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Journal of Electronic Engineering and Communication Engineering

Aims and Scope

The Journal of Electronic Engineering and Communication Engineering is a peer reviewed journal . It is intended to serve as a forum for researchers, practitioners, and developers to exchange ideas and results for the relevant engineering issues on electronics and communication. Suitable topics include, but are not limited to: Advanced power semiconductor devices, Modelling, simulation, analysis, design and implementations of the application of power circuit components (power semiconductors, inductors, high frequency transformers, capacitors), Control algorithms and techniques applied to power electronics, Applications in motor drives, wind energy systems, solar, battery chargers, UPS and hybrid systems.

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Semantic Web and Ontology: WEB 3.0

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ABSTRACT

Semantic web is amalgamated with web 3.0 which speaks to data more commendable. Metaphysics is the foundation of the web 3.0. Ontology is the strategy which benefits in machine-rabble structure in the semantic web. Web 3.0 give the administrations like administrations like Intelligent pursuit engines, 3D-wikis, Semantic Libraries, Micro-Blogging, virtual Labs and so forth through the Ontology Inference. This paper gives the basic ideas of web 3.0 services and semantic web, structure of semantic web, advantage of web3.0, ontology and convergence of web 3.0 and semantic web related with vision web 3.0.

Keywords- *Web 3.0, Semantic web, Ontology*

1. INTRODUCTION

Since its inception in the early 1990s, the web has revolutionised our lives and world more than other technological development in recent streams of history. We will identify three major streams of development and impact: The application stream is simply an account of what we have experienced over the past ten to fifteen years, namely the web as an ever-growing and omnipresent library of information. The technology stream touches upon the technological advances underneath the web that have enabled its evolution and development. The user participation and contribution Stream looks at how people perceive and use the web and how this has changed over the past fifteen years in some considerable ways. Since the fifteen years is roughly half a generation, it will not come as a surprise that, surprise that, especially, the younger generation today deals and interacts with the web in an entirely different way the people did when it all started.

FLATTENING THE WORLD

The web and its rise, for a moment and take a broader look at a number of events in recent history that have led to a change world. The initial public offering (IPO) of Netscape in 1995 is one of the events that Thomas L. Friedman, foreign affairs columnist for the New York Times, in 2005, calls a world

“flattener”.

SEMANTIC WEB

As first published in Berners-Lee et al. (2000)

.....the semantic Web is a vision: the ideas of having data on the web defined and linked in such way that it can be used by machines not just it display purposes, but for automation, integration and reuse of data across various applications..... []. The semantic web is an extension of the current web in which information given well defined meaning, better.

COMPONENT OF SEMANTIC WEB

Components The term Semantic Web is used to refer to the technologies and standards used for structuring and linking of data by providing a Proper description of concepts, terms, and their associations within a given knowledge domain. Such standards and technologies included under W3C are:

- a) Resource Description Framework (RDF)
- b) RDF Schema (RDFS)
- c) Simple Knowledge Organization System (SKOS)
- d) SPARQL, which is a query language
- e) Notation3 (N3)
- f) N-Triples, is a format for storing and transmitting data
- g) Turtle (Terse RDF Triple Language)
- h) Web Ontology Language (OWL)

SEMANTIC WEB

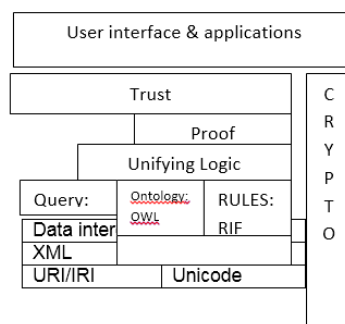


Fig 1: Semantic Web technological Stack

Semantic Web Languages

- 1) RDF
- 2) OWL
- 3) RDF Schema

Characterisers of Web3.0

- 1 Intelligence
- 2 Personalization
- 3 Interoperability
- 4 Virtualization

Services (Web 3.0)

- 1 Intelligent search engines,
- 2 3D-wikis,
- 3 Online 3D-Games,
- 4 Semantic Digital Libraries,
- 5 Semantic Blogs Semantic Blogs Virtual Worlds & Avatars,
- 6 Micro-Blogging,
- 7 Virtual labs/Educational labs,
- 8 Virtual 3D encyclopaedia,
- 9 Semantic Forms and community portals
- 10 Intelligent tutoring systems



Fig2: Services of Web 3.0

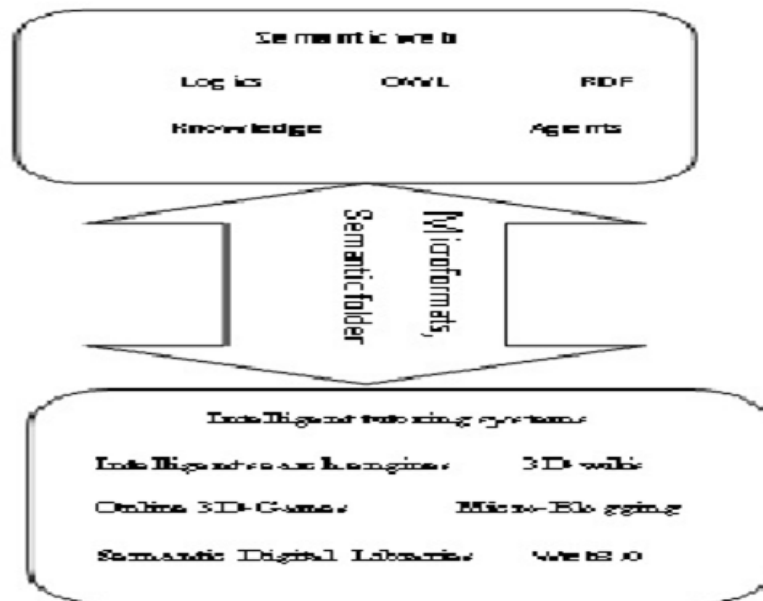
ONTOLOGY

An Ontologies ,the central component of the semantic web, in more detail as well as its usage for modelling vocabularies and domain knowledge.

CONVERGENCE OF WEB 3.0 AND SEMANTIC WEB

Only the combined muscle of semantic Web technologies and broad user participation will ultimately lead to a web 3.0 , with completely new business opportunities in all segments of the ICT market. Without Web 2.0 technologies an without activating the power of community based semantic tagging

the emerging semantic web cannot be Scaled and broadened to the level that is needed for a complete transformation of the current semantic web. On the other hand, current web 2.0 technologies cannot be used for automatic service composition and other domain query answering without adding machine –understable content descriptions based on semantic web technologies .The ultimate worldwide knowledge infrastructure cannot be fully produced automatically but needs massive user participation based on open semantic platforms and standards.



CONVERGENCE OF WEB 3.0 AND SEMANTIC WEB

With the various developments that we have made clear convergence of the semantic web and web3.0. On the one hand, we consider as this the lower layer of the foundations, there is web3.0 with its concepts such as Intelligent search engines, 3D-wikis, Online 3D-Games, Semantic Digital Libraries, Semantic Blogs, Semantic Blogs, Virtual Worlds & Avatars, Micro-Blogging, Virtual labs/Educational labs, Virtual 3D encyclopaedia, semantic Forms and community portals, Intelligent tutoring systems, its collaborative development of content, and its community effects that have led to the term “semantic web” as a synonym for web 3.0. On the other hand, there is the Semantic web, the upper layer in our view, which brings along RDF, OWL, ontologies, and several other concepts.

CONCLUSION

Meta-information ought to be given bunches of significance in the semantic web. Work needs to be

carried out on creating trust and security. Cosmology assumes a critical part in the Web3.0 administrations for dispersing of information. The primary destination of Web3.0 is space catch information with their semantic web. Profits of Web 3.0 administrations as a far reaching dispersion openly guide.

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Growth and Pattern of Literature Published on Web 2.0

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ABSTRACT

The Web version 2.0 covers a broad spectrum of technologies, services and tools which have provided information sharing ease of communication and online collaborative platform for creating, remixing and wider availability of online contents. It includes social networking sites (SNSs), blogs, wikis, social bookmarking sites, RSS, multimedia sharing sites, podcasts and mashups. The study has been undertaken with a crucial interest to explore the growth and pattern of the literature published on the topic of Web 2.0 and their associated aspects. This study has evaluated a nine year period spanning the years 2005 to 2013 and unravelled that the largest numbers of literature on Web 2.0 have been produced in the form of scholarly journal articles. The study finds that 2009 was the most productive year having 919 articles and 'Library & Information Update' have been considered as core journals for publishing research papers on Web 2.0 technologies.

Keywords- Web.2.0, Periodical Literature,

1. INTRODUCTION

The World Wide Web (WWW or Web) as it is popularly known is the most remarkable and magnificent service of the internet and could easily be regarded as one of the most innovative services of the twenty-first century. The latest innovations and refinements in internet-based services mean that the web has scaled new heights in terms of innovative tools and services, such as, providing a collaborative, information sharing and user-centred environment. This facilitates seamless browsing, searching, emailing, and chatting. The web has touched practically every aspect of our lives and is a popular medium for publishing, sharing, communicating, and disseminating of information. The WWW was originally based on the client-server model or simply hyperlinking the information and is therefore as the first generation of the Web (Web 1.0): a static web providing a non-interactive environment or one-way communication. The current version of the Web has progressed in a relatively new direction that provides an interactive and collaborative environment that has phenomenally developed the content of the Web through the valuable feedback of its users. It is also known as the second generation (Web 2.0)

and facilitates tasks and services for users by providing them with interactive, information sharing, user-oriented and collaborative environment online. In fact, Web 1.0 allowed users only to read or view the content of web sites or engage in one-way communication, whereas the Web 2.0 permits the user to read, view, edit and produce the contents on Web and assists in a two-way communication. Web 2.0 also assists the users to interact with the content creator, sharing views with colleagues, friends and professionals in a collaborative manner.

Web Ver. 2.0 is the latest phenomena amongst the researchers in every sphere of activity. In the present scenario, a number of studies have been conducted to comprehend these phenomena. A large number of conferences, seminars, and symposia are being organised frequently by academic bodies to discuss Web 2.0 notions. Diverse types of research, both theoretical as well as practical, have been witnessed in these areas on a wider scale. Further, a large numbers of articles have been published during this short span of time and numerous journals have also published special issues on this topic. Thus, the present study is being conducted to explore the growth and pattern of literature available on Web 2.0 and Library 2.0 and their various components, applications and facets.

OBJECTIVES OF THE STUDY

- The study has following objectives:
- To identify the growth of literature on Web 2.0 Technologies worldwide;
- To study the publishing pattern of Web 2.0 literature; and
- To evaluate year wise distribution of literature on Web 2.0.
- To identify the core journals cover more literature on Web 2.0.
- To ascertain the thrust area of research in Web 2.0.

METHODOLOGY ADOPTED

The concept of the Web 2.0 was introduced in the mid of 2004 - 2005 although during the short span of time, it has produced immense literature on a very large scale. The purpose of the study is to explore the growth and pattern of published literature on Web 2.0 throughout the world. The study has covered two abstracting databases namely Library and Information Science Abstract (LISA) and Library, Information Science & Technology Abstracts (LISTA) which provide advanced search options to retrieve data of specific range of years, months and days and to select diverse types of resources. They also facilitate to format the publication into bibliography, book review, conference, conference report, electronic only, journal article, literature review and newspaper. The relevant data on Web 2.0 literature has been collected

from online version of both databases. Hence, the advanced search was made in the LISA and LISTA databases using the keywords “Web 2.0” for the date ranging from the year 2005 to 2013.

ANALYSIS AND DISCUSSION

The collected data of scholarly literature has been thoroughly scrutinised, analysed and interrelated using the MS-Excel (2010). The following tables give a complete picture of literature available on Web 2.0 technologies.

Table 1: Literature Available on Web 2.0

Databases	No. of items
LISA	2075
LISTA	2650

The databases searched 2075 items in LISA and 2650 item of information on Web 2.0 in LISTA respectively. These contain articles of scholarly academic journals, magazines, trade publications, reviews, newspapers and conference papers & proceedings.

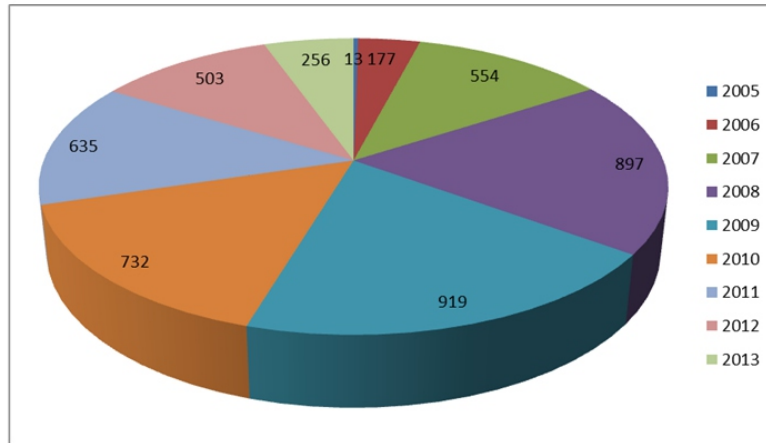
Table 2: Publication Types of Distributed Literature

LISA	No. of items	LISTA	No. of items
Scholarly Journals article	2068	Academic Journals	1,458
Conference Papers & Proceedings	7	Magazines	498
		Trade Publications	435
		Reviews	200
		Newspapers	1

Web 2.0 Literature is available in various forms including books, journals, conference proceedings, theses, magazines, standards and patents in both printed and electronic form. The databases help the users to access information in the desired order. Various types of publication are accessible through database such as articles, books, book chapters, book review, feature articles, interviews, obituaries, speech and symposium. The above mentioned table reveals the various types of sources which have been covered through the massive literature on Web 2.0. It indicates that LISA has contained only journal articles and conference papers, whereas LISTA has covered academic journals, magazines, trade publications, reviews and newspapers articles.

Table 3: Year Wise Distribution of Literature

Year	LISA	LISTA	Total
2005	8	5	13
2006	87	90	177
2007	172	382	554
2008	336	561	897
2009	398	521	919
2010	355	377	732
2011	324	311	635
2012	258	245	503
2013	98	158	256

**Fig. 3: Year Wise Distribution of Literature**

The above table and figure show the year wise growth of Web 2.0 literature in both databases. The study found that 2009 was the most productive year having 919 articles, followed by 2008, in which 897 articles were published. In 2005, only 13 articles were published, notably fewer as compared to other years; the reason could be that the concept Web 2.0 was introduced in the mid of 2004-2005 and may not have been extremely popular among the researchers.

Table 4: Subject Distribution of Published Literature

Narrow theme	LISA	LISTA
Web 2.0/ Library 2.0	1368	1713
SNSs	378	398
Blogs	77	270
Wikis	60	186
RSS	17	55
Social Software	31	-
Social Tagging	37	-
Social Bookmarking	16	-
Social Media	-	141

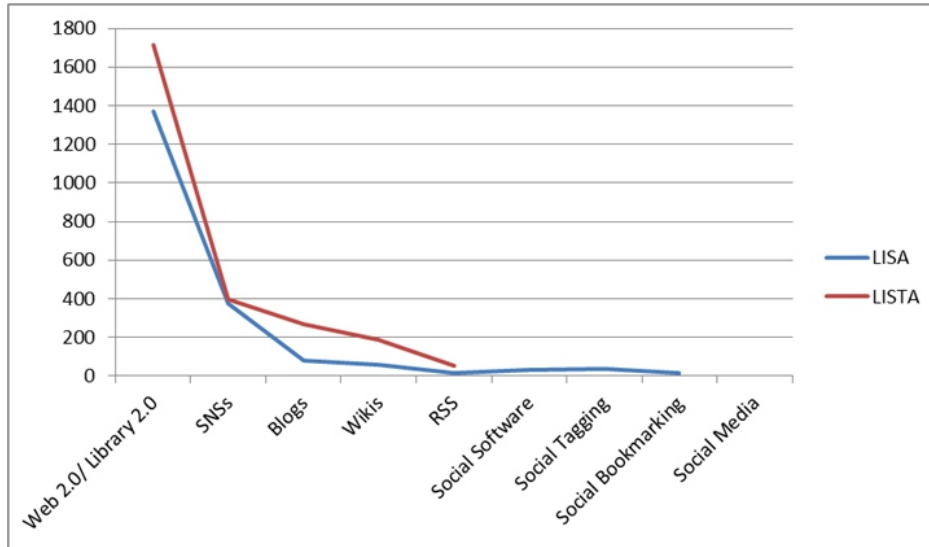


Fig. 4: Subject Distribution of Published Literature

In present era, Web 2.0 is one of the major thrust areas in the domain of ICT. In order to determine the sub-fields of Web 2.0 as listed in the Table 4, the selected literature were categorized into sub-fields (narrow themes). These themes are well established in the published literature. Both databases have provided numerous sub fields which covered the diverse aspects of the literature. The present study attempts to identify the wider branches of the subject and has been presented into the table. A large number of literature is available on Web 2.0 and its applications in libraries or Library 2.0 and followed by Social Networking Sites (SNSs). The emerging fields such as social software, RSS, social bookmarking, and social tagging also have a substantial number of articles.

Table 5: Ranking of journals by number of papers published

Name of the journals	Articles	Rank
Library & Information Update	93	1
Profesional de la Informacion	64	2
Information Today	54	3
INCITE	50	4
Information World Review	47	5
Information, Communication & Society	40	6
EContent	39	7
Computers In Libraries	38	8
Journal of Medical Internet Research	38	8
Online Information Review	37	9
First Monday	36	10
Journal of Web Librarianship	35	11
BuB: Forum Bibliothek und Information	34	12
Library Hi Tech	33	13
Documentaliste: Sciences de l'Information	32	14
Managing Information	32	14
New Library World	31	15
Online	31	15
International Journal of Web Based Communities	31	15
Multimedia & Internet@Schools	31	15

Table 5 explores the core journals covering the literature on the subject and ranked as core journals of databases in the field of library and information science. The present study covered only those journals of both databases which contain a large amount of literature on Web 2.0. The table clearly indicates that 'Library & Information Update' covers the largest amount of literature i.e. 93 articles, followed by 'Profesional de la Informacion' with 64 articles.

Findings

The study provides the following major findings:

- The study finds that the largest number of literature on Web 2.0 has been produced in the form of scholarly journal articles.
- 2009 was the most productive year having 919 articles, followed by 2008, in which 897 articles were published.
- In terms of the subject coverage, the study found that about 65 percent literature being published on Web 2.0/Library 2.0, followed by Social Networking Sites (SNSs).
- In context of determining the core journals amongst the both databases, it is found that 'Library & Information Update' had the most articles on the topic, i.e. 93 articles, followed by 'Profesional de la Informacion' having 64 articles. Hence, these two journals can be considered as core journals for publishing research papers on Web 2.0 technologies.

CONCLUSION

The study has been undertaken with the main interest to find out the growth and pattern of literature published on the topic of Web 2.0 indexed in LISA and LISTA databases. The study covers a nine year period and reveals that a large number of literature in various forms have been published during the particular time frame on this subject. Although the term Web 2.0 had developed in the mid of 2004-2005 but during the short span of time it has grown in countless dimensions.

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Semantic Web: An Overview

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ABSTRACT

The World Wide Web (WWW) allows the people to exchange the information globally. With the advancement of ICT the pattern of information generation, distribution, and access has changed. Semantic web techniques improve the use of WWW. This paper gives an overview of semantic web and its technologies, that play a prominent role on the Semantic Web. It also describes development of ontology.

Keywords- Semantic Web, resource description format, ontologies, XML

1. INTRODUCTION

With the advancement of ICT the pattern of information generation, distribution, and access has changed. Semantic web provides better means of filtering the search result over the web. A lot of information is now published in the electronic form and is put on the web. Whenever a user put a query on the web search engines retrieve lots of hits of which most of the hits are irrelevant because search engines are not able to find the query on the basis of semantic of information. Finding information in the web become more and more complex. The semantic web is an approach to extend the web with semantic information. “The Web has developed most rapidly as a medium of documents for the people rather than of information that can be manipulated automatically. By augmenting web pages with data targeted at computers and by adding documents solely for computers, we will transform into semantic Web”¹. The Semantic Web vision involves the dissemination and processing of data by computerized tools as well as by people. The Semantic Web encodes the semantics of resources available on the web in a machine interpretable form. Semantic web searches different sources for performing actions on behalf of the user and search information on the basis of the meaning rather than its syntactic form. Semantic web improves the search process by enhancing the visibility of the knowledge on the Web.

SEMANTIC WEB

“The Semantic Web is customizable and personalizable; it provides a better means of filtering your search results and relies on the idea that giving context to data makes that data more rich and the searches “smarter.” The Semantic Web relies on metadata and linking data together (linked data) and encompasses a variety of formats, such as images and video. Another feature of the Semantic Web is the ability to weave social media (blogs, Twitter feeds, tumblogs, etc.) into search results. This next stage of connecting and interconnecting data on the web is the Semantic Web”².

“Semantic Web, extension of the World Wide Web (WWW) in which data are given meaning (semantics) to enable computers to look up and “reason” in response to user searches. One of the strongest proponents of the Semantic Web is Sir Tim Berners-Lee, the British inventor of the WWW and the director of the World Wide Web Consortium (W3C), which oversees standards for the project....Berners-Lee's concept of the Semantic Web is in marked contrast to the advocates of Web 2.0, which he has strongly criticized. The Semantic Web may more properly be referred to as one development of Web 3.0, which includes further improvements in the “back-end” data infrastructure, especially data tags, to support natural language searches and data mining”³.

Semantic web allows the development of software agents that can interpret the user's query and retrieval will be done on the basis of user's requirements. The information will be retrieved from a number of sources over the web. For example if user make a query on the term Ph. D. Students in Delhi University, semantic web will search all those documents which contains the term Ph. D. Students as well as all those documents which also not contains the term Ph. D. Students but by the name of Ph. D. Students. As stated earlier it's related with the meaning, rather than syntax. The concept of semantic web was given by Tim Berners-Lee. It is a next generation web where computer can aid human with their daily web related task as more meaningful information is added to the web. The semantic Web relies on the formal ontologies that structure underlying data for the purpose of comprehensive and transportable. It enables both human and machine the understanding of particular topic so that search and retrieval could be make more effective.

The World Wide Web Consortium (W3C) gives the following definitions for the Semantic Web:

“The Semantic Web is the representation of data on the World Wide Web. It is a collaborative effort led by W3C with participation from a large number of researchers and industrial partners. It is based on the Resource Description Framework (RDF), which integrates a variety of applications using XML for syntax and URIs (Uniform Resource Identifiers) for naming”⁴. The concept of the semantic web has

emerged out of the need to assist in the access, management and retrieval of increasing knowledge on the web. Aim of semantic web is that the information retrieval can be done by means of semantic relationships among concepts instead of hyperlinks between documents. Facts on semantic web are represented through metadata with the help of ontologies which describes the meaning and relationship with each other of metadata. Metadata elements are used to give structure to the description of a resource such as title, keywords authors and so on. On the technological side, the Semantic Web aims at adding semantic information to web contents in order to create an environment in which software agents will be capable of doing tasks efficiently The Semantic Web proposes the idea that web contents are defined and linked not only for visualization but for being used by applications. Therefore, the semantic web requires semantic documents and resources that permit knowledge representation and inferences. Web 2.0 is the outcome of semantic web which makes user to publish his/her thought in a collaborative manner. Its purpose is to make more intelligent sharing of information and makes the network provide dynamic and active structure. Semantic web search the query of user precisely and pull them out to the user.

KEY TECHNOLOGIES OF SEMANTIC WEB

A number of technologies are needed for the success of the Semantic Web, among which the ontology is the main one.

The semantic web is an integration of various sub technology or group of technologies which collectively work together and makes information more meaningful and expressive.

Key technologies applied in semantic web are:

Uniform Resource Identifier (URI): A URI is used to identify web resources. Every web resource has a unique identity to identify the location and name of a resource in uniform format. A URI may be Uniform Resource Locator (URL) and Uniform Resource Name (URN) or may be a combination of both.

Extensible Markup Language (XML): Extensible Markup Language was designed to represent and exchange data over information systems. XML is a meta-language which has provided a common standard for developing new markup languages such as Really Simple Syndication (RSS). Since in XML tags are not predefined it allows user to define their own tags. It provides the freedom to structure the document in the document using own vocabulary to define the various elements and attributes using document type definitions. XML is actually a meta language: a mechanism for representing other languages in a standardized way. It provides a data format for structured documents, without specifying

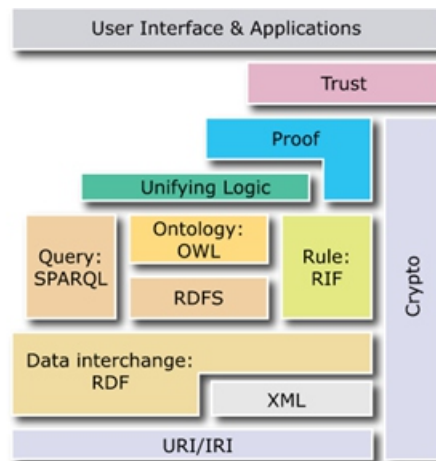


Figure 1: The Layer Cake: Enabling Standards and Technologies for Semantic Web⁵.

Resource Description Framework (RDF): RDF is used to represent information in the web. It also provides metadata elements. It is an application of XML to provide the description of resources in semantic web. RDF is a graph-based data format for data interchange over the web. It offers a simple graph model which consists of nodes (i.e. resources or literals) and binary relations (i.e. statements). RDF doesn't specify semantic for each resource description community rather it provides the ability for these communities to define metadata element as needed. RDF is ignorant about syntax; it only provides a model for representing metadata. An RDF description is a list of triples: an object (a resource), an attribute (a property), and a value (a resource or free text). An element of an RDF triple is called an RDF node.

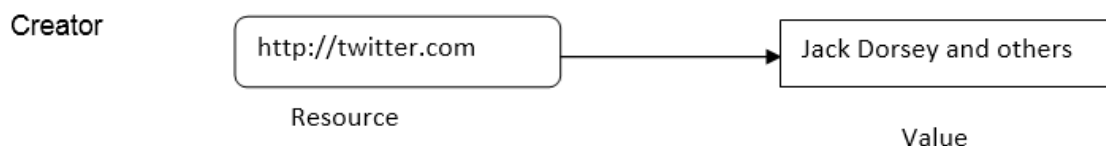


Figure 2: Simple Pictorial Data Representation in RDF

Therefore, the RDF model consists of three major components:

i . Resources: All information which has to be described by RDF expressions are called resources. A resource may be an entire Web page, part of a Web page, an entire Web site, book, places etc. Each resource on the web has a unique identity to identify the resource.

ii. Properties: A property is any characteristic, attribute, or relation which can be used to describe a resource. Such as name of author, place etc.

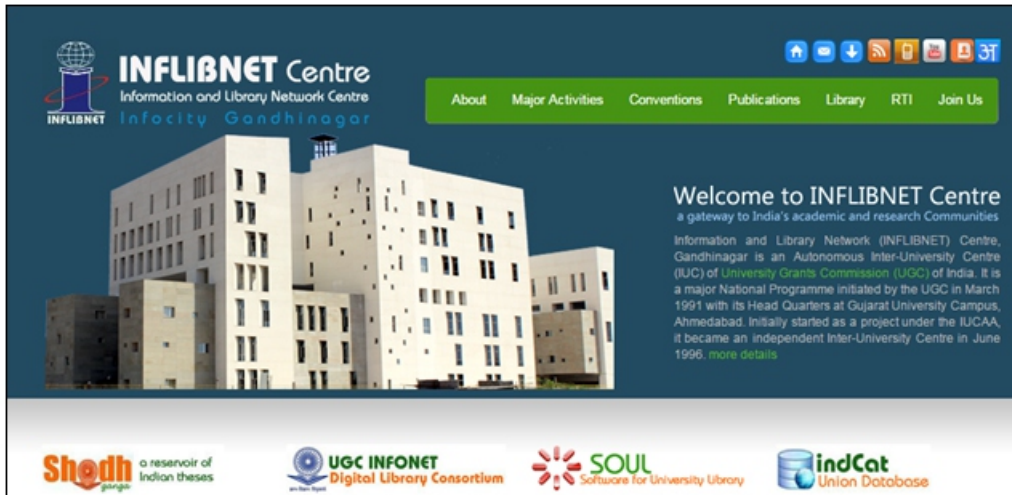


Figure: 3 Home page of INFLIBNET⁶

iii. Statements: A specific resource together with a property plus the value of that property for that resource is an RDF statement. These three individual parts of a statement are called the subject, predicate, and object, of the statement, respectively.

Let us consider the page/resource <http://www.inflibnet.ac.in> (home page of INFLIBNET) as an example. This resource can be described using various page related metadata, such as title of the page and keywords in the page, as well as INFLIBNET related semantic metadata, such as the director of INFLIBNET, SOUL, its publications etc.

RDF SCHEMA

RDF schema allows the developers to define a particular vocabulary for RDF data and kinds of object to which these attributes can be applied. In other words, the RDF schema mechanism provides a basic type system for RDF models. This type system uses some predefined terms, such as Class, sub Property Of, and sub Class Of, for application- specific schema. RDF schema expressions are also valid RDF expressions (just as XML schema expressions are valid XML).

RDF objects can be defined as instances of one or more classes using the type property. The sub-ClassOf property allows the developer to specify the hierarchical organization of such classes, and sub- PropertyOf does the same for properties. Constraints on properties can also be specified using domain and range constructs, which can be used to extend both the vocabulary and the intended interpretation of RDF expressions

ONTOLOGIES

“An ontology is a specification of a conceptualisation”⁷. It describes a domain of discourse. Typically an ontology consist of a finite list of terms and the relationships between these terms. The term denote important concepts (classes of objects) of the domain. For example, in a hospital doctors, nurses, operation theatres, and equipments are some important concepts. The relationship typically includes hierarchies of classes. A hierarchy is specifies a class C to be a subclass of another class C" if every object in C is also included in C". The core of the Semantic Web is ontology.

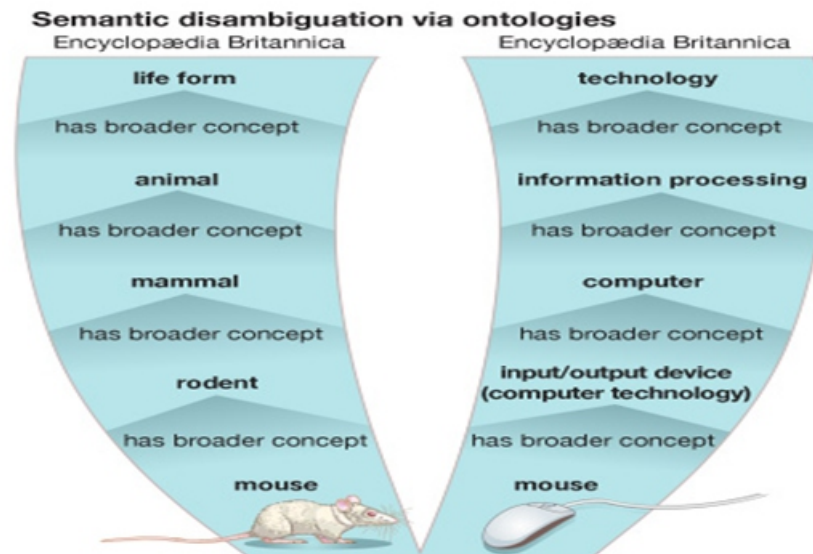


Figure 4: semantic disambiguation via ontologies⁸

“Ontologies generally consist of a list of interrelated terms and inference rules and can be exchanged between users and applications. Ontologies provide structural framework for organising information, whereas Semantic Web is the format or the technology that enables machines to understand human readable data. Semantic enables formal organisation of information”⁹.

Ontology is the explicit representation and description of already available finite sets of terms and concepts used to make the abstract model of a particular domain, described. Moreover, along with the processing ability semantic web agent is capable of communicating, receiving and transferring information to different sources (agent or human). They give meaning to information structures that are exchanged by information systems. It's the hierarchical description of concepts with in a domain of knowledge. These are based on principles used in less complex knowledge management systems such as thesauri.

By using ontologies in the Semantic Web, users can leverage the advantages of the following two features: (i) data is published using common vocabulary and grammar; and (ii) the semantic description of data is preserved in ontologies and ready for inference. XML and RDF deals with the description of

web resources and ontologies provide the mechanism to interrelate each other. Ontologies provide taxonomies and inference rules. Taxonomies define the classes whereas Inference rules tell the computer how to deduce and derive knowledge by combining specific types of information about specific categories. Ontologies are encoded using ontoligeis language such as SWRL and OWL. RDF and OWL are two W3C recommrned data representation model which are used to represent ontologies. Ontologies, describe the context in which metadata is applied, are used to link, compare, and differentiate information provided by various Web resources. Once all Web resources are described in a uniform way, the information exchange between individuals and applications will be possible to a much greater extent.

Ontologies are important for the organisation and navigation of websites. Many websites today expose on the left hand side of the page the top levels of a concept hierarchy of terms. The user may click on one of them to expand the sub categories. Also ontolgies are important for improving the accuracy of web searches. The search engine can look for pages that look for a precise concept in an ontology instead of connecting all pages in which certain, generally ambiguous, keywords occurs. In this way differences in terminology between web pages and queries can be overcome.

ONTOLOGY DEVELOPMENT

Ontologies can be general ontologies (SENSUS, Cyc, WordNet etc.) and domain- specifiv ontologies (GALEN, UMLS). Ontologies are build using thorough ontologies development language such as DAML+OIL, OWL (Web Ontology Language). OWL is a W3C recommendation for specifying ontologies. OWL provides more Ontology describes concepts of a domain therefore before developing ontology one must have knowledge of that particular domain as well as IT. Steps involved in developing ontologies:

- Determination of ontology domain and scope.
- Determination of use of existing ontology for the urpose of interaction with each other.
- Gathering of terms.
- Defining classes (hierarchy).
- Defining class properties (internal structure of concepts).
- Defining property restriction.
- Creation of instances

CONCLUSION

The paper provided a compact idea about the semantic web and its different technologies. Queries in information retrieval play an important role in searching and retrieving relevant information from the web. Due to the huge collection of data, it has become difficult to manage and retrieve meaningful information from the Web. Semantic web tries to reduce the barriers in retrieval of information over the webs. The semantic web matches the user query with the descriptions of items to the user. It helps the user to overcome the barriers of locating relevant information over the web from different sources. RDF provides metadata element and helps in resource discovery in semantic web. RDF provides the model for representation of metadata over the web. Ontologies form an integral part of the semantic Web architecture. Agents intelligently interpret data, make inferences, and perform tasks with the help of ontology. Ontologies creates the hierarchy of a specific domain. Various languages are now developing for creating ontologies for the knowledge domain.

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Awareness and Use of Web 2.0 Technologies by Library Professionals in Central Universities of Delhi

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ABSTRACT

This paper deals with awareness and use of web 2.0 technologies by library professionals in library, personal life and at their work place as well. Survey method with a well structured questionnaire was used for the study. The sample respondents chosen for the study consists of librarians, deputy librarians, assistant librarians, professional assistants, semi professional assistants and library assistants. Total 120 questionnaires were distributed to the respondents. Out of 120 distributed questionnaires 96 duly filled were received showing overall response rate 80 percent. The study was carried out to know awareness of Web 2.0 technologies among the library professionals in central Universities of Delhi, which type of Web 2.0 technologies commonly used by library professionals and innovative uses of Web 2.0 technologies. It was found from the study that Web 2.0 technology is widely used by the library professionals in their personal and professional work, all library professionals are aware about the web 2.0 tools such as blog, wiki, podcast and social networking sites. It was also found that Facebook, whatsapp, blogger and Wikipedia web 2.0 tools are widely used by library professionals.

Keywords- Web 2.0, Wiki, Tagging, Social Book Marking, Blogging, RSS, Multimedia Sharing

1. INTRODUCTION

Internet and web technologies have changed functioning style of all kind of organizations, libraries and information centres globally. The last two decades have witnessed the rapid transformation of the library and information centre in applying information communication technology. Libraries have developed their products, services, tools and techniques based on advanced information and communication technologies. The Web 2.0 can be summarized as the natural evolution of the web, with its foundations in the development of services that focus on users and their active participation. The term was coined by Dale Dougherty and Craig Cline in 2004 when they performed a study on the web and confirmed that after the downfall of the dot.com companies, those that survived offered new services based on applications that created dynamic pages and interaction with the user. The new

services based on applications that created dynamic pages and interaction with the user. The term Web 2.0 is commonly associated with web applications that facilitate interactive information sharing, interoperability, user centered design and collaborations on the World Wide Web. A Web 2.0 site gives its users the free choice to interact or collaborate with each other in social media dialogue as creators of user generated content in virtual community, in contrast that was created for them. Examples of web 2.0 include Social- networking site, blogs, wikis, video sharing sites, hosted services, web application, mashups and folksonomies. The current online presence of information services is important and in continuous evolution, just like the web itself.

LITERATURE REVIEW

Various studies have been carried out on web 2.0 technologies and its application. For the present study the following studies have been reviewed in the light of topic. Figueiredo revealed in his study that Social media is increasingly becoming a significant fraction of the content retrieved daily by Web users. Title, tags, description and comments posting are the most common features used in Facebook, You tube and Yahoo. Welsh found in his study that free technology and web 2.0 tools have very important role to play in marketing of library products and services. Stewart revealed in his study that Web 2.0 tools provide a useful mechanism for establishing an online KT environment in which health practitioners share their practice-related knowledge and experiences with an online community of practice. Ajjan found in his study that Web 2.0 applications (such as blogs, wikis, and group messaging) have been widely adopted by organizations to enhance the effectiveness of internal communication and improve knowledge management within the organization. Valencia revealed in their study that advent of Web 2.0, also called the Social Web, has changed the way people interact with the Web. Assisted by the technologies associated with this new trend, users now play a much more active role as content providers. This Web paradigm shift has also changed how organizations operate and interact with their employees, partners and customers. Groote found in their study that health sciences journals incorporate Web 2.0 technologies that can be used to disseminate journal content using tools such as RSS feeds, Facebook, Twitter, and other social bookmarking tools. The study also examined if open access journals used Web 2.0 technologies more than traditional journals. Most journals offer RSS feeds and over half allowed readers to share journal content through social bookmarking tools. Arif revealed in his study that Instant messaging, blogs, social networking and wikis were the most popular Web 2.0 technologies. Librarians adopted such technologies in their professional and personal lives. Gender, length of professional experience and place of work have no effect on the frequency of use, while perceived skill level of internet use and perceived ease of Web 2.0 use have a significant effect on the frequency in Pakistani libraries. Jiang revealed in his study that Searching, browsing, encountering,

and monitoring are the four major information seeking modes adopted by social library system users. The majority of the users tend to combine two or more modes, but each user has a dominating one that helps define him/her as a searcher, browser, encountered, or monitor.

Objectives of the study

1. To find out the main purpose of use of Web 2.0 technologies by library professionals in Central Universities of Delhi.
2. To know about awareness of Web 2.0 technologies among the library professionals in central Universities of Delhi
3. To know which type of Web 2.0 technologies commonly used by library professional in central university of Delhi.
4. To find out an overall view of innovative uses of Web 2.0 technologies in central Libraries of Universities of Delhi
5. Are Librarians successfully exploring social nature of web 2.0 technologies to engage students?

Methodology Employed

Survey method with a well structured questionnaire was used for the study. The sample respondents chosen for the study consists of librarian, deputy librarian, assistant librarian, professional assistant, semi professional assistant and library assistant. Total 120 questionnaires were distributed to the respondents. Out of 120 distributed questionnaires only 96 duly filled were received which shows overall response rate 80 percent. The collected data is analysed with the help of statistical methods.

3. SCOPE AND COVERAGE OF THE STUDY

The present study deals with awareness and use of web 2.0 technologies by library professionals in central Universities of Delhi The geographical area is restricted to Delhi only. The present study is confined to four central universities of Delhi.

1. University of Delhi
2. Jawaharlal Nehru University
3. Jamia Milia Islamia University
4. Indira Gandhi National Open University

Result and Discussion

Awareness about Web 2.0

The study was carried out to map awareness and use of web 2.0 tools such as Blog, Wikis, RSS Feed, Social Networking Site, Podcasting and Social Book Marking. There were 11(11.45 %) librarians, 16(16.66%) Deputy Librarian, 19(19.79%) Assistant Librarian, 18(18.75) Professional Assistant, 17(17.70 %) Semi Professional Assistant and 15 (15.62 %) Library Assistant. Analysis indicates that all library professionals were aware about web 2.0 technologies.

Table 1. Awareness about Web 2.0

S.N	Awareness of Web 2.0	Librarian		Deputy Librarian		Assistant Librarian		Professional Assistant		Semi Professional		Library Assistant	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	Blog	11	-	16	-	19	-	18	-	17	-	15	-
2	Wikis	11	-	16	-	19	-	18	-	17	-	15	-
3	RSS Feed	11	-	16	-	19	-	18	-	17	-	15	-
4	Social Book Marking	11	-	16	-	19	-	18	-	17	-	15	-
5	Podcasting	11	-	16	-	19	-	18	-	17	-	15	-
6	Others	11	-	16	-	19	-	18	-	17	-	15	-

Application of web 2.0 tools in personal work

Similar to awareness about web 2.0 tools among the library professionals an attempt has been made to know about application of web 2.0 tools in personal work of library professionals. It was observed that all library Professionals have been using web 2.0 tools in their personal work.

Table 2. Application of web 2.0 tools in personal work

S.N	Application of Web 2.0	Librarian		Deputy Librarian		Assistant Librarian		Professional Assistant		Semi Professional		Library Assistant	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
1	Blog	11	-	16	-	19	-	18	-	17	-	15	-
2	Wikis	11	-	16	-	19	-	18	-	17	-	15	-
3	RSS Feed	11	-	16	-	19	-	18	-	17	-	15	-
4	Social Book Marking	11	-	16	-	19	-	18	-	17	-	15	-
5	Podcasting	11	-	16	-	19	-	18	-	17	-	15	-
6	Others	11	-	16	-	19	-	18	-	17	-	15	-

APPLICATION OF WEB 2.0 TOOLS IN LIBRARY

Web 2.0 is to make a reference to a group of technologies which have become deeply associated with the term: blogs, wikis, podcasts, RSS feeds etc., which facilitate a more socially connected Web where everyone is able to add to and edit the information space. The respondents were asked to indicate

whether they are using web 2.0 in library or not. It was observed from the study that library professionals were also using web 2.0 technologies in library. But level of using web 2.0 technologies in the library was not so high as compared to personal use. It was also found from the study that RSS feed was only tool which is using all library professionals as indicates in table 3.

Table 3. Application of web 2.0 tools in Library

S.N	Application of Web 2.0	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional	Library Assistant
1	Blog	04 (4.16%)	01 (1.01%)	05 (5.20%)	01 (1.01%)	00 (0.00%)	00 (0.00%)
2	Wikis	01 (1.01%)	00 (0.00%)	02 (2.08%)	00 (0.00%)	00 (0.00%)	00 (0.00%)
3	RSS Feed	07 (7.29%)	08 (8.33%)	11 (11.45%)	06 (6.25%)	03 (3.12%)	02 (2.08%)
4	Social Book Marking	02 (2.08%)	03 (3.12%)	01 (1.01%)	00 (0.00%)	00 (0.00%)	00 (0.00%)
5	Podcasting	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)
6	Others	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)	00 (0.00%)

MOST POPULAR BLOG AMONG LIBRARY PROFESSIONALS

Blog is a discussion or information published on the World Wide Web and consisting of discrete entries (posts) typically displayed in reverse chronological order. Blogs were usually the work of a single individual, occasionally of a small group and often covered a single subject. To explore which is most famous blog among the library professional, a question was posed. Analysis indicates that librarian ((3.12%), Deputy Librarian (1.01%), Assistant Librarian ((3.12%) and professional Assistant (1.01%) are like LIS Links blog. It was also found from the study that apart from LIS Link, Infilbnet blog was also famous among library professional as shown in table 4.

Table 4. Most Popular blog among library professionals

S.No	Popular Blog	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	LIS Link	3 ((3.12%)	01 (1.01%)	03 ((3.12%)	01 (1.01%)	-	-
2	Infilbnet	1 (1.01%)	00 (0.00%)	02 (2.08%)	-	-	-
3	Indiacomp.	-	-	-	-	-	-
4	Studyfreak	-	-	-	-	-	-
5	Infinitecourse	-	-	-	-	-	-
6	Others	-	-	-	-	-	-

Purpose of using Blog

Similar to most famous blog among the library professionals an attempt has been made to know about purpose of using blog among the library professionals. It was observed from the study that Librarian (2.08%), Deputy Librarian (1.01%), Assistant Librarian ((3.12%) used blog for the purpose of library resources.

Table 5. Purpose of using Blog

S.No	Purpose of Blog	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	General information	-	-	-	-	-	-
2	New Arrivals	-	-	-	-	-	-
3	Information literacy	02 (2.08%)	-	02 (2.08%)	-	-	-
4	Library Resources	02 (2.08%)	01 (1.01%)	03 ((3.12%)	01 (1.01%)	-	-

Most Popular Wiki among library professionals

Wikipedia is a collaboratively edited, multilingual free internet encyclopedia, supported by the non-profit Wikimedia foundation. Wikipedia's 30 million articles in 287 languages, including over 4.3 million in the English Wikipedia are written by volunteers around the world. A question was posed to determine which most popular wiki among the library professionals is. Analysis indicates that Wikipedia (100%) is the most popular among the library professionals. The respondents are using wiki for their personal use only not for library services.

Most Popular Wiki among library professionals

S.No	Popular Wiki	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	<u>Wikipedia</u>	11 (11.45%)	16 (16.66%)	19 (19.79%)	18 (18.75%)	17 (17.70%)	15 (15.62%)
2	Wiktionary	-	-	-	-	-	-
3	Answer. Wikia	-	-	-	-	-	-
4	Review. Wikia	-	-	-	-	-	-
5	Fr. Wiktionary	-	-	-	-	-	-

Most Popular RSS Reader

The study further explored to determine which RSS Reader is popular among library professionals. It was depicted in table 7. It was found from the study that Blog line (61.45%) is the most popular RSS Reader among the library professionals followed by my yahoo (25%)

Table 7. Most Popular RSS Reader

S.No	Popular RSS	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	My Yahoo	05 (5.20%)	04 (4.16%)	05 (5.20%)	05 (5.20%)	02 (2.08%)	03 (3.12%)
2	Blog lines	06 (6.25%)	10 (10.41%)	10 (10.41%)	12 (12.5%)	15 (15.62%)	06 (6.25%)
4	RSS Reader	–	01 (1.01%)	02	01 (1.01%)	–	04 (4.16%)
5	Opera RSS Reader	–	01 (1.01%)	02	–	–	02 (2.08%)

Most Popular sharing site among library professionals

A question was posed to explore which particular sharing site library professionals are using in their personal life. Table 8 is indicating that Facebook (51.04%) is the most popular sharing site among the library professional followed by Whatapp (29.14%) and Youtube (14.58%)

Most Popular sharing site among library professionals

S.No	Popular Sharing site	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	Facebook	04 (4.16%)	06 (6.25%)	10 (10.41%)	08 (8.33%)	10 (10.41%)	11 (11.45%)
2	Youtube	02 (2.08%)	03 (3.12%)	02 (2.08%)	04 (4.16%)	02 (2.08%)	01
3	Whatapp	04 (4.16%)	05 (5.20%)	06 (6.25%)	05 (5.20%)	05 (5.20%)	03 (3.12%)
4	Twitter	01 (1.01%)	01 (1.01%)	01 (1.01%)	01 (1.01%)	–	–
5	Flickr	–	01 (1.01%)	–	–	–	–

Learning of Web 2.0

The study further explored to determine what are the modes to learn web 2.0 tools by the library professionals? The result depicted in table 9. It is observed from the study that all library professionals Librarian 11(11.45%), Deputy Librarian 16(16.66%), Assistant Librarian 19 (19.79%), Professional Assistant 18(18.75%), Semi Professional Assistant 17(17.70%) and Library Assistant 15(15.26%) learn web 2.0 by self learning/online tutorials (100%).

Learning of Web 2.0

S.No	Learning 2.0	Librarian	Deputy Librarian	Assistant Librarian	Professional Assistant	Semi Professional Assistant	Library Assistant
1	Self learning/online tutorial	11 (11.45%)	16 (16.66%)	19 (19.79%)	18 (18.75%)	17 (17.70%)	15 (15.62%)
2	From professional colleagues	-	-	-	-	-	-
3	Formal training	-	-	-	-	-	-

Findings and Conclusion

The present study was mainly focused on Awareness and Use of Web 2.0 Technologies by Library Professionals in Central Universities of Delhi. On the basis of above study the following conclusion are drawn

- Web 2.0 technologies are widely used by the library professional in their personal and professional work. It is found from the study that all library professional are aware about the web 2.0 tools such as blog, wiki and social networking sites
- The study is revealed that all library professional are used web 2.0 tools such as blog, wiki, social networking sites in their personal work.
- While analysing the usage of web 2.0 tools by the library professional in their professional work, it is found from the study that blog and RSS feed are mostly used by library professional among the different tools of web 2.0.
- While analysing which is most popular blog among the library professional, it is found from the study that LIS Links and Inffibnet are mostly used blog among the Library professional.
- It is also found from the study that most of the library professionals do not have their blog.
- While analysing for which purpose the blog is used by the library professional it is found from the study that most of the library professional use blog application for the purpose of dissemination of library resources to their end users.
- While analysing which is most popular wiki among the library professional, it is found from the study that Wikipedia is widely used by the Library professionals.
- While analysing which is most popular RSS among the library professional, it is found from the study that Blog Line is widely used by the Library professional
- It is found from the study that facebook and whatapps social networking sites widely used by the library professional.
- It is found from the study that library professional learn the application of web 2.0 through self learning and online tutorial.

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Web 2.0 and Libraries

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ABSTRACT

Purpose: World Wide Web consists of large number of online resources that are related via hyperlinks. While as Internet is a platform for the services like WWW, Email, Social Networks, Other web tools the Web 2.0 is also one of its main services. Web 2.0 includes socially rich applications that allow community building among the users. It facilitates users to create, share, interact, communicate and collaborate. The chapter is an attempt to explore and highlight various services and technological tools offered by Web2.0 and their application. Design/methodology/approach: An extensive literature survey is carried out to attain the purpose of the study. Various research articles, books and websites have been consulted to give more authenticity to the work. Besides, subject experts, teachers and researchers have been consulted to seek the guidance for the work. Findings: Web2.0 has gained considerable momentum since last decade and has been an important channel for the generation of vast information, corporate adoption of technology and media content sharing on web. It furnishes a plethora of tools and services that are highly applicable in research and instant communication in all fields of life. Web 2.0 has greatly modified the way people using Internet. Besides, people use web 2.0 applications to pool their knowledge. Web 2.0 not only emphasizes effectiveness and usefulness of its applications, but a major focus is on the social utility and entertainment.

Keywords- Internet, Technology, Web 2.0, Web Services, Social Web, Social Networks, Hyperlinks

1. INTRODUCTION

The Internet allows greater coverage of work, especially with the spread of high-speed connections. Now-a-days Internet-based technologies are playing a significant role in the way that societies communicate with the each other. It's a fact that the technologies allow information to be readily exchanged without geographic and time barriers. Many people use the terms Internet and World Wide

Web synonymously. The World Wide Web is a global set of large number of resources interrelated by hyperlinks. It provides a mesh of services including email, social networking and Web 2.0. Web 2.0 is not mere a website and a search engine but it furnishes a platform for research, education, entertainment and social activities, which essentially all people do. It also provides the services like blogs, wikis, and multimedia sharing services, content syndication, podcasting and content tagging services. The inventor of World Wide Web, Sir Tim Berners-Lee says in one of his interviews about web 2.0, "Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is of course a piece of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wikis, then that is people to people. But that was what the Web was supposed to be all along. And in fact, you know, this 'Web 2.0', it means using the standards which have been produced by all these people working on Web 1.0" (Lamb, 2004). Applications of Web technology have been in use for years now, although new features and capabilities are being added on a regular basis. It is remarkable to see that many of these recent technologies are concatenations, i.e. they make use of existing services. World Wide Web (WWW) provided the base for Web 2.0 applications to create a new communication environment (Linh, 2008). It is a second wave that covers web tools and services. Davis (2005) describes Web 2.0 as an attitude not a technology and Birdsall (2007) believes that Web 2.0 is a social movement. So Web 2.0 applications differ from Web 1.0 applications by their frequency of usage too. As Web 2.0 applications are socially rich and community building is the core of these applications, so their usage increases many times than Web 1.0 static websites/applications. In 2004, Tim O'Reilly, the founder of O'Reilly Media (www.oreilly.com), used the term web 2.0 to describe the significant shift in how software developers and users were using the web. One of the characteristics of Web 2.0 web sites is that people go there to do something – as contrasted with Web 1.0 “brochure ware” sites that people came to primarily for information. Unlike in the past when it took months or years to implement new software, today we can download, set up and use powerful applications without the intervention of a technology expert. We can create our own website, manage huge databases, and stream rich media.

Defining exactly what Web 2.0 is as difficult as nailing a jelly to a wall. The three key aspects of Web 2.0 enable us to identify the various types of connections Web 2.0 creates. These three aspects are as under:

1) Interpersonal Computing: It is about using the online technology to connect people to each other in social networks or business teams. The key Interpersonal Computing aspects of Web 2.0 are as SNS, Blogs, Wikis and online videos. All of these sites allow anybody to access as well as to add content. It allows users to leave messages and comments and also to exchange digital media in form of photos and videos etc.

2) Web Services: These are components of online functionality that can be plugged together like the kind of digital letter in order to create integrated online offering or mashup.

3) Software As A Service: The final key aspect of Web 2.0 is 'Software As A Service' or SaaS. This involves application functionality being offered directly over the internet. In turn used data and application can then be accessed through internet enabled computing device.

In addition to this, Web 2.0 can be described in three parts:

1) Rich Internet application (RIA) — defines the experience brought from desktop to browser whether it is from a graphical point of view or usability point of view. Some buzzwords related to RIA are Ajax and Flash.

2) Web-oriented architecture (WOA) — is a key piece in Web 2.0, which defines how Web 2.0 applications expose their functionality so that other applications can leverage and integrate the functionality providing a set of much richer applications. Examples are feeds, RSS, Web Services, mash-ups.

3) Social Web — defines how Web 2.0 tends to interact much more with the end user and make the end-user an integral part (Web 2.0, 2013).

WEB 2.0 SERVICES/APPLICATIONS

There are number of Web-based services and applications that demonstrate the foundations of the Web 2.0 concept, and they are already being used to a certain extent in education. These are not really technologies as such, but services (or user processes) built using the building blocks of the technologies and open standards that underpin the Internet and the Web. These include blogs, wikis, multimedia sharing services, content syndication, podcasting and content tagging services etc.

1. Blog: The term blog originally come from the phrase “web-log”, which refers to a simple webpage containing paragraphs of opinion, information, personal diary entries, or links arranged in a chronological order with the most recent entry first in the style of an online journal (Doctorow, 2002).Blogs, which represent the earliest form of Social Media, are special types of websites that usually display date-stamped entries in reverse chronological order. Blogs (abbreviated from weblogs)

1. are user journal entries in the form of text, images, and links to web content such as websites or other blogs. Blogs have a variety of formats and might include the user expressing their opinion about a topic or documenting activities. Blogs are interactive in the sense that other users could provide comments on the information posted by the blog author. Educational applications of blogs include researching, tracking, interpreting, and evaluating blogs for political commentary (multiple perspectives), cultural events, business, or other news and for examining changes over time (Alexander, 2006). A blog takes in a user-friendly commentary format with separate postings rather than a threaded discussion board (Richardson, 2006). Blogs are personal Web diaries, where users can offer their ideas, experiences and opinions on any topic. Blogs can become either thematic or general. Thematic blogs focus on specific areas or issues (sport, technology development, travelling or politics, for example). General ones are more like a daily diary in which the diarist can write about almost anything. The difference between a blog and a standard personal web-page is that users can update the content easily, directly from a browser, and so typing a blog becomes as easy as writing a normal document on a computer. Technorati (Internet search engine for searching blogs) currently counts around 112 million blogs worldwide with many more being added every day (Wright, 2013 a). Blog entries may include video and other rich media depending on the blogging software or service that is used.

Examples of commonly known blog sites are:

- O'Reilly radar (<http://radar.oreilly.com/>)
- Edublogs (<https://edublogs.org>) which are education-based blogs,
- WordPress (<http://wordpress.org/>)
- Google-Blogger (<http://www.blogger.com/start>) which are software blogs,
- Technorati (<http://technorati.com/>) and
- Google Blog Search (<http://blogsearch.google.com/>) which are blog search services.

2. Wikis: The word Wiki originates from a Hawaiian term which means “quick” or “Super-fast”. As popularly known a wiki refers to a web site that anybody can edit. Knowledge in the Web 2.0 environment is built directly by the users. Some of the most popular tools for building shared knowledge are so-called wikis. Wikipedia's popular success has meant that the concept of the wiki, as a collaborative tool that facilitates the production of a group work, is widely understood. Wiki pages have an edit button displayed on the screen and the user can click on this to access an easy-to-use online editing tool to change or even delete the contents of the page in question. Simple, hypertext-style linking between pages is used to create a navigable set of pages (Ebersbach, & Glaser, 2006). Unlike blogs, wikis generally have a history function, which allows previous versions to be examined, and

a rollback function, which restores previous versions. Proponents of the power of wikis cite the ease of use (even playfulness) of the tools, their extreme flexibility and open access as some of the many reasons why they are useful for group working. The first wiki was launched by Howard G Cunningham whose wiki site was named as WikiWikiWeb on March 25, 1996.

3. RSS: RSS stands for Really Simple Syndication or Rich Site Summary. It is a technology which has brought about a significant advance in the fundamental architecture of the web (O'Reilly, 2005). It allows you to keep up-to-date with news and information from your favorite Web sites. RSS is a family of Web-feed formats that support the syndication of Web content. (This means making information and data on a Web site available to other Web sites.) The feeds notify people when new material is added. The feeds can provide text-only summaries, full pages of content, audio (podcasting), or video. For example, many newspapers and magazines let you subscribe to one or more RSS feeds to receive summaries or full-text copies of their top stories published on the Web. The feed receiver benefits from access to fresh and timely material that can be used on his or her own Web site to make it more interesting to visitors. Other receivers use RSS to save time by having new content from their favorite sites sent to them, rather than finding it themselves. The feed sender benefits from the increased exposure and traffic the feeds draw (Stiefvater, N.D a).

4. Podcasts: A combination of the words “iPod” and “broadcast,” podcasts are digital media files distributed over the Internet and listened to on a portable media player. A related term is “vodcast,” which describes podcasts that incorporate video. Podcasts were originally conceived as a way for people to create their own radio shows without needing a recording studio or transmission network. They evolved into a means of recording and distributing speeches, classes and training sessions, and public safety messages. Podcasters and vodcasters record their audio and video sessions, edit them, and upload them to a feed. Listeners and viewers use a “pod catcher” service such as iTunes to search for and subscribe to one or more feeds. When a new podcast or vodcast is released on the feed, the audio or video file will download automatically to the subscribers' iPod, computer, or other device so that they can listen to or view it at their leisure (Stiefvater, N.D b). Publishing audio and video recordings of lecture materials and class discussion on a podcast is a popular way of information sharing among the new generation of students, teachers and social workers. Originally podcasts were called audio blogs and were the beginning efforts of adding audio streams to early blogs (Felix &Stolarz, 2006).

5. Tagging and social bookmarking: A tag is a keyword that is added to a digital object (e.g. a website, picture or video clip) to describe it, but not as part of a formal classification system. Application of tagging was initiated in Joshua Schacter's del.icio.us website, who launched the 'social bookmarking' phenomenon. Social bookmarking systems have many features in common. They facilitate users to generate lists of 'bookmarks' or 'favorites', to store these centrally on a distant service and to share them with other clients. These bookmarks can be located by the use of various related keywords. Tagging has much wider scope than website bookmarking as services like Flickr, YouTube and Podcasts allows the social tagging of various digital artifacts The idea of tagging has been expanded to include what are called tag clouds: groups of tags (tag sets) from a number of different users of a tagging service, which collects information about the frequency with which particular tags are used. This frequency information is often exhibited graphically as a cloud in which tags with higher frequency of use are displayed in larger text. Literature divulges the application of social bookmarking and such advanced web 2.0 tools in a number of large organizations like IBM etc. Social bookmarking services such as Diigo or del.icio.us enable users to store lists of Internet resources they find useful and make them accessible to others with similar interests (Ktitraci, 2009). 'Social bookmarking' is the trend which was first motivated by the popularity of tagging sites such as del.icio.us (Anderson, 2007).

6. Instant messaging (IM): Instant messaging (IM) is a collection of technologies that create the possibility of real-time text-based communication between two or more participants over the internet or some form of internal network/intranet. IM is an integral tool for reference services in terms of chat services. It could improve the timeliness of user interaction and the user's initiative, help libraries investigate user's requirement clearly and concisely in time, which is helpful to answer the questions (Si, Shi & Chen, 2011). Instant Messaging or “chatting” is a popular method of exchanging text messages in real time. Popular IM applications include AOL's Instant Messenger (AIM), Microsoft's Messenger, Google Talk (GTalk and GChat) and Yahoo's Messenger. IM (including text messaging) is fast replacing e-mail, especially among students.

7. Social networking sites: Another application of web2.0 that has facilitated the timely and fast interaction among people in a more convenient way is Social networking sites. These sites displays user profiles, social links, and a variety of added services and enables users to share views, thoughts, activities, events, and interests within their individual networks over the internet through e-mailing and instant messaging (Hossain & Aydin, 2011). Social networking sites act as a channel via which the user can share personal multimedia like audio and video clips, images, geographical location, contacts etc. It

further allows users to restrict viewing of their personal information by means of privacy settings. (Wikis, Blogs & Web 2.0 Technology, 2008). Networking Sites like MySpace, Facebook and LinkedIn facilitates online communication in between friends, colleagues and even strangers (Ktitraci, 2009b). Social networking sites allow users some control over the look and feel of their pages and can be customized with add-ins and “gadgets,” small software applications that provide information or amusement. MySpace and Facebook are general-interest social networking services that are widely used nowadays.

- File-sharing sites: File-sharing sites let users upload files, photos, and videos for others to view and download. Users can also create an individual profile and list their favourite photos or videos (Wikis, Blogs & Web 2.0 Technology, 2008 b). They usually include feedback tools that allow others to rate and comment. The most popular are Flickr and Photo bucket for sharing images and YouTube for sharing videos. You Tube is the most widespread video sharing site in the world. It enables users to share and watch their own, or downloaded, videos, rate or comment on them. Flickr is a platform for uploading, sharing and storing pictures. PodcastAlley is also other file-sharing site where users can search for and listen to podcasts uploaded on the internet (Wright, N.D b).

8.Mash-ups: A mashup is a term used to refer to a website or webpage that combines data and services from various sources on the Web (Murugesan, 2007). A mashup, in web development, is a web page, or web application, that uses and combines data, presentation or functionality from two or more sources to create new services. Mashups can be divided into seven categories: mapping, search, mobile, messaging, sports, shopping, and movies. More than 40% of mashups are mapping mashups (van der Vlist, 2006). A mash-up is a Web application that combines data from more than one source into a single integrated tool. An example is the use of cartographic data from Google Maps to add location information to real estate data. This creates a new and distinct Web service that was not originally provided by either source. (Wright, N.D c). There are many types of mashup, such as business mashups, consumer mashups, and data mashups.

Software technologies available to serve web 2.0

- FLASH: It is the standard for delivering high-impact, rich Web content. Designs, and application user interfaces which manages instantly across all browsers and platforms thereby

attracting and engaging users with a rich Web experience. It is usually used to create animation, advertisements and various Web page components, assimilate video into Web pages, and also to develop rich internet applications.

- AJAX: The delivery of Web 2.0 applications and services has been driven by the widespread implementation of one specific group of technologies known as Ajax –Asynchronous JavaScript + XML – a term put forward by Jesse James Garrett (Johnson, 2005;Garrett, 2005).

CONCLUSION

Web 2.0 provides users with a plethora of opportunities for social interaction and collaboration. In a very large extent, Web 2.0 has greatly modified the way people using the Internet. People use web 2.0 applications to pool their knowledge. Web 2.0 not only emphasizes effectiveness and usefulness of its applications, but a major focus is on the social utility and entertainment. Web 2.0 provides an interface to users in terms of social interaction such as Facebook, entertainment such as YouTube and communication tools such as Blog. That is why Web 2.0 becomes more and more popular in the Internet. Libraries form an essential part of academic institutions. Their role transcends the mere function of depositories of published information sources. Academic libraries have traditionally enabled and facilitated the exchange and growth of information, knowledge and culture among teachers, students and the general public. In this sense libraries represent a focal point of academic life and as such serve also a societal purpose of bringing together people around common themes. This purpose is nowadays enhanced and facilitated by the use of technology and, in recent times, by the so-called Web 2.0 (Maness, 2006). As Houghton-John (2005) defines it, Library 2.0 “simply means making a library's space (virtual and physical) more interactive, collaborative, and driven by community needs.” Library 2.0 has numerous façades reflecting the distinctive paths of user involvement that Web 2.0 facilitates. These façades comprise social networks; wikis; social bookmarks; blogs; photographs and audio; podcasting; videos; presentations; images; bibliographic reference managers; content syndication; messaging; video conferencing; chat, and much more. The introduction of Web 2.0 tools into library mesh sites inspires collaboration or communiqué between customers and the library that drives afar than physical services increasing the prospective of library facilities to patrons situated a afar from the corporeal organization.

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