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Global Journal of Networks and Applications

Aims and Scope

Global Journal of Networks and Applications welcomes research contributions, surveys and notes in all areas relating to computer networks and applications thereof. The following list of sample-topics is by no means to be understood as restricting contributions to the topics mentioned:

- New design techniques, interesting or novel applications, components or standards.
- Interface issues including special consideration for handicapped persons.
- Computer graphics, 3-D modeling and virtual reality multi-and hypermedia including electronic publishing and digital libraries.
- Computer networks with tools such as WWW or Hyper wave.
- Emerging standards for internet presentation levels (such as XML) and Internet protocol level, new compression standards for still pictures, movies, audio and vector data, 3-D data and cartographic data.
- Work on metadata and its applications.
- Applications of networked and stand-alone multimedia systems to computer assisted presentations.
- Applications of an educational, transactional and co-operational nature.
- Gateways between databases and security, privacy and societal aspects of network and computer technology.

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Adoption of Standards: On Path to Sustainability in Information Service Delivery Under Digital India Initiative

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A B S T R A C T

Providing access to information and knowledge is a primary function of libraries of all categories. Library contributes to effective information management within an Organisation and plays an integral role in the Organisation's ICT infrastructure and beyond its boundary. Adoption of Standards facilitates "interchange" of library data, "promote" the inter-operability of library systems, and "support" the operation of national and international networks of libraries. Throughout the World, National Libraries participate in the definition and promotion of national and international standards for Library & Information Management and Information retrieval.

Based on the Standards Activities of the National Library of Australia (NLA), this Paper suggests establishing (a) a National Library Standards Activities Group to set priorities and allocate resources to standards-based activities,(b) Information Technology Division to maintain and development of "Standards for Libraries" including giving expert advice on IT Standards; and Resource Sharing Division with a view to expert advice on "system interconnection Standards" and related application protocols. It is essential to endorse and promote "standards of professional excellence for teacher librarians" to strengthen the Standards for Library Management.

Keywords: Library Standards, Library Services, Digital India Initiatives

1. INTRODUCTION

With a view to create awareness, and promote the effective utilization of standards among Libraries, Documentation and Information centres, the Bureau of Indian Standards (BIS), the National Standards body of India, is organizing the National Seminar on the Theme "Role of Standards – A Tool for effective Library Management". Library Practitioners from various academic institutions, Research scholars, Teacher Librarians, Members of Standards Sectional Committee and other stakeholders are participating in this National Seminar. My Keynote Address is titled "**Adoption of Standards: On Path to Sustainability in Information Service Delivery under Digital India Initiative**".

[1]*Keynote Address delivered, as Guest of Honour, at the National Seminar on the theme: "Role of standards – A Tool for effective Library Management', being organised by the Bureau of Indian Standards (BIS), Government of India, New Delhi, on 17 December 2014.*

Providing access to information and knowledge is a primary function of libraries of all categories. Library contributes to effective information management within an Organisation and plays an integral role in the Organisation's ICT infrastructure and beyond its boundary. Adoption of Standards facilitates "**interchange**" of library data, "**promote**" the inter-operability of library systems, and "**support**" the operation of national and international networks of libraries. Throughout the World, National Libraries participate in the definition and promotion of national and international standards for Library & Information Management and Information retrieval. India has about 150 Departments of Library and Information Sciences producing about 10,000 graduates every year, about 400,000 School Libraries, and about 25000 Academic, Research and Institutional Libraries. There are more than 500 Faculty Members (Teacher Librarians) in India.

National Mission on Libraries

The Government of India has set up the "National Mission on Libraries", as per the recommendation made by the National Knowledge Commission (NKC), with the aim of preparing long term plans and strategies for development of the library sector, including conceptualization and approval of projects and preparation of a "**National Policy on Library and Information Systems for India**". It has also set up Working groups on (a) setting up of National Virtual Library, Networking and ICT applications in libraries, (b) National Census of Libraries, Content Creation and Community Information Centres, (c) up-gradation of the existing Public Libraries, School/College Libraries and use of school libraries as community libraries, and (d) Library and Information Science Education, Training and Research facilities.

Digital learning - one of NDA Government's priorities of Digital India

Digital India Programme, as launched by the NDA-II Government on 20th August 2014, promises to transform India into a connected knowledge economy offering World-Class Services at the click of a mouse. "When we move a mouse, whole world moves" – Hon'ble Prime Minister, Shri Narendra Modi, said in Tokyo (Japan) during his official visit, on 2nd September 2014. The Digital India Programme is envisaged to provide "thrust to Nine Pillars of Growth Areas" viz., Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access programme, e-Governance : Reforming Government through Technology, e-Kranti (empowerment) : Electronic Delivery of Services, Information for All, Electronic Manufacturing, Jobs in IT Sector, and Early Harvest programmes.

Keeping in mind global trends, Shri Narendra Modi, Hon'ble Prime Minister of India, emphasized on "digitalization of education", in his Independence Day speech this year. Programmes such as "**Campus Connect**", "**National Digital Library (NDL) – e-Library**" to be made operational by the academic year 2015, "**India MOOCs (Massive Open Online Courses) Platform", "SWAYAM" (Study Webs of Active-Learning for Young Aspiring Minds)** of on-line courses, and **National Repository of Open Educational Resources (NROER)** having digital and digitisable resources (audio, video, interactive images and documents) in different languages, will get its own priority in India now. Consortia like INDEST, UGC-INFONET, etc. are providing information to the users on the basis of capacity of their parent organizations. **The active role being played by the Ministry of Human Resources Development is noticeable. Development of e-content in each discipline is, undoubtedly, a challenging job.**

Knowledge for Innovation (K4I) – A National Agenda

The **transformation from agrarian to industrial and now to Information and knowledge society has largely been brought out**, as a result of the accumulation of knowledge and the advancement of ICTs. With increased use of ICT, specific adaptations of technologies such as knowledge bases, expert systems, knowledge repositories, group decision support systems, intranets, extranets, workflow, Data Warehouses, Web conferencing etc., have been introduced to further enhance KM efforts. The purpose is to facilitate knowledge mining for leveraging organizational knowledge.

Organizations that want to prosper in the Knowledge Society, require **fusing synergistically IT as knowledge-creation tools and human beings with collaborative knowledge creation capabilities**, to become a knowledge-creating organisation (IkujiroNonaka et al, 1996). There exist two types of knowledge: i.e., **tacit knowledge** (e.g. intuitions, unarticulated mental models, or embodied technical skills) and **explicit knowledge** (i.e. a meaningful set of information articulated in clear language including numbers or diagrams). **One school of thought**, especially Japanese, tend to consider knowledge as primarily "tacit", i.e. personal, context-specific, and not so easy to communicate to others, let alone via computers. **Another school of thought**, especially Western Countries, tend to view knowledge as "explicit", i.e. formal, objective, and not so difficult to process with computers. Knowledge Representation (KR) has been impacting and innovative research areas for decades together.

Knowledge and Innovation have played an important role in the development of society throughout the history. **Knowledge Creation** is a gradual process of adding value to previous knowledge through innovation**. One of important aspects of Knowledge Economy is the gradual shift from material goods to intangible goods** (Suliman Al-Hawamdeh, 2003). Knowledge Management (KM) facilitates (a) utilizing current expertise, (b) leveraging learning from previous experiences, (c) enabling rapid scaling up, (d) mitigating risk of attrition, and (e) sharing best practices, in organizations who aim at productivity.

Knowledge Representation (KR) is a key pillar of Knowledge Management, Artificial Intelligence, Cognitive Science and Software Engineering. The field of Artificial Intelligence (AI) explores **ways to build representations of information** from the World's richness and to manage these representations over time for a range of purposes from decision making to actuation. Among the emerging concepts is one that revolutionized the way to establish the parameters of where, why, and how to store that information - CLOUD COMPUTING (www.km4dev.org). Advances in ICT have finally realized "end-user and mobile computing", which have enhanced autonomy in terms of information and action at the both individual and group levels. **Cloud Computing and Virtual Networking (Next Generation Networks - NGN) will shape K4I Processes**.

The Paradigm shift is "Knowledge for Innovation" (K4I). In Europe, Knowledge4Innovation (K4I) is an open, independent, non-profit Platform, with a wide variety of stakeholders including small and large Companies, Universities and Research Centers, Regions and Cities, Trade organizations and Think Tanks. There is a broad consensus that People, such as Researchers, Entrepreneurs, Civil servants and Society at large, play a significant role when it comes to Innovation.

e-Governance Framework - Libraries as Information Delivery Points

In India, **many e-Governance projects have been initiated during the last 15 years with huge investments by the Central as well as State Governments**. India has experienced prolific advancements due to National Telecom Policies (NTP), National Knowledge Networks (NKN), National e-Governance Plan (NeGP) and involvement of public and private Institutions, including civil society to foster Citizen-Centric Services, and now with **the Digital India Initiatives**. Investments in National e-Governance Programme (NeGP) of INR 23000 CR, Public Information and Infrastructure (PII), National Fibre Optics Network (NFON) of INR 21000 CR [expected to go up to INR 40000 CR], and National Knowledge Network (NKN) of INR 5600 CR, **have no "specific role" for Information and Library Science Professionals**, in view of the fact that the Libraries have been the

"information delivery points" and "information generation points" in a structured manner for decades together. In India, there are about 5 lakhs libraries providing information access to Public. With **Digital India Initiative** Programme of the NDA-II Government, Libraries have to become "Information delivery points under the e-Governance Framework",

While delivering the Keynote Address in the National Conference on "**Knowledge Management in the Globalized era**", Organized by Association of Agricultural Librarians and Documentalists of India (AALDI), NASC Complex, New Delhi, 21-23 April 2010**, I have suggested** to the Director General, ICAR who was the Chairman of the Inaugural Session, to consider setting up a Working Group on "**Knowledge Management in the Globalized Agricultural Development: Role of Agricultural Librarians and Documentalists**" under the 12th Plan Working Group for formulating Agricultural Sectoral Plans. In India, there are more than 500 Libraries functioning in agricultural establishments, providing services to more than 35000 S&T professionals and about 500,000 agricultural graduates and research scholars, in the campus of National Agricultural Research and Education System in India.

While delivering the Keynote address in another National Conference on "Knowledge Organization in Academic Libraries (KOAL) 2012", organised by the Association of Academic Libraries, I suggested:

a) Promotion of Specialized Information Centres (SICs) through on-line Portals,
b) Information service through Academic Libraries to Common Public, especially Farmers, in Rural India,
c) Launching of a **4-Year B.Tech Course on Informatics and Computing (Library & Information Science and Engineering -LISE)** to synergize Computer Science, Information Technology and Library Science,
d) Information Delivery Point for e-Governance Programme, and
e) Setting up a Task Force on "**e-Governance : Role of AAL**" for making "e-Governance delivery" more vibrant in the country.

The role of Library and Information Science (LIS) Professionals **is increasing day by day**, in respect of knowledge management and knowledge dissemination to all stakeholders, through the ICT Infrastructure being created through various Mission Mode Projects.

The **focus of Knowledge Management is connecting people, processes and technology** for the purpose of leveraging organizational knowledge. **Open Access**, **Open Source** and **Open Libraries**

(PLANNER 2008 Conference Theme of INFLIBNET) facilitate Knowledge Management, when there has been impact of globalization and change on the development of libraries, information infrastructure, and society. **Open Library is a synergy of Internet Connectivity and WWW Technology**.

It is **very appropriate** to look into (a) adaption of Knowledge Management (KM) methods, (b) involvement of Librarians and Documentalists in Knowledge Base Development and Knowledge dissemination in 22 (Constitutionally recognized) Indian languages using Open Technology "Openness", and (e) also the relevance of **"Library & Information Science"**, in the era of "Knowledge Economy", for inclusive growth in India through "e-Governance".

Paradigm Shift in Information Management

The Paradigm Shift in "Information Representation" is towards **Data standards and Metadata Standards** for application in Information System Management. Information representation and retrieval (IRR) is known as abstracting and indexing, information searching, and information processing and management. **Information System Management Professionals are expected to know this principle of Library and Information Science (LIS). But this is not happening in India.**

Resource Description Framework (RDF), a W3C recommendation in February 1999, is an infrastructure for encoding, modelling and exchanging metadata (Heting Chu, 2010). RDF uses XML as the transfer syntax and is a foundation for processing metadata.

Representation information is not the same thing as metadata and describes data in administrative, descriptive, technical, structural and preservation terms. **In the Lifecycle model**, metadata is covered under the Description term. For example, Digital Objects are stored as "bit streams", **which are not understandable to a human being**, without further data to interpret them. Representation information is the extra **structural or semantic** information, which converts raw data into something more meaningful. For example, structure information can tell a computer to interpret a string of bits as ASCII characters and semantic information can explain what a particular mathematical symbol means. **Open Archival Information System (OAIS) Version 7 describes about "Representation Information"**.

Advancements in Information Technology are taking place, both horizontally and vertically, due developments in the areas of: **Social Media Networks, Data Analytics & Modelling, Mobile Apps and Enterprise Mobility, Mobile and Cloud Computing, Open Data and Open Gov, Data Security**

and Social Platform, Advanced Computational Intelligence, Data Storage Technology, Internet Speed, WWW and Its Language HTML, Smart Phone & Connected-TV, and Tablet Computers and Apps.

Information Management is facilitated by the use of Information Technology and Information Sciences. Information Management, Information System Management and Information Technology Management are vertical disciplines but related as Information Science → Information Management → Information System Management → Information Technology Management, and hence they are to be understood intrinsically, to derive maximum benefit as ROI in an Organisation.

Paradigm Shift in Librarianship

Library Science Education in India is undertaken in about **150 University Departments**, by around **500 faculty members**, and produces **more than 5000 Library graduates** annually. While delivering my invited talk titled "**Library and Information Science: Paradigm Shift**", in the Department of Library and Information Science, University of Delhi, on their Annual Day Celebration,26th April 2012, I have reiterated that:

A. Librarians as Change Agent

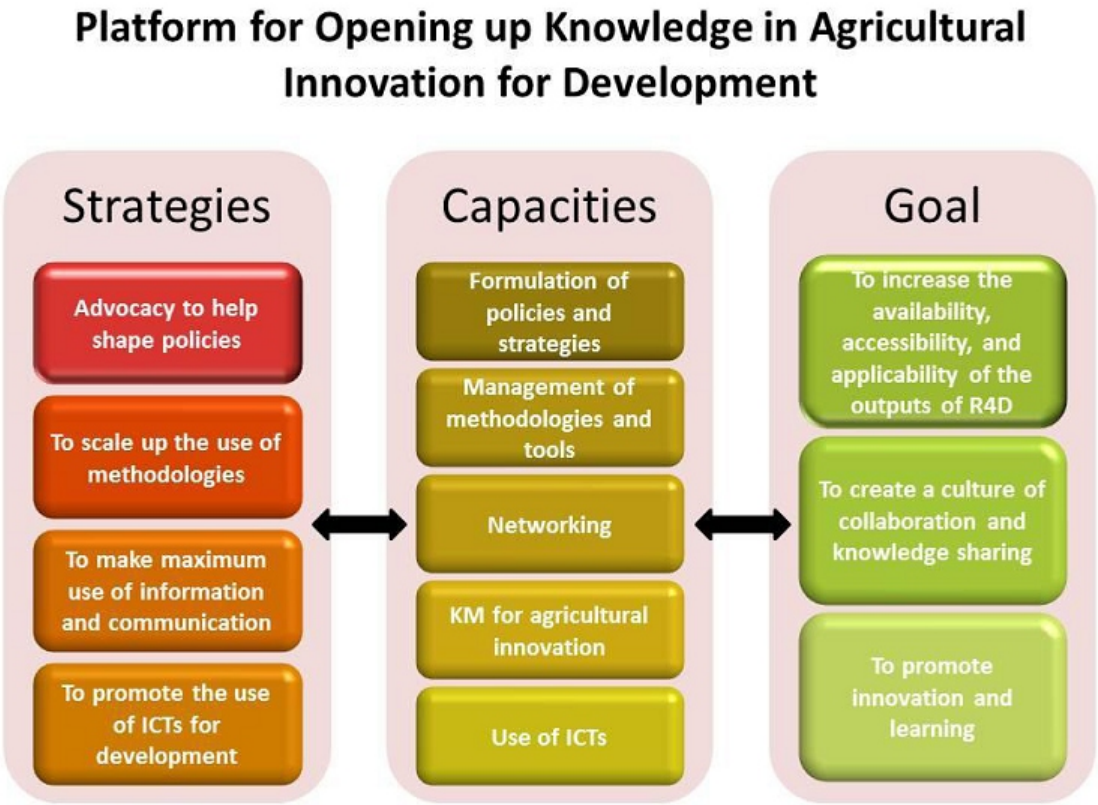
- Today's Global challenges require a new Librarianship, based on Community engagement;
- How can Librarians promote Social change?
- How can Librarians bridge the gap existing between "technology" and "end-user"?
    - ❖ Remote Sensing technology and farmers – How to utilize?
    - ❖ Information technology and farmers
    - ❖ Agricultural technology and farmers
    - ❖ Post-Harvest technology and farmers
    - ❖ Agro -met advisories and farmer
    - ❖ Livestock management and farmers ….
- Information resources – Print media (library), Video media, digital media, Databases, Data centres, YouTube, Facebook, Google Map, Bhuvan Map etc.
- Information Search Engines (top 5): Google, Yahoo, Bing, Ask and AOL :
- Meta Search Engines: Web Crawler etc.
- Video Conferencing, Chat, Ag CHAT, Social networks etc.

B. Libraries– partners in nation building

C. Any Shift noticed?: "More Librarians" are required to emerge than "More Libraries"

It is necessary to introduce **Library and Information Science (LIS)** as curriculum, in different levels, in about 4 lakhs schools and 28000 colleges, to make "**India a Knowledge Society**". Students who come out from 10th Standard and from Colleges shall be taught on "**Information Science**", in view of "Information Exchange" revolution taking place through Internet and Mobile communications.

Innovation is now regarded as a very important strategic priority to help tackle the challenges facing agriculture and the rural world. **Innovation is the application of new knowledge to production processes**, i.e., the appropriation of new knowledge by the decision-maker (in this case, the producer). The management of knowledge is, therefore, a key element of innovation. The Platform for Opening up Knowledge in Agricultural Innovation for Development (OKAID), as discussed in the EMBRAPA International Workshop (2011) , as given below, is worth consideration for operationalisation in India.



Opening Access to Agricultural Knowledge Global Initiatives

"Open data" means "available without restrictions" and "machine readable". In agriculture, there is a major barrier that effectively stops people getting what they need. Many agricultural innovation organizations invest only a small fraction of their resources in communicating their results and ensuring they are well adapted to the needs of rural society, and most provide less than 10% of their available information on the Internet". **Much attention has been focused internationally on how digital information and communication technologies (ICT) can improve access to technical data and knowledge in all sectors including agriculture. This drive has been reflected in the Post-2015 Development Agenda and called for a "data revolution" for sustainable development, with a new international initiative to improve the quality of statistics and information available to citizens.**

Content to Connectivity: The Prospective Digital Platform for Inclusive Growth in India

The World Bank ICT strategy is "**Connect, Transform and Innovate**". Cloud networking offers a combination and integration of cloud computing and virtual networking (Ahlgren et al 2011). The UK (July 2013) Report "**Connectivity, Content and Consumers – Britain's digital platform for growth**", recognised the role that digital infrastructure and connectivity has, **in delivering economic and social benefits**, and also announced the intention to develop a **digital communications infrastructure strategy** to ensure that the United Kingdom (UK) has the right infrastructure in place to meet the needs of users in 2025-30 and ensure that the UK remains a leading digital nation. **Can't India take a clue from this Report?** Next Generation Network (NGN) Architecture will be based on **information-centric networking, cloud computing integrated with networking**, and **open connectivity**.

Agricultural Information Management Standards (AIMS) of fao.org is actively in the development and promotion of (a) **methodologies and tools** for open access repositories in the field of agriculture, (b) **common standards and protocols** for agricultural information exchange, and (c) **common services to access** partners' distributed information.

What India needs is "Information Infrastructure" (Content), in addition to the on-going massive efforts of "ICT Infrastructure" (Connectivity) by the Government. "Connectivity to Contents" and "Contents to Connectivity" are two sides of a COIN so as the COIN is to have its appropriate value and shining. The **suggested Action Plan** is as follows:

- **Networking of** Knowledge Generating Institutions and establish a Knowledge Grid across the nation covering all Scientific Organizations, Industry and Educational Institutions and other stakeholders;

- **Development of ICT based Knowledge Portals** for all sectors of economy and linked to the National Knowledge Grid;

- **e-Learning to focus** on rural population and poorest of the poor and bring them onto mainstream so that they could have access to knowledge and service deliveries;

- **Incorporation of Knowledge Management related aspects** in both Information Technology Act 2012 and RTI Act 2005;

- **Conversion of 5 Lakhs Libraries** to access Public Information as well as to function as delivery channels for e-Governance Service Deliveries;

- **Inclusion of "Knowledge Management in Government"** as one of the deliverables in e-Government/e-Governance programme;

- **Inclusion of LIS Professionals** as Digital Information Life Cycle Management Managers;

- **Developing Digital Open Knowledge Resources** in 22 Constitutionally recognized Indian Languages ;

- **Capacity building** for agricultural knowledge management and communication;

- The existing National Knowledge Network (NKN) to be renamed as "**National Knowledge and Innovation Network"** to emphasize on "innovation" more appropriately.

Digital library activities are gathering momentum in developing countries. Since most higher education and research institutions in India are funded and controlled by the Central and State Governments**, clear-cut national plans and polices are needed for infrastructure, standards, metadata, interoperability, multi-lingual databases, training, co-ordination, copyright, and archiving and preservation methods**, so that our heritage knowledge and culture can overcome the ravages of time, and present and future generations can benefit and be guided by them. **Multi-lingual Digital Libraries, accessible through 500,000 physical libraries in the country, will be the "Prospective Digital Platform for Inclusive Growth (e-Inclusion)" in India.**

Adoption of Standards: On Path to Sustainability in Information Service Delivery under Digital India Initiative

There are about 69 Standards dealing with standardisation activities in the areas of Libraries, Documentation and Information Canters, listed under the Indian Standards of Documentation and Information Sectional Committee, MSD5 of the Bureau of Indian Standards (BIS) :-

- abbreviating title words and publications,
- alphabetical arrangements;
- general guidelines for preparation of abstracts;
- Glossary of cataloguing term;
- Rules for making alphabetical indexes;
- layout of library catalogue code;
- Guidelines for Bibliographic references and Citations to Information Resources;
- Guide for preparation of manuscript of an article in a learned periodical;
- Data elements and interchange formats - Information interchange - Representation of dates and times;
- Information and documentation - International standard (book /serial) numbering (ISBN) / ISSN;
- Guide for data elements and record format for computer based bibliographical data bases for bibliographic description of different kinds of documents;
- 1994 Information and documentation - International Standard Technical Report Number (ISRN);
- guidelines for services provided by public library;
- The Dublin Core metadata element set - for cross-domain resource description;
- Library performance indicators;
- Quality control for scanning office documents in color;
- Portable document format -- Part 1: PDF 1.7
- Document management -- Electronic Imaging -- Guidance for the selection of document image compression
- IS 16217:2014/ISO 2146:2010 Information and documentation -- Registry services for libraries - establishes the rules for registries operating in a network environment to provide the information about collections, parties, activities and services needed by libraries and related organizations to manage their collections and deliver information and documentation services across a range of applications and domains.

The ISO/TC–46 deals with the International standards (106) on Information and Documentation, ISO/Tc-154 deals Standards (26) with Processes, Data Elements and Documentation in Commerce, Industry and Administration, and ISO/TC-171 deals with 74 standards related to Document Management Applications. The **Documentation and Information Sectional Committee**, MSD5 - Indian Technical Committee - deals with the Standards for which activity has started in 1963 with (1), in 1999 with (3), in 2001 with (7), in 2003 with (11), in 2009 with in (4), 2012with (9) and in 2014 with (6);

Year	# Standards Activity
1963	1
1966	1
1967	1
1971	1
1974	1
1976	1
1980	2
1983	2
1985	2
1987	2
1988	1
1995	1
1999	3
2001	7
2003	11
2004	1
2006	2
2007	2
2008	2
2009	4
2011	2
2012	9
2014	6

The **Documentation and Information Sectional Committee, MSD5** of the Bureau of Indian Standards (BIS) of India engaged in Standardization activity, and is responsible for formulating **about 69 Indian Standards** in various fields relating to Documentation and Information. The Committee comprise of about 30 members representing different stakeholder categories like academic institutions, experts, Govt. and autonomous bodies, libraries, associations, etc. The scope of MSD 5 Sectional Committee is given as under:

- Standardization of Practices relating to libraries, documentation and information centers,
- indexing and abstracting services, bibliographic formats, conservation and preservation of print and non-print medium, archives, information science, document imaging applications, data processing and aspects relevant to processing and handling of documents, and
- Coordination of Work with the following ISO Technical Committees:

1. ISO/TC46: Information and documentation
2. ISO/TC 154: Processes, data elements and documentation in commerce, industry and administration
3. ISO/TC 171 : Document management applications

Under the **e-Governance Standards Initiatives (www.egovstandards.in), the Department of Information Technology had set up the following areas, during 2005-07**:

- Technical Standards & e-Governance Architecture
- Network & Information Security
- Metadata and Data Standards
- Localisation & Language Technology Standards
- Quality Management System (QMS) and Documentation
- Legal Enablement of ICT System
- Government Process Re-Engineering

As the Deputy Director General (Standards), I had steered E-Governance Standards Working Groups for National E-Governance Programme (NeGP) in 2005-06 and organised the nationwide awareness programme through **e-Governance Standards Workshops, Summits and Taskforces**:

1. National Workshops in Bhubaneswar, Hyderabad, Bangalore and New Delhi;
2. National Summit on e-Forms
3. National Task Force on e-Forms
4. National Summit on Identity Access and Management (IAM)
5. National Task Force on Identify Access and Management (IAM)

The e-Governance Standards Working Group on “Data Standards and Metadata Standards” had immensely drawn inputs from the methodology adopted by the Library Standards. Metadata is "data about data". There are two (metadata types), **structural metadata**, about the design and specification of data structures **or "data about the containers of data"**; and **descriptive metadata** about individual instances of application data or the data content (Meta content) (http://en.wikipedia.org/wiki/Metadata). Metadata (Meta content) is defined as the data providing information about one or more aspects of the data, such as:

- Means of creation of the data
- Purpose of the data
- Time and date of creation
- Creator or author of the data
- Location on a computer network where the data were created
- Standards used

International standards apply to metadata. The core standard is ISO/IEC 11179-1:2004 ("ISO/IEC 11179-1:2004 Information technology - Metadata registries (MDR) - Part 1: Framework". ISO.org. 2009-03-18. Retrieved 2011-12-23) and subsequent standards (see ISO/IEC 11179). However, the Information and Documentation adopts the following for its Metadata for records:

- IS 15994 (Part 1):2012 / ISO 23081-1:2006 Information and documentation -- Records management processes - Metadata for records -- Part 1: Principles;
- IS 15994 (Part 2):2012 / ISO 23081-2:2009 Information and documentation -- Records management processes - Metadata for records -- Part 2: Conceptual and implementation issues
- IS 15995:2012/ ISO 25577:2008 Information and documentation – Marc Xchange - This International Standard specifies the requirements for a generalized XML-based exchange format for bibliographic records as well as other types of metadata;

MARC (**Ma**chine- **R**eadable **C**ataloging) **standards** are a set of digital formats for the description of items catalogued by libraries, such as books. MARC 21, which has been redefined the original MARC record format for the 21st century and to make it more accessible to the international community, has formats for the following five types of data:

- Bibliographic Format,
- Authority Format,
- Holdings Format,
- Community Format, and
- Classification Data Format.

The MARC21 is based on the ANSI standard Z39.2, which allows users of different software products to communicate with each other and to exchange data. MARC 21 allows the use of two character sets, either MARC-8 or Unicode encoded as UTF-8. MARC-8 is based on ISO 2022 and allows the use of Hebrew, Cyrillic, Arabic, Greek, and East Asian scripts. **MARC 21 in UTF-8 format allows all the languages supported by Unicode**. **MARCXML**, developed by the Library of Congress, **is an XML schema** based on the common MARC21 Standards. The Library of Congress has launched the Bibliographic Framework Initiative (BIBFRAME), which aims at providing a replacement for MARC that provides greater granularity and easier re-use of the data expressed in multiple catalogs.

With the **advent of MARC standards** in the 1960s, which coincided with the growth of computer technologies, the Library Automation was born (Wallace, 1991). An Integrated Library System (ILS),

also known as a library management system (LMS) included separate software functions (modules) as given below:

- **Acquisitions** (ordering, receiving, and invoicing materials);
- **Cataloging** (classifying and indexing materials);
- **Circulation** (lending materials to users and receiving them back);
- **Serials** (tracking magazine and newspaper holdings);
- **OPAC** (public interface for users).

All functions are based on Standards.

Strategic planning and development of a library is **guided mainly** by the **goals** and **objectives** of the **parent institution** of which the library is a part (http://www.unesco.org). Library Management involves functions such as planning, organizing, leading, and controlling. As part of modernizing facilities, it is required to develop and transform traditional libraries into 21st century Learning Resource Centers (LRCs). These LRCs are more than simply a storage place for books but they are a place where users can access resources in all types of formats whether print, non-print, or electronic.

With the evolution of the Internet throughout the 1990s and into the 2010s, ILSs began allowing users to more actively engage with their libraries through OPACs and online web-based portals. **Open Source LIS** (e.g. Koha) and **Cloud technology based LIS** (e.g. OCLC World Share, Alma, Libramatic, Aura Software, Librarika etc.) are the **"New Environment for Library Management"** based on Open Standards. **Libramatic introduced new technology solution by allowing automated cataloging through scanning a book's ISBN** (www.en.wikipedia.org). ILS is a full-fledged Industry now and has become an important component of Knowledge industry.

Based on the Standards Activities of the National Library of Australia (NLA), this Paper suggests establishing (a) a National Library Standards Activities Group to set priorities and allocate resources to standards-based activities,(b) Information Technology Division to maintain and development of "Standards for Libraries" including giving expert advice on IT Standards; and Resource Sharing Division with a view to expert advice on "system interconnection Standards" and related application protocols. It is essential to endorse and promote "standards of professional excellence for teacher librarians" to strengthen the Standards for Library Management.

Digital Preservation Policy

Will **DIGITAL INDIA Initiative** [the new version National e-Governance Programme (NeGP)] adopt standards for its sustainable operationalisation? **Library & Information Science professionals are trained to use Standards for Information Recording, Management and Retrieval, and Exchange during the Information Life Cycle (ILC).** Will it happen for Digital Information Life Cycle i.e. Digital India Initiative Information Life Cycle?

Conclusion

I do hope that this National Seminar on the Theme "Role of Standards – A Tool for effective Library Management", usher in awareness, and promote the effective utilization of standards among Libraries, Documentation and Information centres. I sincerely hope that my Keynote Address titled **"Adoption of Standards: On Path to Sustainability in Information Service Delivery under Digital India Initiative"** may facilitate standards approach to begin with "Government Process Re-Engineering" to get appropriate ROI in the on-going Digital India Initiative. I suggest that the DIGITAL INDIA Initiative programme adopt "Information Management and Retrieval" Standards for its sustainable operationalisation.

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Mobile Technology and Its Application: Issues and Challenges in Modern Era

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A B S T R A C T

Information Communication Technology (ICT) is the process of exchanging information, using common protocol. As technology develops, communication protocols also evolve. How the traditional library services are now moving to mobile library information services, what type of infrastructure is required by the libraries to provide such services and what are the pros and cons of using this technology in libraries. This study seeks to explore the utilization of mobile phone services in the educational environment, explore the nature of mobile phone use among university students, and investigate the perception of university students on mobile phone uses in library and information services. Indian libraries need to be vital to their users and to this end they have to include mobile devices as part of their strategic ideas. The Technical advancements in ICT and the rapidly changing roles and association of users learning and identifies the social, technical and educational challenges not only in India but also abroad. Mobile learning is the use of mobile or wireless devices for learning while is learning is on the move in modern time.

Introduction

In the era of improved mobile communication technologies, vast amount of changes are generated in facilitating communication and the transfer of information namely from business to business, business to customers, employers to employees, etc. and in providing more and more added value services Mobile phones do not use wires or cables, but work with radio waves and can be carried about and used anywhere. Before the advent of Information and Communication Technologies (ICTs), communication in the library was done through books, newspapers, microforms, slides, etc. As scientific knowledge increased, electronic communication systems began to develop. The use of telephones and computers led to the Internet. The application of telecommunications to an automated library system can bring more efficiency to library services.

The modern age of information explosion poses stiff challenges in providing the necessary information to users at the right time. Mobile technologies have made communication and information access very convenient and timely to users from the comfort of their own homes and offices, and from wherever they are while on the move with their cellular phone units or PDAs (personal digital assistants). The new ways of working afforded by mobile technologies are often characterized in terms of access to information and people anytime, anywhere. The term "mobile used by itself is wireless parlance for the client device, such as a cellular phone, PDA or Laptop. Mobile (or wireless) library service is anytime, anywhere service utilizing mobile devices and includes the concept of mobile Internet service.

Mobile Age

As we know that we have entered the mobile age. Where phones are carried everywhere ,banks are accessed from holes in the well, cars are becoming travelling offices, airplane seats and entertainment centers, computer games are handheld and advertising is ubiquitous. We now have opportunity to design learning communications, to link people in rural and virtual worlds. They make commutes or other downtime enjoyable by providing on-the –go access to entertainments, such as games, e-books podcasts and streaming video.

Mobile Technology versus Libraries

Mobile Technology has now come up with "Libraries in Hand" trend. Our librarians are in move to determine how these devices are affecting information access and ensure that they are communicating with patrons and providing web content in the most appropriate and effective ways. Our Librarians must be prepared to take this challenge and put his efforts to increase the market and demand for mobile access to personalized facts and information anytime, anywhere on one's own handheld device. Since Mobile handled devices truly are personal devices, search histories and physical locations can be harnessed to produce more accurate, individualized information and services. Users on the go don't want to wait for list of web results, Libraries today are covering most of the technologies given by mobile industry like PDA's, Blackberry, iPod, Cell phones, UM PC's (Ultra Mobile PC) and mobilizing library contents in a portable form suit able for small screen and delivering short services in the form of contents/information with device's multiple searching features. Librarians will need to become proficient in using these devices to enable users to access them anywhere from anyplace.

Mobile Document Supply

The mobile environment and technology present new opportunities for sending document requests and scanned images and monitoring the use of collections as well as the automation of administrative operations. It can support electronic funds transfer, supply chain management, e-marketing, online marketing, online transaction processing, electronic data interchange, and automated inventory management systems. Mobile payment service is an example of a recent trend and a significant application for both enterprises and consumers. The development of a new mobile commerce paradigm will let customers send and receive electronic cash and various multimedia files from their cellular phones and PDAs. Even if there are many services and technical possibilities, they are limited to passive services in document supply at libraries. Therefore, library mobile document supply is limited due to various copyright issues and constraints and is mainly offered in the form of SMS services instead of original material transmission such as notices, request, payment, etc.

Mobile Library Services

SMS or Text-Messaging Services: The number of SMS or text messages sent has increased more than 250% over the last 2 years. As of June 2008, more than 75 billion text messages were sent every month, compared to 18 billion in December 2006. Text messaging is the only universal mobile platform for the masses. It does not require special download as it is already available on 98%of all cell phones. What is SMS? SMS stands for short message service for text message s of 160 characters or less sent from one mobile phone to another. Like instant messaging and TiVo, texting started as something for the young, but adults are increasingly tapping into this tool. As of the second quarter 2008, a typical U.S. mobile subscribe r sends or receives 357 text messages per month, compared to placing or receiving 204 phone calls. The ALS 2009 Trends Rep or t [http://www.alliance librarysystem.com] discusses the impact of text messaging.

Medical Library Applications: Medical libraries were among the first to adapt to and offer services via mobile devices as early as 2000. Pub Med on Tap is an I phone/touch application that allows patrons to search Pub Med on a mobile device. Users can even access and order full-text articles. A number of publishers have begun releasing medical textbooks especially for use on mobile services. Mobile-Friendly Websites: The University of Virginia has released a version of its website designed especially for hand-held mobile devices. The initial release targeted I Phone and I Touch users with plans to expand to a much broader range of devices. The University of Virginia Pocket- sized Mobile [http://www2.lib.virginia.edu/mobile]will share the project's design and implementation specifications, project management documents. Feedback and other information.

World Cat Mobile Beta: OCLC World Cat Mobile allows users to search for library materials and libraries, to call libraries, and to map a route to libraries. World Cat partnered with mobile technology leader Biopsies to increase the number of search channels that allow users to access popular web applications. Users are invited to http://worldcat.b oopsie.com/home/ world cat/ to test the application.

Real-time Service: Although a variety of library services have been made available over the Internet, mobile library applications allow real-time, anywhere, anytime connectivity to services. Real-time service gives a user anytime, anywhere access to the familiar online content and services users know and trust right from the user's mobile device (Fakes et al. 2006). It helps users instantly get where they want to go in the mobile library, send e-mail, upload reports, download files, search for answers, check notices, or get news. All this and much more are available through real-time service and a mobile device. It will include not only search engines and directory services but also a great variety of information services. Operators have to put extra efforts in identifying and partnering with new concepts and technology to develop personalized real-time services.

Location Service: Location service is an information service which provides location-specific information to mobile users and resources moving from location to location. Many location-aware mobile services have been proposed for public spaces such as museums and exhibition areas. In museum multimedia systems, location information is typically used on one hand to aid navigation, and on the other hand to show information about the exhibits nearby. Searching books in large libraries can be a difficult task for novice library users. In libraries, users are in different environments and are typically searching for particular resources concerning certain topics. The problem is how to locate the target resources from the numerous shelves of the library. It also broadens the range of service by combining current services and convergence of new telecommunication and broadcasting technology. Operators also plan to enhance user convenience and facilitate service by developing new models that combine current library service with technical services such as RFID, mobile networks, mobile devices, etc. For example, Smart Library provides map based guidance to books and collections on a PDA (Aittola et al. 2004).

Personal Service: Personalization and customization typically involves presenting users with services that depend on personal characteristics, current location, activity, and surrounding environment (Lee 2007). Personal service allows users to collect all favorite parts of mobile library service in one place. Personal service is typically used to reflect personal interests, provide new information, alert users of services according to their chosen profile, and to collect the user's favorite content in one place. It needs

to transfer information quickly or transmit personalized information, etc. It must take more active steps to provide a specialized service different from wired Internet's services in the future and attempt to individualize user service using methods such as My Library, CRM (customer relationship management), RSS (really simple syndication), etc. My Library supports a framework for libraries to provide enhanced access to local and remote sets of information and knowledge. CRM uses the resources of the Internet or other digital media (for example SMS, mobile data or interactive television) to deliver elements of a marketing relationship with the user. RSS provides Web contents or summary Web contents together with links to the full content and other metadata (Kajewski 2007).

Multimedia Service: Multimedia include a combination of text, audio, still images, animation, video, etc. Compared to existing wireless Internet services that are typically limited to SMS and small amounts of information, operators should plan to provide multimedia-based services to meet user needs by addressing a variety of scenarios that reflect the user's pattern and sensitivity (Bartolomeo 2006). Currently the most common mobile devices are not smart phones or PDAs, but cellular phones or other devices that utilize dial pads. Not only does the limited size of the LCD screen prevent presentation of large amounts of information, but the devices' input system also presents difficulty. For example, voice recognition input or reading methods may need attention. Operators are also planning to broaden the range of services by combining mobile multimedia with new technology convergence.

Mobile Service: The current goal of mobile service is to enable all services currently provided through wired Internet to be available through mobile networks and to overcome the limitations of current wireless Internet service (Crawford 2006). Operators must analyze the processes of the library services being used by users and the patterns needed in a mobile environment. Then, they must look into gathering innovative information for the application and improvement of mobile library service. They also plan to enhance user convenience and integrate possible services by developing new models that combine current library service with new technology and convergence services. Through such efforts, libraries can upgrade mobile services to a wired Internet service level that provides diverse and abundant service. It also broadens the range of service by combining current service and new technology. An example of this is creation of the mobile office and integration with user information devices to make a variety of services available. Mobile office refers to services that help progress businesses through access to the library's intranet through mobile. Wireless devices from external sources. This transcends the traditional sense of the library into an environment where library business can be handled anytime, anywhere.

Future of Mobile Services

Some of the services that Indian libraries need to implement in the near future are:

Mobile Collections: libraries can also offer their patrons digital media collections that they can take to go, enabling them to benefit from library services remotely. These can include audio book collections, e-books, and video and music files.

Mobile Library Instruction: library users who don't have the time or inclination to attend an on-site workshop can still get the most out of library resources by accessing classes and tutorials on their mobile devices. Libraries can distribute their knowledge of and expertise in library systems and materials via MP3 and video files that patrons can take with them. A series of short audio files can be created describing the library, how to get reference assistance, and library workshops.

Mobile Databases: it's not only libraries that have seen the writing on the wall with regard to the mobile web, but academic software and database providers have started taking portability to heart. Many scholarly database management applications are providing search interfaces for mobile web users.
Mobile Audio Tours: Libraries can make guided tours more convenient for patrons with busy schedules by making self-service audio tours available for hand-held devices. Rather than asking patrons to schedule an appointment in advance, or learn to utilize a new technology, these new audio tours can make the most of patrons' MP3 players and mobile phones to impart information.

Library SMS Notifications: Text message alerts provide busy mobile owners with quick news announcements, reminders about important events, or requested information. Libraries can offer these speedy advisories as an added service to patrons.

SMS Reference: Reference services in libraries today are becoming increasingly virtual, as more and more researchers are working remotely. Technologies such as instant messaging, e-mail and SMS text messaging are making it easy or libraries to maintain their relevance as information hubs by offering convenient services to busy users. Ask-a - Librarian services can be offered to mobile patrons, enabling them to submit their research questions remotely, by text.

Mobile Library Circulation: Not all new mobile tools involve direct patron interaction: some can be used behind the scenes to offer improved library services. SirsiDynix has developed a hand-held circulation tool called PocketCirc, which enables librarians to access the Unicorn library management system on a PDA device.

Future Potential of Mobile Applications in Libraries

More and more changes are expected within four to five years in the field of mobile technology and its application to libraries. The technology is now available to use phones to read barcodes or RFIDs (radio frequency identifications) in the library, and OPACs are developing GIS (geographical information system) sensitivity and the ability to communicate with users through their mobiles for reservations, fines, late notices, alerts, etc. Mobile Web 2.0 and3.0 applications for social networking for the library community are available, thus enabling discussions, blogs, wikis and other features beneficial for all library developments. Some issues that the library may wish to examine in house are the library's role in:

- Licensing information products for mobile devices.
- Hosting or pointing to institutional content intended for mobile devices, e.g. podcasts.
- Preserving new content types and formats.
- Providing instruction on the devices themselves, not just the access to content.
- Providing space for new equipment and work styles.
- Library OPAC system is now mobilized by facility of text message to check the availability and the details of books. Publishers are sending extract from books out via SMS.
- Websites are now gibing the option of sending content to IM addresses and via SMS.

The Mobile-learning Development in India

'Libraries in hand' is the latest slogans of the Indian libraries People in India have an insatiable thirst for information and knowledge. Moreover, mobile services in India are quite affordable; hence, even an ordinary person can own and use a mobile phone. Added to this is the fact that India happens to have one the largest populations in the 18 to 28 years age group. M-learning in India is at present still in it. The proliferation of mobile phones, PDAs and other mobile devices means that the platform has lot of potential in India, with over two million users being added every week and a total of around 300 million mobile users in 2009, and excellent connectivity across regions. Although the greater part of this user base is not using advanced devices required for effective multimedia-based m-learning, the figures are too high to be ignored, considering the interest in and growing number of 3G devices. Major mobile manufacturers such as Nokia, Sony Ericsson and Motorola in India have linked up with service providers like Airtel, Vodafone and others to provide mobile content, which also includes learning content. Companies that specialize in content aggregation provide the actual content, while mobile value added services (VAS) providers develop the mobile technology and delivery. In view of this,

Hewlett Packard has awarded a "technology for teaching "grant to Jadavpur University in Kolkata to transform teaching on the campus. The university has received HP tablets PCs, external storage and optical drivers, wireless networking cards and printers, as well as funding for staff to work on the project. The university already has a digital library, and a content management and development system using an m-learning authoring tool. Students will be able to connect to a server based open source wireless laboratory, built on existing laptop computers and wireless technology. Another university that has been selected by HP for this global award in India is Anna University in Chennai. Similarly, an IT training institute in India, A pitch Learning Services, has also developed a m-learning platform to cater to the educational needs of corporations and institutions.

Conclusion

Libraries may want to approach the consideration of provision of content and services for mobile users at two levels, internally within the library and at an institutional level. The progress of mobile technologies on wireless networks has largely changed the way people access information. A mobile library is one area being actively explored by many libraries to support remote users in their access to and use of library resources. The widespread use of cellular phones and mobile devices might have also led to the positive opinion and perception on their application in the library services. Mobile technology has the potential to offer many new possibilities for accessing information from online catalogues, databases, digital content, e-learning, digital library, etc. The development and application of new mobile technologies has brought about many changes and possibilities and encourages users to increase utilization of the new mobile library.

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An Android Application for Audio Detection and Analysis

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ABSTRACT

Audio detection and analysis take audio fingerprint generation technology for the identification of audio signals in similar nature. The time to frequency domain conversion of audio signals making the signature or fingerprint generation easier. In this era Audio detection and analysis technology using for voice recognition, Song identification, Digital Library management, Audio track analysis etc. In this paper we representing the algorithm of audio detection and analysis system for voice identification and an application in android platform using the audio detection and analysis algorithm.

Keywords. Android, voice detection, spectrogram, audio fingerprint generation, Fast Fourier Transform.

1. INTRODUCTION

Audio detection and analysis has paved a way for invention of new technologies and sophisticated applications. It has considerable importance in this modern era voice Identification using mobile phone. The main applications of audio detection and analysis are

Song Identification, Digital Library management, Audio track analysis etc. The Audio detection is processed by the help of generated key codes. This key generation process is known as Audio finger print generation. This paper introducing a new applicability of audio frequency detection and analysis method for the voice identification. If a mobile phone have stored samples of peoples then it is easy to authenticate the person. In this paper we introducing this authentication method using android phone.

Android is mobile operating system introduced by Google with open source environment and freely available mobile operating system for development of new applications in mobile, wearable, TV, and other Android operating system based devices. Android operating system structure is shown in figure1.

Android operating system using Linux kernel as in center and each application run it own Dalvik Virtual machine. In last year android introduced their own IDE known as Android Studio for the application development made fast development in the same area.

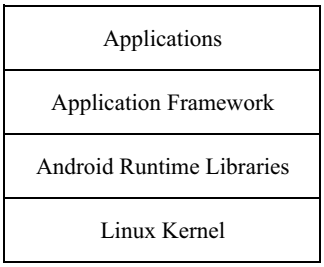

Figure 1. Android Structure.

In the previous versions of android phones voice signal processing is time taken area but now the hardware inventors made fast and high speed processes and high speed internal ram making new way in the voice detection.

The Audio detection and analysis is mainly divided in to two parts namely Audio Key code or signature generation part and Audio Detection part or signature matching part. In the application point of view the voice detection can be performed either application program interface (API) based or internal database based. In the application program interface based applications the voice code generation and comparison is performed via the API links. API based applications are using the benefit of internet and main server. Internal database based application will store the sample voice signals inside the phone and internet connection is not required.

Audio fingerprinting mechanism will explain the perceptual quality of audio signals [2]. Finger prints will help to size and comparison time and improve the quality of searching.

Parameters of audio fingerprint systems are [2]

- Robustness
  The invariant perceptual features of fingerprint will provide the robustness of the system.
- Reliability
  False positive identification rate from the system when the system incorrectly identified songs.
- Finger print size
  The storage size requirement of the generated fingerprints.
- Granularity
  How many seconds of audio is required for the fingerprint generation.
- Search speed
  Time taken to song identification process
- Scalability
  The scalability of the key parameter used to detect the song.

These are the main basic parameters of the audio finger printing system.

The existing Audio matching systems in android platforms are Shazam, Soundhound, Hound, MusiXmatch, Spotsearch, etc[3]. The method for the selection of voice snippet for the fingerprint generation approaches are diagonal matching (or linear scan) and subsequence dynamic time warping (SSDTW) [4]. Music Brainz community service using audio fingerprints for metadata management of their publicly available music files and services [5]. The algorithm Shazam[6] is most widely using solution for the mobile applications. In this paper also we mainly focusing on this algorithm to enhance the voice detection. The paper, entitled "An Industrial Strength Audio Search Algorithm" (WANG, Avery Li-Chun, 2003) details the conversion and generation of the audio fingerprints by converting the audio signals into frequency domain and use the frequency magnitudes and time data to compute the fingerprint.

In An Industrial Strength Audio Search Algorithm [6] the conversion from time domain to frequency domain is done on the audio signal called the Fast Fourier Transform (FFT).

Algorithm

The Audio detection and analysis system consists of signature generator and signature matcher. Using the Signature generator generate signature of all of all audios in our library. Signature matcher will generate the recorded audio into signature with the help of the signature generator and compare with the signature in our digital library and will produce the result.
The Signature generation includes

- Record audio from currently playing Television, YouTube, Public speech etc. A sample of audio recorded is shown in line graph in figure 2.

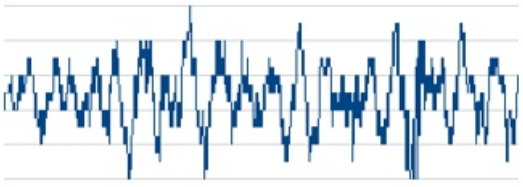

Figure 2 Song represented on line graph.

- Divide the recorded audio samples into equal parts called windows.
- Each windows are passing through a Fast Fourier transform method for the time to frequency domain conversion.
- By the help of the Band filtering technique reduce the noises of the input windows.
- Group the related frequencies into matrix. A sample time to frequency domain conversion and frequencies into matrix conversion is shown in figure 3. The grouping is like 40-80, 80-120, 120-180, and 180-300.
- Convert matrix in to signature using hashing algorithm.

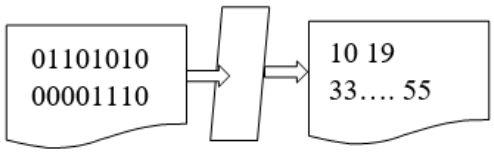

Figure 3. Frequency matrix generation.

The Signature Matching includes

- For each Song data bases including all the previously generated signatures as signatures tracks so locate the new signature in the database by using searching algorithm.
- Count the similarity of each signatures in the databases.
- List the songs with the signatures in ascending order where maximum counted signatures have the maximum similarity.

Result and Discussion.

The application designed and developed in android platform and the representation of signature using spectrogram is shown in figure4. The developed application can also be used for audios of other nature including public speeches, television, etc. the screen shots of application is shown in figure 5 and 6.

Figure 4. Spectrogram

Figure 5. The screen shot of recording screen of application

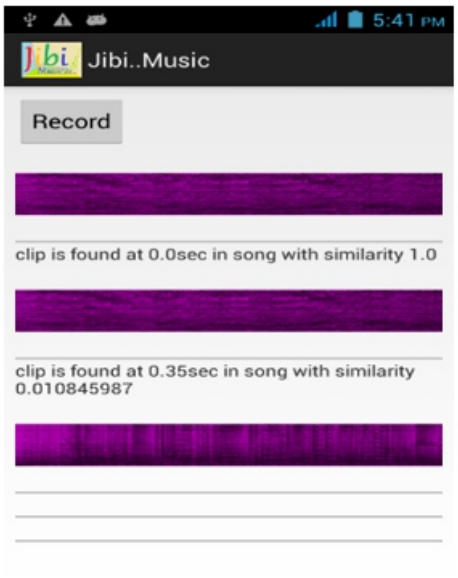

Figure 6. The screen shot of result screen of application.

Conclusion.

In this modern era to detect audio signals of similar nature Audio Detection and matching has important role. If such an application is developed it can make valuable inputs into audio recognition from a digital music library, audio matching of a secret/open conversation. Future extensions would obviously include increasing speed of the application. For this project I focused mainly on producing a system that functions in a similar manner to Shazam. With suitable resources and some further optimization we believe our system could out-perform Shazam, which requires samples of a minimum of 20 seconds in length. My system could also easily be converted to check for intellectual property violations.

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The Adoption of Digital Marketing to Promote Adventure Tourism in Eastern India: A Synergistic Effect on Consumer Behavior

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ABSTRACT

Digital Marketing is an umbrella term for the targeted measurable and interactive marketing of products and services using digital technologies to reach and convert leads into customers and retain them. The key objective is to promote brands, build preference and increase sales through various digital marketing techniques

Adventure travel is a type of tourism, involving exploration or travel with perceived (and possibly actual) risk, and potentially requiring specialized skills and physical exertion. Adventure tourism has grown in recent decades, as tourists seek different kinds of vacations, but measurement of market size and growth is hampered by the lack of a clear operational definition.

Through this paper we examined how exploring digital marketing channels like internet, email, mobile apps and others make a communication bridge with the prospecting customers influencing the behavioral characteristics like decision –making, values, motivations, self-concept, expectations, attitudes, perceptions, satisfactions, trust and loyalty on the adventure tourism on the eastern part of India.

The adventure - tourism managers will be benefitted to sustain the inflow of adventure-tourists and revenue to strive towards meeting expectations of adventure-tourists and make information regarding the destination more accessible.

The empirical analysis are based on a survey research. A self-administered questionnaire is developed, based on a thorough literature review. The quantitative analysis through several statistical procedures were used to derive the findings of the study.

Keywords: Digital Marketing, Consumer Behavior, Adventure - Tourism, Influencing Factors, Quantitative Study

1. INTRODUCTION

Digital Marketing is an umbrella termed for the targeted measurable and interactive marketing of products and services using digital technologies to reach and convert leads into customers and retain them. The key objective is to promote brands ,build preference and increase sales through various digital marketing techniques ; search engine optimization(SEO) ,search engine marketing (SEM) , Content marketing , influencer marketing, campaign marketing, social media marketing , social media optimization , e-mail direct marketing ,display advertising ,e-books , optical disks and games ,& any other form of digital media .

Adventure travel is a type of tourism, involving exploration or travel with perceived (and possibly actual) risk, and potentially requiring specialized skills and physical exertion. Adventure tourism has grown in recent decades, as tourists seek different kinds of vacations, but measurement of market size and growth is hampered by the lack of a clear operational definition.

Adventure tourists may be motivated to achieve mental states characterized s rush or flow, resulting from stepping outside of their comfort zone. This may be from experiencing culture shock or through the performance of acts that require significant effort and involve some degree of risk (real or perceived) and/or physical danger. This may include activities such a as mountaineering, trekking, bungee jumping, mountain biking, canoeing, rafting, kayaking, zip-lining, paragliding, sandboarding, caving and rock climbing. Some obscure forms of adventure travel include disaster and ghetto tourism. Other rising forms of adventure travel include social and jungle tourism.

India, in that context is a “One Stop Adventure Shop”. Only in India can a person indulge in a camel safari in hot deserts of Rajasthan, Heli-Ski in the Himalayas, Raft down the mighty Ganges and trek in the Garhwal Himalayas, all in the same month.

Himalayan rivers like Brahmaputra, Ganges and Indus provide un-limited white water stretches to be 'run' both for the beginners as well as for the extreme professional. Today river rafting is spread all over the Himalayan Regions of India with trips available throughout the year in more than 20 rivers.
Trekking in India is comparable to and often surpasses the best in the world. Trekking in the Indian Himalayas offer incredible variety with shorts walks in low altitude alpine meadows to 20 day hikes over some of the highest passes in the world. The high altitude plateau of Ladakh, the alpine meadows of Himachal, Kashmir and Sikkim, the rugged and rocky terrain of Garhwal all add up to provide an un-imaginable variety for the trekker to choose from.

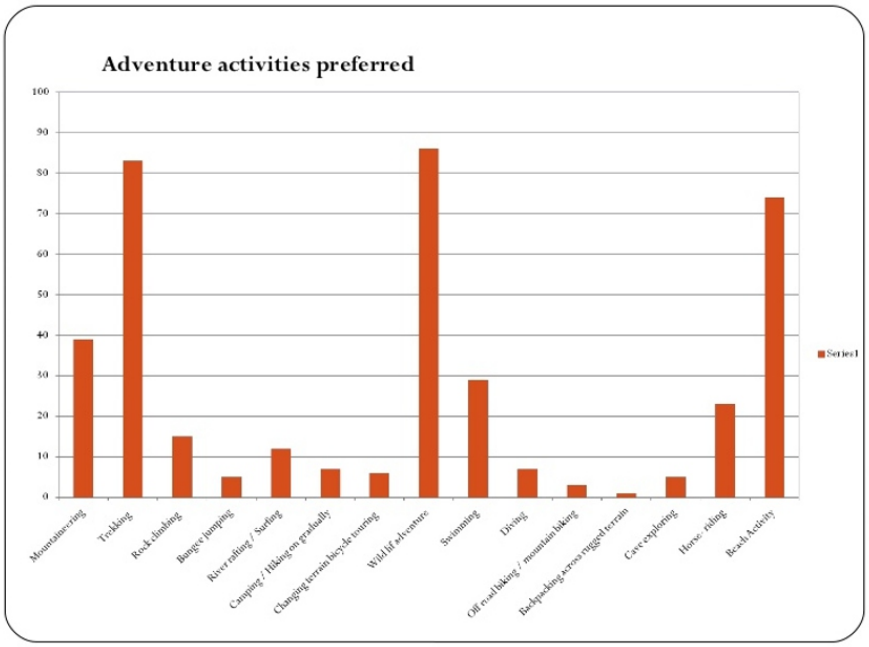
Skiing for both beginners and the professionals is plentiful on the slopes of Manali, Gulmarg and Auli. The natural and virgin ski slopes offer the best of Alpine, Mountain and Helicopter Skiing.

India therefore offers the keen adventurer with a fascinating range of areas and activities to choose from. In this increasingly environment conscious world, adventure sports and eco tours will be the boom of the 21st century.

In today's business environment the digital marketing is a point of synergy between communication and distribution; planning and developing strategies need to consider the role of the Internet.

The Internet represents an embedded high-quality system capable of influencing prices, consumer preferences, behavior and brands (Singer, 2002). Technology plays a significant role in the tourism industry, both as a facilitator of growth, and as an enabling factor to increase and ensure positive experiences for the tourist (Stipanuk, 2001). The Internet and computer network have been added to the business model as a support, communication and sales tools of tourism products (Franch, 1999). A complex product such as tourism can be represented on a website where its multi-media and hyper-textual potential can be fully exploited. Tourists who have visited a website to obtain information or to make reservations online can also be put on an e-mail list, and subsequently, be sent additional offers or information by means of more traditional media. Although a number of studies have acknowledged the positive ways in which technological applications are contributing to the rapid change of customer behavior (García-Crespo *et al.,* 2008), there is only few studies that have appraised the technological factors influencing quality brand of a tourism product or service (Constantinides & Fountain, 2008).

It has also seen that among the different kinds of adventure tourism activities – trekking and mountaineering, wildlife tourism and beach activities are the most popular form of tourism.
The graph below shown the preference pattern among the tourist.



Literature Review:-

Author	Recommendations
Lovelock and Wright (2001)	The 1990's is considered in the history of promotion as a decade of transmission to new phase called Digital Promotion.
Poon , 1993	Tourism is an information intensive industry (Cox et al. 2009). Organizations rely on the communication with tourists through various channels to market their products and build customer relationships
Octane survey, 2015	Over 5 years, social media marketing is the most famous form of online marketing. Email and website marking have seen incredible growth of 38% between 2011 and 2015. Webcasts and online videos have seen remarkable growth in consumer engagement. Social Media marketing is preferred by 69% of Indian Marketers
Cox et al. 2009; Gretzel 2006; Yoo & Gretzel 2008	Indeed, social media have grown to be one of the most effective means for tourists to seek information and share travelling experiences
(Adventure Travel Trade Association, 2013	As a niche market, adventure tourism has been developing rapidly in many regions and territories, evidenced by increasing number of participants and intensive growth of adventure tourism products
Travel industry of America ,(TIA1993)	16% of Americans stated that they had participated in these "hard" adventure activities during trips in the last five years. Hard adventure tourists are more likely than the opposite type to be men(60% vs. 51%), single (40% vs. 26%); young (18–24 years 24% vs.18%), college educated (82% vs. 73%) with higher household incomes of $75k or more (25% vs. 19%).
Greaves , 1990	The prospect of a trek in the Himalayas stimulates the taste for adventure; the imagination can run wild before you go. Whatever the circumstances you are resolved to have a good time. Trips to the mountains are as much for talking about once they are completed as they are for the actual participation
Adventure Travel Trade Association and The George Washington University, 2013	Some of the activities most commonly associated with Adventure Tourism include whitewater activities, skydiving, bungee jumping, caving, climbing, abseiling, snowboarding, skiing, diving, ballooning, and mountain biking, among other activities.
Swarbrooke et al., 2003, p. 275	Adventure Tourism specifies that "the tour operating industry has witnessed the emergence of an increasing number of small tour operating businesses. Many of these adventure operators report growth rates of between 15 and 2 per cent annually, an indication of the current popularity of packaged adventure holidays and their future expansion."
Vella and Kester, 2008	The benefits of online marketing are wide-ranging, as a burgeoning marketing strategy online marketing can benefit both consumer and company interests.

Research Methodology:-

The present study is a descriptive research in nature and the paper is based on secondary data as well as primary data. The secondary data were collected from various journals, papers, magazines, internet, Ministry of Tourism, articles and newspapers;

1. To study about awareness of Digital Marketing approach in adventure tourism.
2. Analyze the role and impact of Social Media Marketing approach in Adventure- tourism development of Eastern India

Therefore, the aim of the research is to answer the following questions.

Digital marketing – why it is essential for today's adventure tourism destination marketing?
How do destination marketing organizations (DMOs) build destination brands through social media?
How do DMOs use digital social media platforms to engage the audience to reach potential

In order to gather the data necessary to answer my research question, I created a questionnaire that would gather information related to the research question. A questionnaire was chosen as the method of collection for a variety of reasons: it can be completed anonymously, there was no cost to implement it, it's easy to compare and analyze the results, it can easily be administered to a large, and more importantly, a specific group, and it's simple to gather large amounts of data from each individual. Questionnaires provide statistical information, creating the ability to enable correlations. (Mayo, 2014) However, challenges can prevent themselves when using this method. For one, when not communicating questions in person to respondents, they may take questions differently or not answer them to a level that in necessary for the research that is taking place. Other issues can include the wording of the questions, which can cause a bias in responses, no chance to follow up on unclear questions, and they are impersonal. (Mayo,2014)

By providing a clear description of what was being asked of respondents, individuals would be better able to provide more accurate information, and would hopefully be more likely to respond. These explanations also made it clear that responses would be anonymous and confidential, and that the information gathered would only be used for this particular study.

Non probability sampling was used, as respondents were chosen specifically for their job and position. The population frame was selected as the respondents who have earlier awareness about digital marketing tools and have clear idea about adventure tourism.

The sample size was 160 whose responses were suitable for our study.

The questionnaire consisted of 21 questions; 16 of which focused on their involvement in the awareness related and responses towards the usage of digital marketing tools ,the remaining five questions gathered demographic data. The demographic portion of the questionnaire asked respondents about their age, gender, marital status, degree of education and if applicable, what degree they received.

Using the measurements obtained, the internal validity and unidimensionality of the tool were reaffirmed. The findings also suggest that credibility and persuasiveness can merge into a single factor, which was called influence in this study. The tool was also found to measure the three factors more reliably than existing instruments that measured the same factors. Therefore, the tool is put forward as a standard evaluation framework Therefore, our study aims to assess the impact of social media on the purchase of tourism products. Additionally, to explore whether the influence of social media marketing changes among different types of tourism products, we develop a typology of tourism products that classifies tourism along the following five dimensions: (1) the structure of tourism, (2) the involvement of tourists, (3) the scope of tourism, (4) the price of products, and (5) the length of a tour.

For the purpose of analyzing the collection of data, statistical techniques of mean, standard deviation and skewness have been used. In order to study the uniformity in the view of the various respondents. Chi-square test has been applied.

Findings:-

The male respondents were on considerably higher side (77.67%) as against the females (22.33%) Place of origin of 95% of the respondent was urban and 5% respondent who belonged to rural places.

Depending on activity Greater number of foreign females (12.66%) as compared to Indian female (9.66%) went for adventure sports. 97.67% Adventure tourist belonged to middle class, remaining 2.3% tourist belonged to upper class in terms of income group.

82.33% Adventure tourist belonged to age-group 26-35yrs (51.33%) and 15-25 yrs (31%), 17% tourist belonged to age- group 36-50yrs and less than 1 % tourist belonged to age-group 51-56. Maximum number of foreign male (22.33%) and Indian male (19.66%) and foreign female (4.66%) and Indian Female (4.66%) tourist belonged to age-group 26-35yrs.

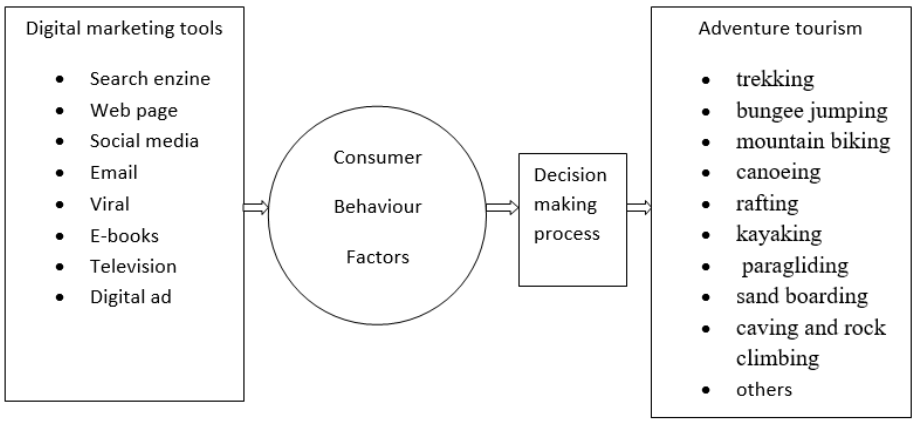
The number of foreign adventure tourist in age-group 26-35yrs and 36-50yrs (27% and 12% respectively) were greater than the number of Indian adventure (24.3.3% and 5% respectively) tourist whereas in the age group 15-25yrs the number of Indian adventure tourist (20.33%) is greater than foreigners (10.66%).

59% of the adventure tourists were servicemen comprising of 31.6% foreigners and 27.66% Indians; followed by student (17.33% comprising of 10% Indian and 7.33% Foreigner) and Businessman (14 % comprising of 7.66% Indian and 6.33% Foreigner). Just 9.33% adventure tourist were Industrialist, Agriculturist and any other (occupation group).Maximum males (44.66%) and females (14.66%) belonged to occupational group serviceman followed by student, businessman, any other, industrialist and agriculturist. 64.44% serviceman belonged to age-group 26-35yrs (38% of the total) and almost all the students belonged to age-group 15-25yrs (14% of the total).

It is observed that foreign tourist is strongly unsatisfied with the availability of conveniences in eastern part of India. Further their opinion is distributed more towards higher side i.e. disagree to strongly disagree. The mean value is noted higher than the average standard score, while variation in the opinion and skewness is 1.50541 and -.405 respectively. This supports the above analysis.

It is notable that majority of the respondents do not agree with the availability tourist information facilities in the city. The mean value of the responses depicts that majority are lying towards higher side of the mean standard score at five point scale. The standard deviation and skewness is 1.33526 and -.600 respectively

A majority of the respondents are disagreeing regarding adequate information on official website of Uttaranchal. The mean value is higher at five-point scale further standard deviation and skewness supports the opinion.



Model of the research

Conclusion & Limitation:-

The adventure tourism industry, while one of the newer players to the game, is quickly showing its brute through its rapid growth and expansion. Despite the growing research on the consumers of this industry, little is known about the producers, especially the management side.

The answer of research questions is to contribute to the knowledge of online marketing and social media in destination marketing management. It helps destination marketing director or destination manager review their destination marketing strategies and social media approach to adjust suitable marketing strategies

Due to the small sample size of this study and its limited scale, it's inherently difficult to prove that the trends and data that have been gathered relate to the larger population. With more resources and respondents, a larger study could have been conducted, which would have gathered more concrete proof of the ideas laid out above. It can only be hoped that with this small start, more research will occur, allowing for a full scholarly review and analysis of adventure tourism management.

During the time conducting this study, we have realized that the researches about online marketing and social media in tourism as well as its application in destination online marketing is still new and comparatively limited. In addition, there are a very rapid expansion and development of this aspect with many debates and discussions. As a result, we have tried to explore existing theories about online marketing and social media including paper source and electronic format in business sector to apply to the scope of destination marketing management in tourism.

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The Impact of Firm Size and Environmental Disclosure on Internet Financial Reporting Disclosure

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A B S T R A C T

The development of information technology and communication has created a new opportunities for companies to stakeholders. Internet Financial Reporting allows companies to spread out information both financial and non-financial on corporate websites. Internet is being used as the medium for research, recently. This issue is being an important subject and widely studied in developed countries. Objectives of this research are to examine the impact of firm size and environmental disclosure on IFR disclosure. Secondary data source from each corporate websites listed in Indonesia Stock Exchanges during 2008 to 2011. Selection of the sample using purposive non-probability sampling method, the sample was chosen on the basis of suitability of data with sample selection criteria that have been determined. Finally, the total sample obtained was 96 observations data of 32 companies. In order to verify the impact of independent variables on IFR, multiple regression models were used in this research. The findings show that both of firm size and environmental disclosure have significant impact on IFR disclosure.

Keywords Internet Financial Reporting, Determinants of IFR, Voluntary, Disclosure on Corporate Websites.

1. INTRODUCTION

Company's ability to follow up of information technology and communication will show its excellence in competing with other companies, especially in the same sector. Technological innovation should be done continuously in order to keep company survive in the business competition by changing the business strategy, initially labor-based business to knowledge based business. Changes in business strategies based on information technology and communication will be increase firm's transparency, when able to maximize the use of technology to disseminate information to the stakeholders. Internet is the best medium to companies to deliver important information about its activities. Internet has some characteristics and advantages such as easy to pay (pervasiveness), borderless-ness, real-time, low cost and has high interaction (Asbaugh et al (1999). A lot of type of information is presented by Internet-based, it makes easier for user's information mainly business people to get latest information that can be accessed anytime and anywhere easily and quickly. Furthermore, internet is being used as the medium for research.

By carrying out of full characteristic, internet can be easily accepted and become very popular in the world. According to Internet World Stats *(*http://internetworldstats.com/*)*, Indonesia is one of Top 20 countries with highest number of internet users. This fact shows that Indonesian have a high-minded of information technology and communications. Therefore, company can take advantage of this opportunity to communicate the performance and results of firm's activities to external parties in order to minimize the cost of distribution of financial statements. The internet offers a variety of possibilities for companies to present financial information with higher quality, lower cost and can reach users widely without geographic barriers (Xiao et al, 2002). The evolution of communications and the development of the global market created new financial opportunities in the world. In this case, company's ability to exploit information technology emerges as a determinant of success or failure.

Dissemination information by internet will be a new dimension in financial reporting, and real time information will replace the historical financial statements (Traditional Financial Reporting) which is currently provided by company to stakeholders. Companies should be able to offer to stakeholders a wide range of additional non-financial information that can be accessed on demand, depending on the stakeholder's interest (Bonson & Escobar, 2002). Various accounting regulatory bodies have attempted to address these new challenges and opportunities of internet reporting. The International Accounting Standard Board (IASB) on November 15, 1999 published a document entitled "Study of Business Reporting on Internet" as a first step towards a project of standardization in internet Financial Reporting (IFR). In addition, the Financial Accounting Standard Board (FASB) on January 31, 2000 published a report entitled "Electronic Distribution of Business Reporting Information" as part of a wider project on business reporting research. The main aim of the report is to describe the current state of financial reporting information on internet in the United States of America and to identify the most usual practices in internet reporting (Hanifa and Rashid, 2005).

Public companies in Indonesia are still using Traditional Financial Reporting (print based annual report) for communicating financial information to shareholders and other interested corporate stakeholders. Whereas there are many public companies in Indonesia has a website, but not use it in same way. Most of company uses their website to disclose company profile and to do marketing purpose. Until now, there is no regulation requiring companies to disclose financial information through websites. Regulators generally admit that Internet Financial Reporting (IFR) may provide more complete and timely information to investors thus transcending the paper paradigm in terms of content and presentation.

Literature Review

Agency Theory The greater size of a firm, thus its activity is more complex. Then allows the owners to hire a management to manage the activities of company because the owners no longer able to manage intensively. This relationship is referred as an agency relationship, where management acts as an agent and owners as a principal. Jensen and Meckling (1976) stated that "An agency relationship is a contract under which one of more persons (the principals) engaged another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent". The problem is that the interest of managers and shareholders is not always the same in this case, the manager who is responsible of running the firm tend to achieve his personal goals rather than maximizing returns to their shareholders (Roshan, 2009).

Agency theory explains a positive relationship between firm size and disclosure by potential benefits of disclosure increases by agency costs (Dibiyantoro, 2011). Agency costs may increase due the difference of interests between shareholders, manager and creditors. In addition, information gap in agency theory occurs because manager knows more about condition of company than owners. Information received by owners is only sourced from a report presented by management, thus information held by investors is less than corporate managers are always interacting with company. Agency theory suggest that shareholder would be a price-protect themselves against expected expropriations by management. In turn, to alleviate this loss, firm management voluntarily undertakes various actions, including disclosures and submission to monitoring (Jensen and Meckling, 1976; Lang and Lundholm, 1993; Xiao et al, 2004).

Signaling Theory Signaling theory explains relationship between profitability of company and financial disclosure. The signal is given by firm through disclosure of financial information on corporate websites. A number of signals are relevant to accounting include direct signal (cash flow) and indirect signals (capital structure, dividend policy, selection of accounting policies and financial policies) (Nuswandari, 2009). Companies with better performance would be more transparent to disclose additional financial information. Management will disclose important information to investors and shareholders in particular information of good news. Management conveys information though it is not compulsory but as voluntary to increase its credibility. Voluntary disclosure is a positive signal for company to its stakeholders, therefore signal theory underlying a voluntary disclosure. Signaling theory explains why companies have a motive to provide financial reports to external parties.

This signal contains information about condition of company to owners or other interested parties. The signal can be given by disclosure of financial information such as financial statements. Financial statements should provide useful information to investors and creditors because these groups are in the greatest uncertainty condition, which will be used to make investment decision. Profitable companies will have more financial resources to make additional disclosures in annual reports. Healy and Palepu (2001); Xiao et al (2004) stated that signaling theory suggest that voluntary disclosures are one means for companies or managers to distinguish themselves from others on such dimension as quality and performance. The means and motivating factors for such disclosures include the use of large auditors and high performances.

Disclosure According to SFAC No. 5, 9th paragraph, "Disclosure is presentation of information by means other than recognition in the financial statement which is contrasted with recognition in the financial statement themselves". Disclosures provide a more complete explanation of financial position and results of operations. General objective of disclosure deemed necessary to achieve the objectives of financial statements and serve various parties that have different interests (Suwardjono, 2005). The objectives of disclosure identified by FASB in SFAS 105 paragraph 71-86 as follow (Brennan, 1999):

1. Describe recognized items and provide relevant measures of those items other than the measure in the financial statements.
2. Describe unrecognized items and provide a useful measure of those items.
3. Provide information to help investors and creditors assess risks and potentials of both recognized and unrecognized items.
4. Provide information that allows financial statement users to compare numbers to other companies and between years.
5. Provide information on future cash inflows or outflows
6. Help investors assess return on their investment

Disclosure divided into two types, namely:

1. Mandatory Disclosure

Mandatory disclosure is a disclosure made by companies regarding the essential information concerning its activities and condition in real terms as mandatory and governed under the law rules (Suwardjono, 2005). Regulations governing mandatory disclosure issued by government though the Chairman of Bapepam No. Kep-38/PM/1996, January 17, 1996 stated that company has made public offering and public companies are obliged to submit annual report. Furthermore, regulation is enhanced in the decision of Bapepam–LK No. Kep-134/BL/2006 about the obligation to submit annual reports for companies to makes disclosures in financial statements.

2. Voluntary Disclosure

Voluntary disclosure is disclosure made by company beyond what is already required by accounting standards or regulatory (Suwardjono, 2005). Voluntary disclosure is done to increase credibility and assist investors in understanding management's business strategy. Voluntary disclosure is a form of presentation volunteered by company to increase its transparency. Therefore, not all companies do the same disclosure practices. Through voluntary disclosure, companies can reduce the asymmetry information between management and investors about financial condition and results of operations.

Internet Financial Reporting (IFR)

Internet Financial Reporting (IFR) is voluntarily firm's disclosure. Some companies worldwide publishing financial information especially go public companies through internet. Financial statements may include Hyper Text Markup Language (HTML), PDF documents (Portable Data Format), excel and word. IFR makes easy for external parties to access company information, therefore increase the number of users without geographical barriers that may increase the number of potential investors. With IFR, users of financial statements can access other information on corporate website by a hyperlink facility. In addition, external parties can interact with company to ask questions or order specific information in a way that is much easier than the old way is to send a letter or call the company directly. But until now, there is no legislation governing the IFR even in developed countries though.

Williams and Ho Wern (1999) summarized some advantages of internet reporting: information available of 24 hours a day, in multiple languages, ability to establish one-to-one relationship with stakeholder, more speed and interactive communication, flexibility to move site to another location, lower cost of information dissemination, small firm could have international contacts, could have graphic and audio interactive. IFR also presents companies with an opportunity to provide more information than those available in annual reports. According to the Financial Accounting Standards Board (FASB, 2000), companies have several potential motives to provide financial information on internet, among others:

a. Reducing cost and time to distribute information.
b. Communicating with previously unidentified consumers of information.
c. Supplementing traditional disclosures practices.
d. Increasing the amount and the type of information disclosed.
e. Improving access to potential investors for small companies.

Disclose information on corporate website is an effort to reduce the asymmetry information between company and external parties to reduce uncertainty about the future prospects of company. The higher level of disclosure, it has the greater impact on investor's decision. One characteristic of corporate website is the link “investor relation” or “information for investors”. This link normally give access to accounting reports, stock information, earning announcement, webcasts and other information of possible interest to the shareholders (Pendley and Ray, 2009).

Variables Description and Hypothesis

Firm Size Larger firms usually have more products and more complex distribution networks, which require larger and more complex management information systems and databases for management control purposes (Aly et al, 2008). The large companies have further resources to have a more efficient internet information strategy and have additional disclosure on internet. The large companies have more incentives to disclosure on internet, have more visibility and so draw bigger attention from the general public, government, shareholders, other stakeholders or even the competition ([2]Damaso and Lourenco, 2011). In addition, larger firms are motivated to undertake more disclosure practices including the IFR in order to create or maintain strong demand for their securities (Hossain et al, 1994). Furthermore, larger companies have also face higher information asymmetry as the shareholders' base is more diverse, and thus leads toward higher agency cost. In order to reduce such agency cost, larger firms are expected to disclose more information than smaller companies (Jensen and Meckling, 1976). H1: There is an influence between firm size and IFR disclosure.

Environmental Disclosure Environmental variable explain company's relationship to its environment, but in this case environmental different to Corporate Social Responsibility (CSR). CSR could be defined as the voluntary integration of environmental, social and human rights considerations into business operations, over and above legal requirements and contractual obligations (Deringer, 2006; Othman, 2009). Company more concerned to the environment will be more transparent to public than companies do not make a cut to the pollutants that resulted from its operations, so company will likely reveal additional information as a voluntary on corporate websites. Company will be pay less attention to the negative impact on public perception, especially society around the firms, therefore company will tend to disclose information on corporate websites.

H2: There is an influence between environmental disclosure and IFR disclosure

Research Method

Samples: Sample in this research are manufacturing company listed in Indonesia Stock Exchange (IDX) that disclose disclosure on corporate websites. Sample collection method used is purposive non-probability sampling. Terms used in this research is a sample that provides Internet Financial Reporting (IFR) disclosure and presents of total assets, environmental disclosure and presenting statements in rupiah. The number of manufacturing companies listed in Indonesia Stock Exchange during period 2008 to 2011 respectively amounted to 135 companies. Based on selection process has been conducted, companies that meet the research criteria were as many as 32 companies, so there are 96 data observations during 2008 to 2011.

Measurement of Operational Variables The measurement of dependent and independent variables are used to predict Internet Financial Reporting disclosure explained by table below:

Table 1 Operational Variables

Variable		Proxy/measurement	Scale
Y	Internet Financial Reporting (IFR)	Disclosure Index	Nominal
X1	Firm size (SIZE)	Natural logarithm of firm's total assets.	Ratio
X2	Environmental Disclosure	1 if firm disclose their activities to reduce waste and pollution and 0 if firm did not.	Nominal

Source: Chapter 2 and 3, 2012

Data Analysis Techniques Before conducting regression analysis should be done some classical assumption first so that the samples is processed to represent the population as a whole. Classical assumption test conducted to determine the feasibility of a regression model, consisting of normality test, mulicollinearity test, heteroscedasticity test, and auto correlation test.

Results and Discussions

Descriptive Statistics Test of descriptive statistics using SPSS 16 on research's 96 observations data of 32 companies for 3 years, can be explained as in table below:

Table 2 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IFR	96	10	37	22.8854	5.09462
SIZE	96	12.7769	18.8493	1.489121E1	1.4384466
Valid N (list wise)	96				

Source: Output SPSS 16, 2012

While others variables which are using a dummy variable, the descriptive frequencies are explained on table below:

Table 2 Descriptive Frequency of Environmental Disclosure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	42	43.8	43.8	43.8
	1	54	56.2	56.2	100
	Total	96	100	100	

Source: Output SPSS 16, 2012

Classic Assumption Test

Normality Test Normality test used is a non-parametric Kolmogorov Smirnov to determine whether the data is normally distributed or not.

Table 3 Normality Test

		Unstandardized Residual
N		96
Normal Parameters[a]	Mean	.0000000
	Std. Deviation	4.60660207
Most Extreme Differences	Absolute	0.052
	Positive	0.052
	Negative	-0.042
Kolmogorov-Smirnov Z		0.506
Asymp. Sig. (2-tailed)		0.960

Source: Output SPSS 16, 2012

Table above shows the value of Kolmogorov Smirnov is 0,506 with significance level is equal to 0,960 which is above 0,05. It can be concluded that the data meets the normality assumption cause p = 0,960 > 0,05.

Multicollinearity Test To detect the multicollinearity is by the amount of correlation between independent variables and level of collinearity that can be tolerated, the tolerance values are > 0,10 and the Variance Inflation Factor values (VIF) are < 10.

Table 4 Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	SIZE	0.982	1.018
	ENV	0.982	1.018

Source: Output SPSS 16, 2012

Table above shows that all independent variables have VIF values below 10 with tolerance values of all variables are above 0,10. It can be deduced that there are no multicollinearity on model of this research. Thus, the results of regression analysis can be interpreted by a higher level of confidence.

Autocorrelation Test The autocorrelation test is using Run test method, this method more accurate in detecting residual values which have high correlation.

Table 5 Autocorrelation Test

	Unstandardized Residual
Test Value[a]	-0.13218
Cases < Test Value	48
Cases >= Test Value	48
Total Cases	96
Number of Runs	57
Z	1.642
Asymp. Sig. (2-tailed)	0.101

Source: Output SPSS 16, 2012

Based on the table above, the autocorrelation test results show that value of Asymp sig (2-tailed) is equal to 0,101. The value is higher than the probability level of 0,05, which indicates there is no autocorrelation in the model.

Heteroscedasticity Test Good regression model is homoscedasticity or not found heteroscedasticity on model because these data are representing a variety of data size. In this test was used Glejser test with the probability value of 5%.

Table 6 Heteroskedasticity Test

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.925	2.823		1.39	0.168
	SIZE	-0.049	0.19	-0.027	-0.258	0.797
	ENV	0.971	0.549	0.182	1.768	0.08

The results of calculations using Glejser test in table 6 indicates significance probability value is above 5%. It can be concluded that the regression model used, has been no heteroscedasticity.

Determination Coefficient From the results of statistical tests that have been done, determination coefficient value shown in the table below:

Table 7 Determination Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.427[a]	0.182	0.165	4.65587

In model summary table above, determination coefficient is shown by Adjusted R Square column with value of 0,165. This means that 16,5% of the variability or change in dependent variable (IFR) can be explained by independent variables in model, while the remaining of 83,5% is explained by other variable outside the research model.

Simultaneously Test Simultaneous test or often called as the F-test is used to determine the effect of independent variables on dependent variable. Based on the results of statistical processing, F-test results obtained as follow:

Table 8 Simultaneously Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	449.765	2	224.883	10.374	.000[a]
	Residual	2015.974	93	21.677		
	Total	2465.74	95			

Source: Output SPSS 16, 2012

Table 8 shows the value of F-value on this research is equal to 10,374 with significance level of 0,000. Significance value is less than 0,05, it is indicating that independent variables simultaneously have a significant effect on IFR.

Partially Test Partially test also called as T-test is used to test each independent variables using significance level of 0,05. If the significance level is less than 0,05 (5%), then H alternative is accepted. Based on the calculation of t-value and significance level were processed with SPSS Ver. 16 obtained table below:

Table 9 Partially Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.891	4.969		1.99	0.049
	SIZE	0.739	0.335	0.209	2.206	0.30
	ENV	3.532	0.967	0.346	3.654	.000

Source: Output SPSS 16, 2012

Both of firm size (SIZE) and environmental disclosure (ENV) have a positive regression coefficient, this suggests that increase of 1% for each variable, would affect the likelihood of an increase to spread disclosure through corporate websites as many as each variable is.

Results Discussions

This research aims to determine the impact of IFR disclosure. Independent variables used in this research are firm size, and environmental disclosure. After testing statistical measures, the results show that only firm size and environmental disclosure variable that significantly have an impact on IFR disclosure among manufacturing companies listed in Indonesia Stock Exchange. Firm size has an effect on disclosure by positive regression coefficient. A positive coefficient indicates a direct relationship between firm sizes on corporate tendencies to disseminate disclosure on corporate websites. It shows that large companies or companies that have large asset would likely disclose IFR disclosure. The greater of firm size, thus its activities more complex, requiring broader disclosure than companies that are less complex, furthermore disclosures made through website does not require a big costs, even considered relatively lower costs. This finding is consistent with research by Prabowo and Tambotoh (2005; Hanifa and Rashid (2005); and 1Damaso and Lourenco (2011) who proved that firm size has a positive effect on IFR disclosure.

Prior studies have argued that larger firms tend to adopt more voluntary disclosure practices including IFR due to the proposition of agency theory, need more capital able lower incremental cost and political cost theory (Hanifa and Rasyid, 2005). While 1Damaso and Lourenco (2011) stated that the large companies have additional disclosure in IFR. The largest companies normally have more and diversify stakeholders, the IFR disclosure is useful to the management cost and benefits for strategy communication. In accordance with agency theory presented by Hossain et al (1994) which states that agency theory can explain positive relationship between firm sizes with disclosure of financial information by agency costs. According to Agustina (2008), large companies are more confident and able to invest more resources in built a corporate websites. Large companies are also using innovative ways to disclose financial information in accordance with information technology development. For large companies, one of advantage to disclose information on website is able to reduce agency costs.

Environmental disclosure variable has an influence on IFR disclosure by positive regression coefficient. Positive regression coefficient indicates a direct relationship between environmental tendencies express IFR disclosure. It shows that companies that conduct activates for reduction waste and pollution are likely to provide IFR disclosure. Companies will be more transparent and gain more attention from its. By revealing companies activities in order to reduce waste and pollution, companies will get attention, reputation, trust and support from various parties, especially local communities, investors and shareholders are directly related to companies. According to Brown and Deegan (1998), environmental disclosure in annual reports of companies, public can monitor activities undertaken performed by company in order to fulfill its social responsibility.

Moreover, it can attract new investors to invest because company is considered more transparent and accountable to the environment. Most of samples used in this research has been done and revealed environmental activities. Possibility, corporate activity made to meet some government regulations on obligation of every company relating to/or natural resources conducting social and environmental responsibility in UU No. 40 Tahun 2007. Furthermore, based on UU No. 25 Tahun 2007 article 15b about investment which requiring every investors implement corporate social responsibility. And based on UU No. 22 Tahun 22 subsection 1 about protection and environment management, require each entity that has impact on environment to have an AMDAL. This finding is consistent with previous research conducted by 1Damaso and Lourenco (2011) who found a significant positive effect on environmental disclosure and IFR. Company will be paying less attention to negative impact on public perception, especially environment of company, therefore company will tend to disclose information though corporate website.

Conclusion

Purpose of this research was to verify whether independent variables (firm size and environmental disclosure) have an effect on dependent variable, Internet Financial Reporting. Sample consists of 96 observations data of 32 manufacturing companies listed on Indonesia Stock Exchange from 2008 to 2011. This research uses multiple regression models using SPSS Version 16 to determining the effect between independent variables and disclosure on corporate websites. The findings suggest that there are two variables which is significantly influence on IFR disclosure i.e. firm size and environmental disclosure on manufacturing companies are listed in IDX. The findings on firm size are significantly influencing IFR is consistent with research conducted by Bonson and Escobar (2002); Prabowo and Tambotoh (2005); 1Damaso and Lourenco (2011); Aly et al (2008); Agustina (2008); and Hanifa and Rasyid (2005).

A few ideas on the suggestions for future research are based on the results and experience from writing this research. Another way forward could be study more specific case on other public or private industries, increase the characteristics of firms and websites to get more accurate understanding of which factor lay behind the IFR disclosure.

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