

Automated Information Systems for Evaluation of Social Service in Nigeria

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ABSTRACT

This research developed information systems for evaluation of social services in Nigeria. The system is to be used by social workers in the long term care of children in the motherless babies' homes. The research has developed a system that evaluates the activities and operation of the motherless babies homes thereby eliminating the problems encountered in the home. The system is capable of detecting the problems with view to modifying the operations and developing a new computerized evaluation system that will be more efficient and accurate. The system will be used to record, store and retrieve a large volume of data. The system developed will reduce duplication of efforts due to inconsistency in activities and time that it takes in search of files when it is required for processing. The system can be used by individual staff to plot their caseload activities and by management in considering problems of resource deployment. The system consists of Assessment Document, Periodic Case Reviews, an Evaluation Chart and Costing information. This study also provides guidance on all stages of the design and implementation of an evaluation system for social services in Nigeria and presents the main options with respect to scope, key research issues and organization. The unique contribution of the study is to solve the problems involved on approaches and operations in the field of social service work. It has been implemented using an internet web-based system that helps in evaluation of various activities and operations of the social service workers in the motherless babies homes,

Key words: information systems, social services, social workers, resource deployment, internet web-based system

Introduction

The need for an effective evaluation system care service has become inevitable for any social service related sector and will be able to take challenges coming from the dynamic nature of information technology. To

decrease these challenges in the social service sector where paper work and waiting lines are increasing, it demands team work of all social service personnel to help them in immeasurable ways. Record keeping is

the principal repository for information concerning motherless babies home. It affects, in some way, virtually everyone associated with providing, receiving, or reimbursing social care services. Despite many technological advances in social service centers over the past few decades, the typical orphan record of today is remarkably similar to the orphan record of 50 years ago[1]. This failure of orphan records to evolve is now creating additional stress within the already burdened Social service care system as the information needs of practitioners, social service workers, administrators, third-party payers, researchers, and policymakers often go unmet. An institution like motherless babies home encounter problem in the area of documentation and evaluation of documents which include misplacement of vital information or cases as a result of the services that are available or rendered.

This study presents the steps necessary to manage data gathering, data analysis and data use which focus on the wellbeing of the children in the motherless babies home. When such information about an orphan or record about the activities of the home is needed, duplication of efforts due to inconsistency in activities and a lot of time is taken in search of file or reported cases. The problems that exist in the motherless babies' home can be summarized thus: Usually for manual filing system, there is no limitation on who can access the files. Anyone can change the record and this may cause trouble in the future. Using manual filing system, data are kept in file according to the year or may be randomly scattered. This may take time to search for information needed in time as the staff may have to look for the one by one and other related files just to search for single information. In manual file system, usually there are data redundancy and inconsistency. This is

because some data may be stored in various files as they are related with each other. This also causes data anomalies because redundant data are changed/updated in one file but not in the others. Manual file system has no backup and if a file that contains vital information is lost or damaged due to fire, the motherless babies home will lose her valuable information. There have been numerous reports of funds being misused or mislabeled especially in state owned motherless babies homes so as to be channeled into private pockets.

The biggest issue with the mismanagement of fund is unequal distribution of workers salaries and wages[2]. Due to poor documentation of an orphan record, children are being reported to be missing without trace from the motherless babies home. These are actually the problems that are discovered in the existing system that promoted for this research work for the system development for social service and motherless babies homes to work more effectively and also help the social welfare services to monitor and evaluate the activities and operations of the motherless babies home. The system developed will help social service workers and motherless babies home to implement and evaluate best practice approaches for existing and new intervention programs which will use information will use information technology to improve the social condition health, development and quality of life of vulnerable children and orphans. The new system will also give support and guide to adopting families as they go through the pre and post adoption processes.

Background Of Study

Clearly the use of evaluation system in social service practice is highly contingent upon local policy implementation, the local arrangements of services and everyday practices of busy and skeptical practitioners when it comes to their role in critical and creative thinking, Obadare, E.[3]. Even so, it seem that the introduction and application of ICT and evaluation information system in child welfare has been driven by attempts to improve management information system and to increase the accountability and surveillance of both practitioners and children, young people and families with whom they work. At the moment, there is no unique evaluation information system or IT management system for evidence of social services beneficiaries and social services. It should be noted that although the systems being used now are very similar, there is also no standardized procedure or organizational hierarchy that can be find among the Social Work Centres (SWCs). SWCs currently use simplified desktop based system for keeping analytical records needed by the Institute for social activities.

The operational work is mainly managed by hand or via standard office application tools. None of these databases are connected across SWCs. Patel, L.[4]. The lack of a centralized database creates many operational problems. Most significant operational problems are: Lack of validation on offered services allows for the possibility of multiple requests for services in behalf of recipients in multiple locations around the country. Lack of high-level security measurements on local databases allows for illegal database modifications without the possibility for tracing these changes. Current database structure does not allow any data queries for analytical, budgeting and forecasting reporting. The need for a common repository for Business rules is needed to control indiscriminately

approvals/denials of services and easy system maintenance and system updates with new policies and procedures. In many ways, the current literatures on the use of ICT in child Social service is in sharp contrast with the rapid and creative use of ICT where increasingly people seem to find it more satisfying and preferable to discuss some of the most difficult and intimate part of their lives via computer mediated communications rather than through face to face discussion. Most of the discussions and researches made on the development of evaluation system for social services especially in the motherless babies homes end up theoretically and some ended up in the use of general purpose computer programs in the social service welfare or the development of a stand-alone system without access to the internet or cannot be shared on a network,[5].

This research focuses on the design and development of a web-based evaluation system that can be viewed from any part of the world by whoever can have access to internet facility but certain areas of the portal will be accessed by only authorized persons. This system will offer opportunity to change communication in ways that will have direct and very positive possibilities for child social welfare. What seen particular attractive is that such services offer the possibility for a greater degree of confidentiality, something which is very important if children and young people are going to access services provided by the system,[6]. This social service evaluation system will create opportunities that will enable people in a socially disadvantaged situation an access to all services provided by the institution possibly to live in the own home environment to maintain meaningful relations with other people. Computer evaluation provides a judgment based on assessments of relevance, appropriateness,

effectiveness, efficiency, impact and sustainability of development efforts. It involves a rigorous and systematic process in the design, analysis and interpretation of information to answer specific questions. It highlights both intended and unintended results, and provides strategic lessons to guide decision-makers and inform stakeholders. Though evaluation can provide critical inputs to evaluation by way of systematic collection of data and information, yet an evaluation system serves a complementary but distinct function from that of an evaluation system within a performance management framework[7].

Materials and Methods

Structured systems analysis is used in this study for the development of social service evaluation system because it is a more methodological approach to software design and it proposes structural methods which are sets of notations and guidelines for software design. It involves the specification of procedures and methods for collecting and analyzing data necessary to define or solve the problem for which the research is embarked upon. The scope of the research covers the activities and operation of the motherless babies home as well as the well being of the orphans. This research focus on the pursuit for truth with the help of study, observation, comparison and experiments i.e. systematic method of finding solution to a research problem identified. The process of this research work is a systematic method that includes the following in logical sequence: Enunciating or defining the research problem, Formulating the hypothesis/research question from the research problem, Designing the appropriate research process, Collecting facts or data to help answer the research question, Analyzing the data, Reading certain conclusions from the analyzed data hence

answering the research question. To achieve the objectives for this study, system analysis was carried out on the case study (Motherless babies home).

The System analysis carried out on the case study provides a contextual overview of a particular condition of social service work at a given point in time. Structured system analysis covers all the processes of gathering, analyzing and using information to guide, plan and mobilize action. It can also provide an objective measure of the well being of children in the motherless babies home because it is directly tied to the programming objectives or indicators and it is based on independent methodology and a participatory approach. A cross sectional research study was adopted because the research project dealt with a case study. A case study was used as a means of research because it helped with a focused analysis and steady. In cross sectional studies, subject variables are measured at a single point in time to study information. The advantages which arise from cross sectional studies include short duration, relatively in expenses, subject dropout, not a problem; can study several outcomes, better control over subject selection and measurement. A system analysis using the systematic approach examines a business situation with the intent of improving it through better procedures and methods. The systematic approach used in this study was the system development life cycle (SDLC) which is a phased approach to analysis and design that hold that systems are best developed through the use of a specific cycle of analysis and uses activities,[9].

In the study of the children living and the activities to the motherless babies home, documentation, internet, interviews and observation were mainly used as fact-finding methods. In a bid to ensure correctness of the collections and to better

understand the constraints of the traditional libraries, the researcher reviewed various methods used to avail collections to users, with the intention of discovering strength and weakness of the system. Challenges met when using the manual system were reviewed and steps were taken to ensure that they are either eliminated or reduced in the proposed new system. To obtain quality data, a situation analysis is used and it requires attention to details and procedures. The techniques and tools presented in this research work are based on a process that uses the data gathering methods. However, not all of these methods are appropriate for all analysis. The most critical consideration is to determine which combination of data gathering techniques will ensure that the analysis collects enough and the right kind of information to mobilize action.

System Design

To examine understand and interprets the magnitude and nature of the problem in the motherless babies home, potential support system and care, and the social conditions of the children in the motherless babies home, this study draws a qualitative research approach. This approach contributes to the process of reconstructing research knowledge as the researcher observes records, describes, interprets and appraise settings as they are[10]. Within the context, qualitative researchers interacts with participants such as orphans and their careers as they attempt to understand and make sense of the social world/natural setting and activities being carried out on the existing system from the perspective of the targeted participants. Because of the setbacks of the existing system, a new system is proposed that will eliminate or reduce the problems encountered in the current system. From investigation and analysis, the new system will provide users

with all the relevant information about the new system and adequate security of the data stored and data in transit and also the data stored will be incomprehensible to unauthorized persons. The new system will be computerized using a web portal service and it is aimed to improve the speed, integrity, quality and accuracy of services.

However it is good to note that many roles of human in the manual system could be automated. The justification for the new system includes; Timely staff and child record registration, Timely processing of information, Error free processing of data, It is inexpensive to administrators, Transaction is secure (Authentication), protects records/documents using password, It is cost effective, Easy decision making, Easy backup or duplication of data in disk in case of data loss. At the moment, there is no unique evaluation system or IT management system for evidence of social services works in the motherless babies home. Motherless babies' homes currently use simplified desktop based system for keeping analytical records needed by the Institute for social activities. The operational work is mainly managed by hand or via standard office application tools. None of these databases are connected across different SSCs or with the Institute for social activities in Nigeria. The Motherless babies home and Centres for Social Service Work will use the evaluation system for Social Service for their everyday work. They will be mainly concerned with the input of operational and analytical data regarding to the social welfare service beneficiaries. Since they operate with private and sensible data, there is need for the security policies and user roles for accessing and manipulation with that data is obvious.

The newly developed communication infrastructure within the social service is based on IP protocol, and on the basis of

that choice, all sites will be supported by appropriate TCP/IP connection. The network infrastructure will ensure the connection between the components provided in the various domains and the other systems that need to interface to the Social Service evaluation Information System. In order to achieve the objectives of this development of Social Service evaluation system, the System must be based on the Web based System Architecture. This approach typically include: Web Server – for rendering the client presentation, Application Server – for support the service logic, Database Server – for supporting data management: Security and/or user domain server – for integration of various security policies. The only necessity for the evaluation system to run is a JavaScript enabled browser. Applications are designed to use XML as a data interchange methodology[11].

The social service evaluation system will implement XML as a data interchange process and the use of XML would provide the following advantages: A standard means to exchange information between different systems and A standard way to query data from different systems. The system XML must state the standards and protocols deployed for the purpose of electronic data exchange. The evaluation system for Social Service incorporates informative website to the web portal explaining the available Social Services and documents they need in order to apply, view services and general activities of the home. The web site will also enable sign on for all functionalities of the system. At access level, Social service network information system will have two users: external users using web based access over https enabled internet connection, and internal users using web based access over intranet. It should be noted that there might be more than one system that will be access

using the same client machines. Thus, the security enabled web based access is recommended for the intranet users as well[12].

There are three important processes that must be considered within Social service Network system: e-request processing for external users, e-forms processing and communication with Social welfare service system. The reporting tool for the evaluation system for Social Service provides OLAP or OLAP like functionality. OLAP Stands for "Online Analytical Processing." OLAP allows users to analyze database information from multiple database systems at one time. While relational databases are considered to be two-dimensional, OLAP data is multidimensional, meaning the information can be compared in many different ways. The system will be developed to take into account the following considerations: it is currently anticipated that the evaluation system will permanently store the multimedia data; and databases will have to provide the storage needed for auditing logs. The high criticality and confidentiality of the data in the evaluation system requires a high level of safety. It is essential that all aspects of security are considered, evaluated and integrated in the provided solution. The requirements are based on the ISO 17799 standard, Information Security Management System and Regulative for technical and organizational means for providing security and confidentiality for personal data manipulation.

Network security

The control of passwords, installation and management of firewall systems should be provided. It is also recommendable to provide a complement to traditional firewall protection, in form of mechanisms to detect attacks, intrusion and strong authentication.

Logging and evaluation

Actions that have to be logged are:

- All database modification requests (Creation/Update/Deletion);
- All queries; and all answers to queries, including no Hits;
- Data dumps, database restorations and repairs;
- All communications between the SoSNIS and the other systems;
- All User and logons and performed actions, as well as failed or unauthorized logons.

Confidentiality of communications

All communications between the SoSNIS to the end user workstations and other systems will be confidential and protected. It is therefore necessary that this traffic is encrypted so that, even if intercepted messages, which cannot be accurately interpreted

Implementation

The requirements of the development of Social Service evaluation system for motherless babies home website system demands that a capable programming language can be used for its implementation. Hence PHP was chosen.

User Interface and Mark up

There are several technical areas to consider with regard to a site's interface. Obviously the site's visual appearance is important. It is also important that

information is presented in a logical manner[3]. As such it is vital that web pages are produced using valid HTML mark-up, and that the HTML code accurately describes the content. Cascading Style Sheets (CSS) are used to control the styling of your site. This enables presentation to be separated from content, and also allows you to have control over the presentation of all pages within your site from one central point. The web portal evaluation system for social service is developed to function correctly in range of browsers across all platforms like (IE6 and above? Safari? Firefox? Netscape Navigator 4?). The range of screen sizes is also considered in the site's design to all the site work in different screen resolution.

Results and Discussion

Changing from paper-based to computer-based systems can be challenging for social service agencies. This has to do with the complexities of using these systems in conjunction with the helping professions. For instance, technology vendors are used to working in the corporate world and the programs they sell may not fully take into account the intricacies necessary to ensuring confidentiality and streamlining client information. Similarly, the cost of new technologies may be beyond the budget of many social service organizations, particularly those that operate not-for-profit.

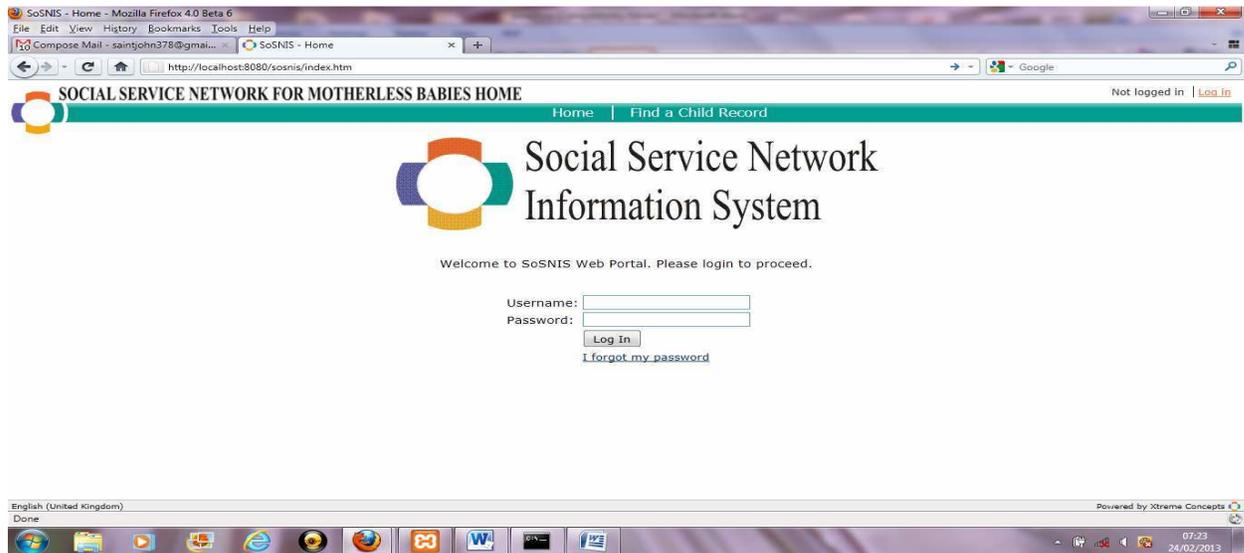


Fig. 1:

However, when organizations find the right fit, these transitions can be successful and beneficial overall for both the organization as well as the clients. The field of social work faces a critical need to incorporate ICTs into training social workers, delivering social work services,

and the conduct of social work research. It is clear that ICTs, when thoughtfully and effectively used, can improve the various practice methods of social work (i.e., delivery of services, education, and research).

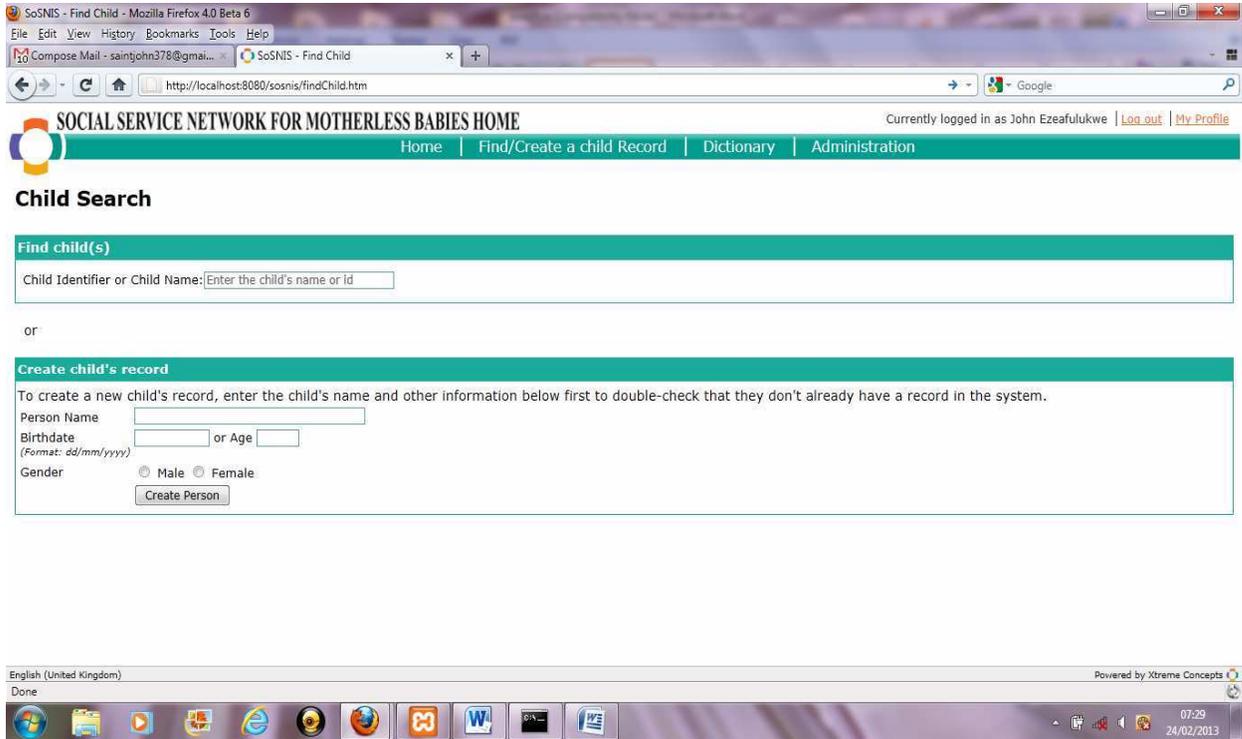


Fig. 2

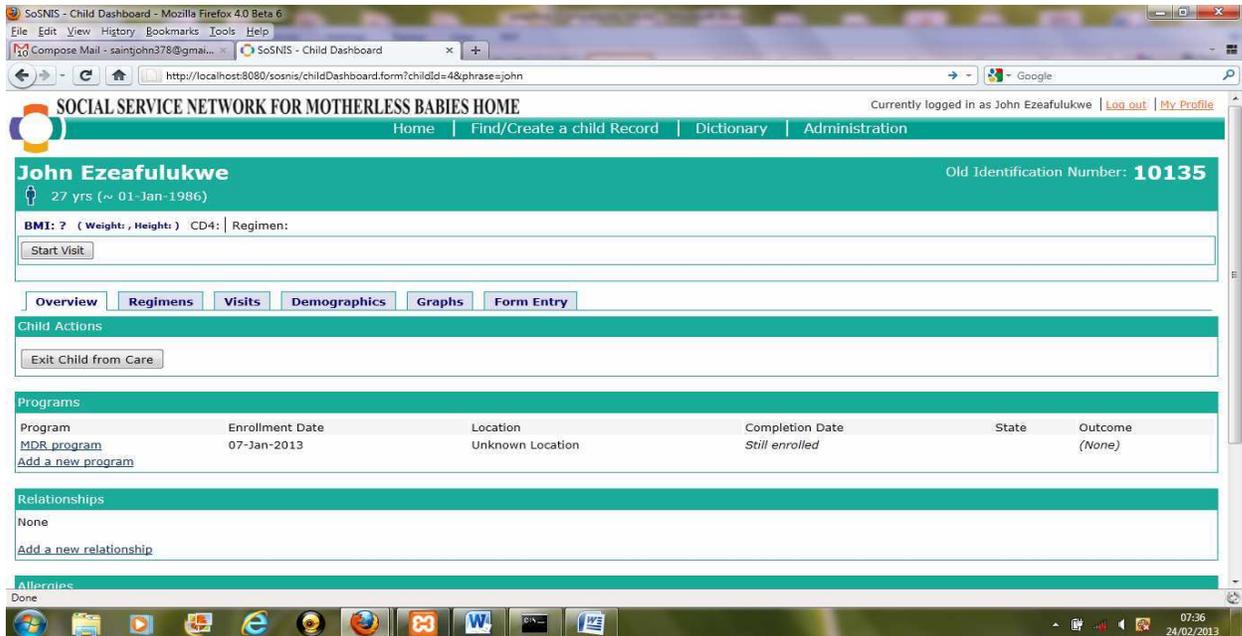


Fig. 3

The system developed and presented in this study will serve as a Web based record keeping/document management system which is an electronic system used by organizations to keep a track record of their electronic documents. The programs are designed in such a way that storing, management, retrieval and archiving of documents can be done in an easy manner. These are seen as the benefits of internet web portal which this new system presents:

- It saves a lot of space as this system ensures paperless office and workstations. The files and documents are saved in electronic format, thus depleting the need of physical record keeping system.
- Since many people just keep one file or record in their office which increases its risk of getting lost, web based document system allows saving of files and records online, thereby reducing the possibilities of data theft or misplaced.
- Since document management is done electronically and there are no physical files or records, the electronic documents will not get lost or damaged.
- There is no need for any type of technical support, up gradation, maintenance and other services because most of the document management systems have these in-built features.
- This system allows better control over record keeping and files.
- Various departments of the social service can coordinate and communicate while accessing the data and important records from anywhere and anytime.
- This system allows faster retrieval of documents and records.
- This system reduces the operational and administrative costs of the social service centers and the productivity of the employees increase because of the hassle free paper work job.
- This system allows access and control of document based processes like invoice making, salary sheets, debt collection charts, pay slips and many other documents.
- The social service evaluation systems is an online program and so is well equipped that it takes a back up of the document in multiple ways by the time the document is saved. So there are absolutely no chances of losing any data record or file because of the data recovery system featured in-built in these programs.
- The documents can be secured by conducting timely audits and giving a password account to those employees who have the authority to access and update any document in the program.
- Any document can be locked easily by the administrator if he or she does not want other employees to make any changes in the file.

References

- [1] Kendall, (2008). *Love, Hate and Welfare: Psychosocial Approaches to Policy and Practice*, Bristol, The Policy Press.
- [2] Kian. L., Stewart, M, Bagby, C., and Robertson, J, (2008). "Justifying the Cost of a Computer-based orphanage Record"- *Social service Financial Management*, Agbon Publishers, 49: 58-60, 62, 64, 66-67.
- [3] Obadare, E. (2007). 'Social work in orphanage homes' Routedge and Kegan Paul Ltd, London.
- [4] Lenhart, J. G., Honess, K., and Johnson, K. E. (2006) "Analysis of Trends, Perceptions and Patterns of Electronic social service beneficiary Records", *USFID*, February 2006, 32: 109-114
- [5] Manovich, L. (2006). "Towards electronic orphanage" *Journal*, May/June 2006, 43: 52, 54, 56-57, 74.
- [6] Coulshed, V and Orme, J (2008). *Social work practice*; Macmillan press Ltd, London.
- [7] Davis, M. W (2009). "Reaping the Benefits of Electronic social services Record Systems." *Healthcare Financial Management*, June 2003, 46: 60-62, 64, 66.
- [8] Ferguson, H. (2008), "Social Work Informatics: A New Specialty". *Social Work* 51 (2): 127-134. National Association of Social Workers. Retrieved on 2008-02-19.
- [9] Hummers A.G. (2008) 'Social Work, Individualization and Life Politics', *British Journal of Social Work*, 31(1), pp. 41-55.
- [10] Institute of Social care, (2010) 'The Computer-based Recording of social work activities' *An Essential Technology for social welfare*, 2nd edition. Washington, DC: National Academy Press.
- [11] Patel, L. (2007). "Computerized monitoring system in orphanages" *Healthcare Financial Management*, September 2007, 51: 68-70.
- [12] Tang, P. C., and Hammond, W. E. (2004) "A Progress Report on Computer-Based motherless babies Records in the United States." Boston Publishers, Texas.