns. This guide could enhance not only the analysis, discussion and choosing of alternative development paths but also could be a way of a more adequate impact analysis of development projects by comparing the achieved goals in similar projects.
- c) Absence of a Community of Practice of Knowledge Network that could cut across NGOs competence and competition but also that could bridge NGOs, donors and beneficiaries in a more coherent and focused way.

4 GLOCAL COLLABORATION TOOL

A practical result of this research work is a web-based KM tool (or KM portal) that is currently under development. This web tool is being developed to act as a KM portal for individuals, organizations and more specifically, for NGOs. This Glocal Collaboration Tool aims to promote the

democratization across different and heterogeneous communities.

Bearing in mind the several NGO constraints presented and the difference between “soft knowledge” or “tacit knowledge” and “hard knowledge” or “explicit knowledge” (Hildreth and Kimble, 2001), the first one more centred in the knower and interactivity through “conversation”; the second one more centred in the storage of knowledge. Table 1 presents the portal functionalities as problem-solving devices to the constraints referred in the previous point.

“Conversations” in CoPs are the most important device because of the multiple contexts (personal, social and cultural) that its interactivity includes. The goal of the research and development of our tool is to create a KM system based on “conversation analysis” which could help different users and preserve the context in which the knowledge is created. CoPs can be seen as a glocal simulacrum of such places as corridors or water coolers where

knowledge is exchanged in informal conversations. In many organisations, these conversations have been replaced by mobile phone calls in which the decisions of formal meetings are planned for and prepared. The goal is to try to capture some information about both these calls and their context.

4.1 Application Functionalities and Knowledge Resources

The web Portal application (figure 1) has a specific registration area (for individuals and organizations) in order to access to other areas, both general and with specific interactive tools, such as a best-practices database (DB), collaborative tools (forums) and knowledge (and glocal) libraries. Other functionalities include personalisation mechanisms based on the registration profile of each individual/organization, and keyword-based and advanced search mechanisms.

Table 1: Problem-solution analysis

NGO constrains	Portal functionalities: Tacit knowledge	Portal functionalities: Explicit knowledge
Contextual global and national information	1. Intranet CoPs by project and thematic 2. Extranet CoPs by project and thematic	1. Lay-out plan with NGOs missions 2. Library 3. Best Practices
Field mission information	1. Intranet CoPs by project and thematic 2. Extranet CoPs by project and thematic	1. Library
Communication between field mission and main office	1. Intranet CoPs by project and thematic 2. Extranet CoPs by project and thematic	1. Lay-out plan with NGOs missions, 2. Library 3. Projects showcase
Communication between NGOs and the beneficiaries	1. Extranet CoPs by project and thematic	1. Lay-out plan with NGOs missions, 2. Library 3. Projects showcase 4. Best Practices
Communication between NGOs and the donors	1. Extranet CoPs by project and thematic	1. Lay-out plan with NGOs missions, 2. Library 3. Projects showcase 4. Best Practices
Communication between NGOs and Civil Society	1. Extranet CoPs by project and thematic	1. Lay-out plan with NGOs missions, 2. Library 3. Projects showcase 4. Best Practices



Figure 1: Web Collaboration Tool

4.2 Best-Practices Database

Based on the following attributes (table 1) and related registration area (figure 3), we are defining a best-practices database in order to reuse this information for future Civil Society Organizations (such as a NGO) projects. The idea is the definition of a common, shared web space where CSOs, individuals and citizens representing different communities could upload their experiences, and related project's best practices in a structured manner. The best practice DB includes specific classification techniques based on the proposed taxonomy (figure 2) for development areas.

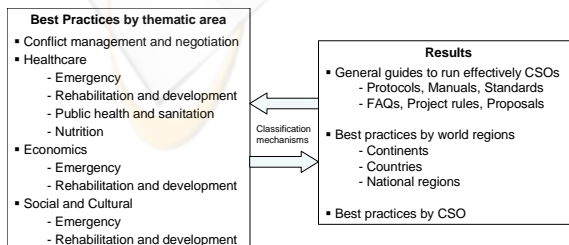


Figure 2: Best practices taxonomy.

Using the proposed collaboration tool, this taxonomy will have dynamic expansion based on the experiences of each CSO, and the inputs (and related uploads), which they include in the web platform. Through this expansion and depending on particular requests (local knowledge), beyond the Internet platform, we will build specific Intranets to provide context-based data access for a better decision making in each CSO and related responsibility level.

These attributes are used to create a database set of CSOs including their project experiences and best practices. To create the initial profile, an individual or organization will register (figure 3) to create a personal (or organization) account that makes available the remaining functionalities.

Table 2: Data attributes for the best practices registration

Attribute	Meaning
Internal code (year/project)	Application use for future data manipulation
Project title	Short project designation
Start date	Project start date
Closing date	Estimated closing date
Activity area	Short description of the underlying activities
Applicant(s)	The registered NGO, individual or organization
Project cost	An estimation of the project cost (if applicable)
Objectives	Overall objective and specific objectives
Principal local partners	The main project stakeholders
Target groups	Target communities, citizens, individuals
Expected results	Quantitative results; Qualitative results
Activities	Project timeline (different project stages)



Figure 3: Collaboration tool: registration area

4.3 Application Architecture

This prototype is based on a multi-tier architecture that allows a web-enabled personal computer (client) to interact with an application server connected to the Internet (figure 4). This web infrastructure is crucial considering the purpose of this solution which means that clients are supposed to be any computers connected to the Internet anywhere near the area of intervention of the ONG.

A multi-tier architecture environment provides data for clients and serves as an interface between clients and database servers (figure 5). This architecture enables the use of an application server to validate

the credentials of a client, such as a Web browser, to connect to a database server, and to perform the web requested operations.

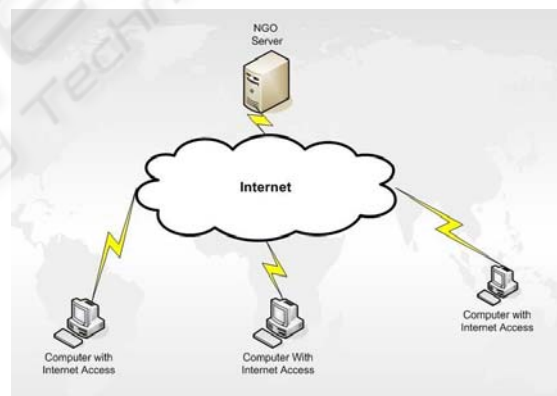


Figure 4: Web-enabled architecture

Application Server

The application server provides access to the data for the client. It serves as an interface between the client and one or more database servers, which provides an additional level of security. The application server assumes the identity of the client when it is performing operations on the database server for that client. The Application Server for the proposed Web-KM system is based on the Microsoft (MS) .NET Framework with ASP.NET. The .NET Framework is used for building and running all

kinds of software, including Web-based applications. This software platform uses components that facilitate integration by sharing data and functionality over a network through standard, platform-independent protocols. ASP.NET presents a fully object-oriented architecture that promotes the development of well structured and easy to maintain.

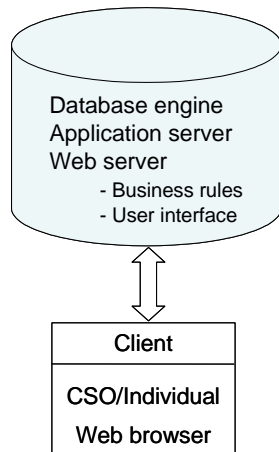


Figure 5: Multi-tier architecture and services

Web Server

Our system uses the *MS Internet Information Server (IIS)* as the Web Server for the *Glocal Collaboration Tool*. This Internet Information Service provides integrated, reliable, scalable, secure and manageable Web server capabilities over an intranet, the Internet or an extranet. IIS is a tool for creating a strong communications platform of dynamic network applications. Organizations of all sizes use IIS to host and manage Web pages on the Internet or on their intranets.

Database Server

A database server (engine) provides the data requested by an application server on behalf of a client. The database server does all of the remaining query processing. The database server can audit operations performed by the application server on behalf of individual clients as well as operations performed by the application server on its own behalf. For example, a client operation can be a request for information to be displayed on the client, whereas an application server operation can be a request for a connection to the database server. Our system uses the *Microsoft SQL Server 2000* for the necessary database management system services.

This database server is commonly used by governments and businesses for small to medium sized databases.

Client

In a social viewpoint, the client could be an Individual or a CSO. In a technological viewpoint, a client initiates a request for an operation to be performed on the database server. The client can be a Web browser or other end-user process. In a multi-tier architecture, the client connects to the database server through one or more application servers. The client tier consists of a typical web-enabled personal computer browser. Applications are accessible by users running a browser on any operating system. The *Glocal Collaboration Tool* is being developed to be used as a KM web-based application that could run anywhere in order to make it available to any CSO/Individual with a basic fixed or mobile Internet access. Therefore, this research project and the proposed KM tool also intend to promote the democratization of the Information Society. This could be achieved by providing and disseminating context-based CSOs information resources and collaborative services across different world regions and communities.

5 CONCLUSIONS AND FUTURE WORK

At medium-term, the practical result of the proposed KM portal should enhance knowledge sharing and reuse tasks between and within CSOs and individuals. The idea is to apply and promote collaborative tasks, knowledge (glocal) libraries and the dissemination of CSOs best practices across different communities. Personalisation is a crucial factor to improve KM practices. In this context, this research work and the related *Glocal Collaboration Tool* needs to investigate more personalisation mechanisms to incorporate into the KM tool. These mechanisms should provide and distribute contextual information based on the specific profile (roles and responsibilities) of each registered organization. The collection and classification of heterogeneous information resources into well-structured CSO web pages (acting as individual CSO Intranets) is also a key success factor for an effective maintenance of this KM system.

In order to enhance all these developments, the *Glocal Collaboration Tool* has to be tested in real organizational and communities' environments. Access expectancy towards resources of this kind of

tool will be our first challenge. Nevertheless, we believe strong partnerships with boards of NGOs must be build in order to have a commitment of change in the NGO internal information and communication structure. Relations between organizational intranets and extranets will also take some time and be the source of some problems. The effectiveness of Communities of Practices, from a local project level to a global development area strategy level, however is the deepest challenge, as this calls for an organizational transformation of NGOs into more Glocal CSOs. Pilot project, focused in the beginning on the lusophone world, will entail Portuguese and Brazilian NGOs and within a year we are hopping to have several NGOs involved turning this Collaboration Tool in a non-stop glocal project in the construction of a new Glocal Civil Society.

REFERENCES

- Abecker, A., Bernardi, A., Hinkelmann, K., Kuhn, O. and Sintek, M., 1998. Towards a Technology for Organizational Memories, IEEE Intelligent Systems, Vol. 13, No. 3, May/June, pp. 30-34.
- Brown S. and Gray S., 1998. The People are the Company Fast Company [Online] Available: <http://www.fastcompany.com/online/01/people.html>
- Davenport, T. and Prusak, L., 2000. Working Knowledge, Harvard Business School Press.
- Greer K., Bell D., Wang H., Bi.Y. and Guo G., 2001. An Application of Knowledge Management using Intelligent Agents, the Intelligent CONtent Management.
- Hildreth, P. and Kimble, C., 2002. The duality of knowledge [Online] Information Research, 8(1), paper no. 142. Available at <http://InformationR.net/ir/8-1/paper142.html> [November 19, 2004].
- Hildreth, P. and Kimble, C. 2004., Knowledge Networks: Innovation through Communities of Practice, Idea Group Publishing, Hershey (USA)/London (UK).
- Kimble, C. Hildreth, P and Wright. P., 2001. "Communities of Practice: Going Virtual", Chapter 13 in Knowledge Management and Business Model Innovation, Idea Group Publishing, Hershey (USA)/London (UK), 2001. pp 220 - 234.
- Lave J. and Wenger E., 1991. Situated learning. Legitimate Peripheral Participation. Cambridge: Cambridge University Press.
- Lock Lee, L and Neff, M. 2004. How Information Technologies Can Help Build and Sustain an Organization's Communities of Practice: Spanning The Socio-Technical Divide?" Chapter 15 in Hildreth, P. and Kimble, C. (2004) "Knowledge Networks: Innovation through Communities of Practice", Idea Group Publishing, Hershey (USA)/London (UK), pp 165 – 183.
- Macintosh, A., 1997. Knowledge asset management, Airing (20).
- Pearce, J., 2000. Development, NGOs, and Civil Society, Oxford, Oxfam GB.
- Santos, B., 2000. Globalização. Fatalidade ou Utopia?, Porto. Afrontamento.
- Seixas, P. 2003. Emergency and Humanitarian Aid. Revista ForumDC http://www.forumdc.net/forumdc/artigo.asp?cod_artigo=145335
- Seixas, P. forthcoming 2005 Antropologia e Intervenção Humanitária e para o Desenvolvimento. A Humanidade que o Humanitário construiu: Conceptualização e Acção, Perez, Xerardo Pereiro e al Antropologia Aplicada. Vila Real, UTAD.
- System (ICONS), Project ID: IST2001 - II.1.2: Knowledge Management.
- Tvedt, T., 2002. Development NGOs: Actors in a Global Civil Society or in a New International Social System?", Voluntas: International Journal of Voluntary and Nonprofit Organizations Vol. 13, No. 4.
- Vasconcelos, J, Kimble C and Rocha, Á., 2003. Organizational Memory Information Systems: An Example of a Group Memory System for the Management of Group Competencies, The Journal of Universal Computer Science, 9(12), pp. 1410 – 1427.
- Wenger E, McDermott R and Snyder W., 2002. Cultivating Communities of Practice: A Guide to Managing Knowledge, Harvard Business School Press, Boston, Massachusetts.
- Wenger E., 1998. Communities of Practice. Learning, Meaning and Identity. CUP.
- Winograd T. and Flores F., 1986 Understanding computers and cognition: a new foundation for design Norwood NJ: Ablex.