



International Journal on Recent Researches In Science, Engineering & Technology

(Division of Information Technology)

A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy.

It is an absolutely free (No processing charges, No publishing charges etc) Journal Indexed in JIR, DIIF and SJIF.

Research Paper Available online at: www.jrrset.com

ISSN (Print) : 2347-6729

ISSN (Online) : 2348-3105

Volume 5, Issue 10,
October 2017

JIR IF : 2.54

DIIF IF : 1.46

SJIF IF : 4.338

Information Science towards IST: Emerging Interdisciplinary Domain *with Expert Definition, Existing and Future Scenario*

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Abstract:-

Information is the most important and valuable term in today's age. The term information is closely related with knowledge and data; however, there are some differences exist among these terms. Term information is very much close with Information Science; which is mainly responsible for healthy and sophisticated information systems and infrastructure building for all most all type of organization and institutions. Information Science is most important knowledge cluster and plays a vital role for computational as well as manual content and information solution. 'Information Science' the term and field is explained so many people in different perception and view. Information Science is closely related with Information Studies; which deals with theoretical information dealing. And it is also related with IT and Computing. This paper deals with Information Science and several aspects related to this. Paper especially highlights several perceptions and idea about Information Science and Technology (IST) explain broadly such aspects including in today's point of view.

Keywords:-

Information Science, Information, Computing, Information Science and Technology, Engineering, Social Science, Human Computer Interaction, Information Systems, Development Studies, Interdisciplinary Science

Introduction:-

Information Science is an important field of study which is concerned with information and knowledge including collection, selection, organization, processing, management, and

dissemination of information. Information Science is closely related with some other domain and mistakenly also treated as some of the domain and mainly as Information Technology, Computing Technology, Library and Information Science. However, there are some differences between Information Science and these domains [01, 05]. Information Science is practically a broad domain which is combined with so many domains, which are directly and indirectly related with information and computing. These fields are computer science, information technology, management science, mathematics, communication science, and psychology and so on. Thus, it is a broad field and in many cases treated as interdisciplinary Information Science [03, 07]. Information Science deals with so many facets and characteristics of Social Science and Humanities too. According to some expert, Information Science is a field of Philosophical Science which deals with humanities nature. Professionals and experts of this field come from several fields such as Computer Science, Documentation, Librarianship and so on [04, 12].

Objective:-

The main aim and objective of this paper is including but not limited to as follows:-

- To know basic about Information Science and its basic nature and characteristics;
- To know more about Information Science and its need and importance in today's age;
- To know about Information Science and its changing perception based on period and technical development;
- To know about Information Science and the relevance of several definitions given by so many experts of so many fields;
- To know about changing perception of Information Science with future potential with conceptual manner;
- To learn about Information Science and future nomenclature based on existing study.

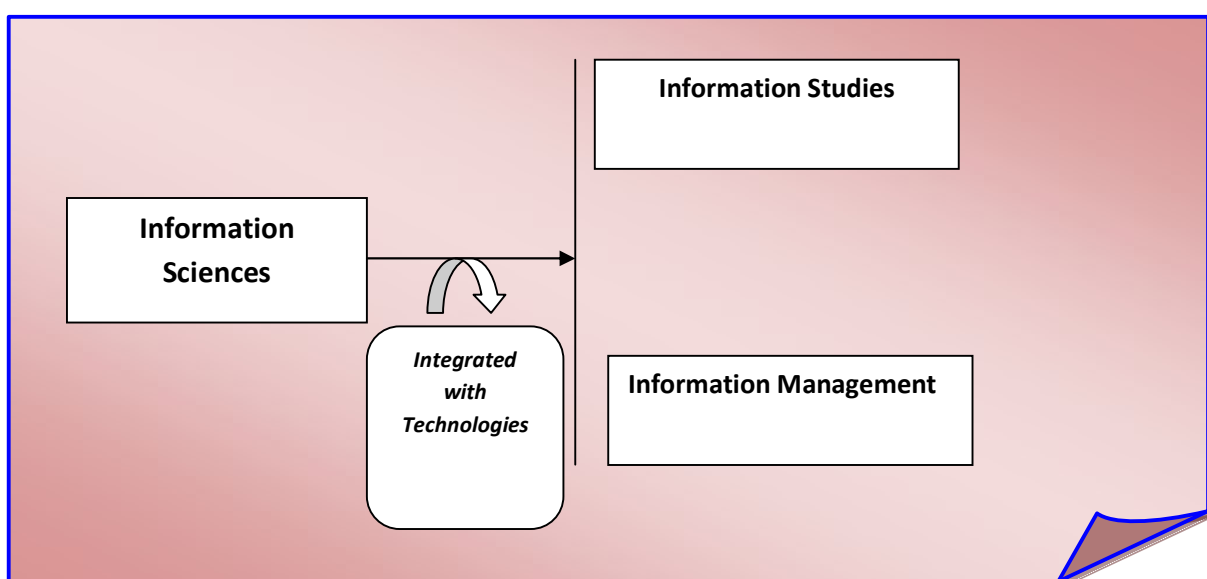


Fig:-1-Depicted building Information Science with integrating some other domain

Information Science Definition and Meaning: A Perception Study:-

There are so many definitions provided in different age by many Information Scientist with several perceptions [05, 13, 14]. However, before going to express such definition, let's know about its basic meaning and fundamentals knowledge—

Information Science is an interdisciplinary domain which is fundamentally concerned with the collection, selection, analysis, manipulation, storage, retrieval, movement and dissemination of information. Information Science focuses on understanding problems from the perspective of the stakeholders involved and then applying information and other technologies as required. In other word, it is a domain of information solution and information systems building and hence responsible for healthy information infrastructure building. Information Science is synonymous with Informatics in many countries and mainly in European Countries and soviet nations. Though, in United States among Information Science and Informatics, Information Science is most common and popular [16, 18].

According to Shrea, “Librarianship is the generic term and information science is an area of research which draws its Substance, methods and techniques from a variety of disciplines to achieve an understanding of the properties, behavior and flow of information. Information science contributes to the theoretical and intellectual base for the librarians operation [15, 18, 22].

According to C.G. Viswanathan – Information science is concerned with the principle and technique governing the transfer or communication of organized thought (knowledge) from one human to another and ultimately to society [15, 18].

Scientist of information science, ‘Broko’ said that information science is an interdisciplinary science that investigates the properties and behavior of information, the forces that govern the flow and use of information, and the technique, both manual and mechanical, of processing information for optimal storage, retrieval, and dissemination. This interdisciplinary science is desired from and related to such fields as mathematics, logic, linguistics, psychology, computer technology, operation research, graphic arts, communications, library science, management, and other similar fields [15, 18].

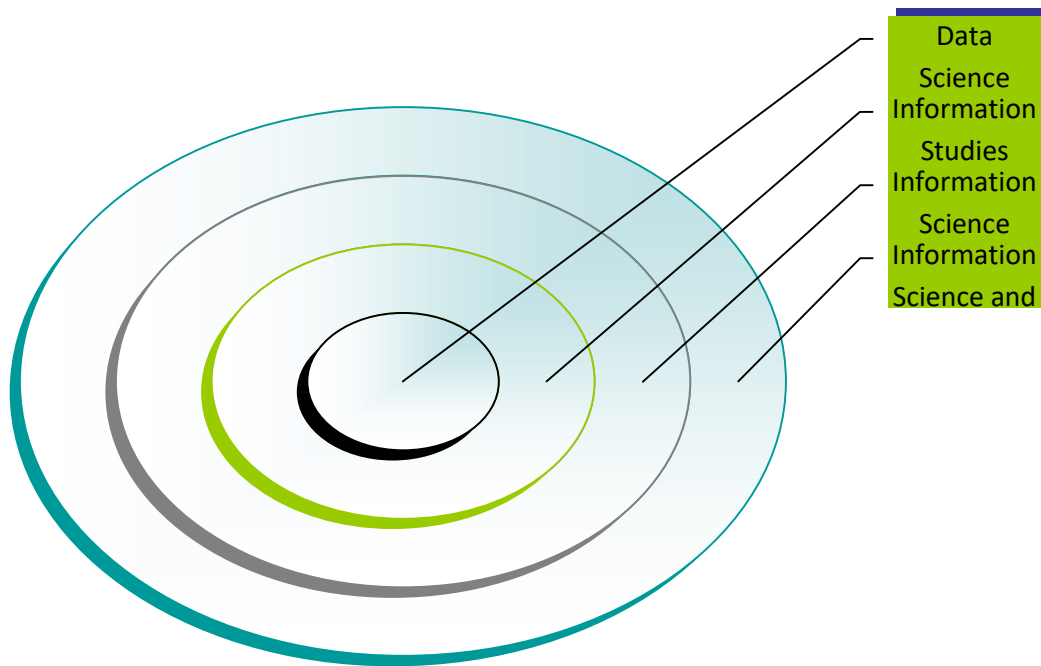


Fig: 2-Depicted Information Science and its allied domain with large scale and small scale approach

He further stated that information science has both a pure science component, which enquires into the subject without regard to its application; librarianship and documentation are applied science aspect of information science [17, 22].

Hence, as mentioned earlier, this field is changing rapidly and the reason behind this is, its uses and value and development of several tools and technologies for information processing and management. Information Science is today also connects with Behavioral Science and Cognitive Science for so many reasons [21].

Information Science and its changes with IT and Computing integration:-

Information Science changed radically after the development of IT and Computing and several information processing and management systems. Today it is treated as an important domain for Information Interaction with people or Human and hence. Carr [2003], claims that Information Science is a discipline, a field of research, and a theory dedicated to the evaluation of the characteristics and process of information systems, information retrieval, information seeking, and the interaction between human and computers [20].

The advancement of technologies such as Database Technologies, Networking Technologies, Multimedia Systems, Web Technology, and Systems truly changes and make information field

biased towards technology and computing. According to some Information Scientist and expert, Information Science is nothing but a different name and nomenclature of librarianship or library science; among them Crosby [2000], Marco [1996], are important. According to Crosby, 2000, although most librarians use new technologies, the core of librarianship remains the same: to make information useful to the users. Like this, Prins and De Gier [1992] express that, it is a new title should be given to the profession.

According to Marco [1996], the definition of Information Science borrows and combines term from librarianship, communication, and computer science.

Tefco Saracevic [1995] explains and put the importance of Information Science as a field of Applied Science with great focus and importance of Information Science [24-26]. He gives some comments on modern Information Science as follows-

Information Science is inexorably connected to information technology. A technological imperative is compelling and constraining the evolution of information science, as is the evolution of information society. Third, Information Science is, with many other fields, an active participant in the evolution of information society. Information science has a strong social and human dimension, above and beyond the technology. These characteristics are a framework for understanding the past, present, and future of Information Science [18-19].

Virtually, the basic and relationship between Information Science and Computer Science lies in the application of computers and computing and some related, allied and associated products and services and networks. Hence, Seracevic [1995] rightly mentioned, Computer Science is about algorithm related to information; while Information Science is about the very nature of information and their use by humans. The two concerns are not competition, they are complimentary. They lead different basic and applied agendas. Practically the importance of Information Science is gained after the integration of computing for several information activities. Information Science deals with so many information aspects such an Information Transfer Cycle, Information Channel, Information Seeking, Information Systems, Information Systems, and in all such activities computing and IT play an important role [14, 18].

Virtually, for modern information practice healthy IT and Computing practice in Information Science is very much important. Hence many people from IT, Computing and other domains *[but works on IT/Computing]* comes for Information Science development. Among such Scientist Bush and Gerald Salmov are prime examples. Hence today many Information Science experts explain that Information Science is a field of Applied Science with the main agenda of information practice and so many aspects of computing and IT integrated with this and makes a separate field with interdisciplinary nature. Broko, 1968; Hayes, 1969; Taylor, 1966 express their views like this [23].

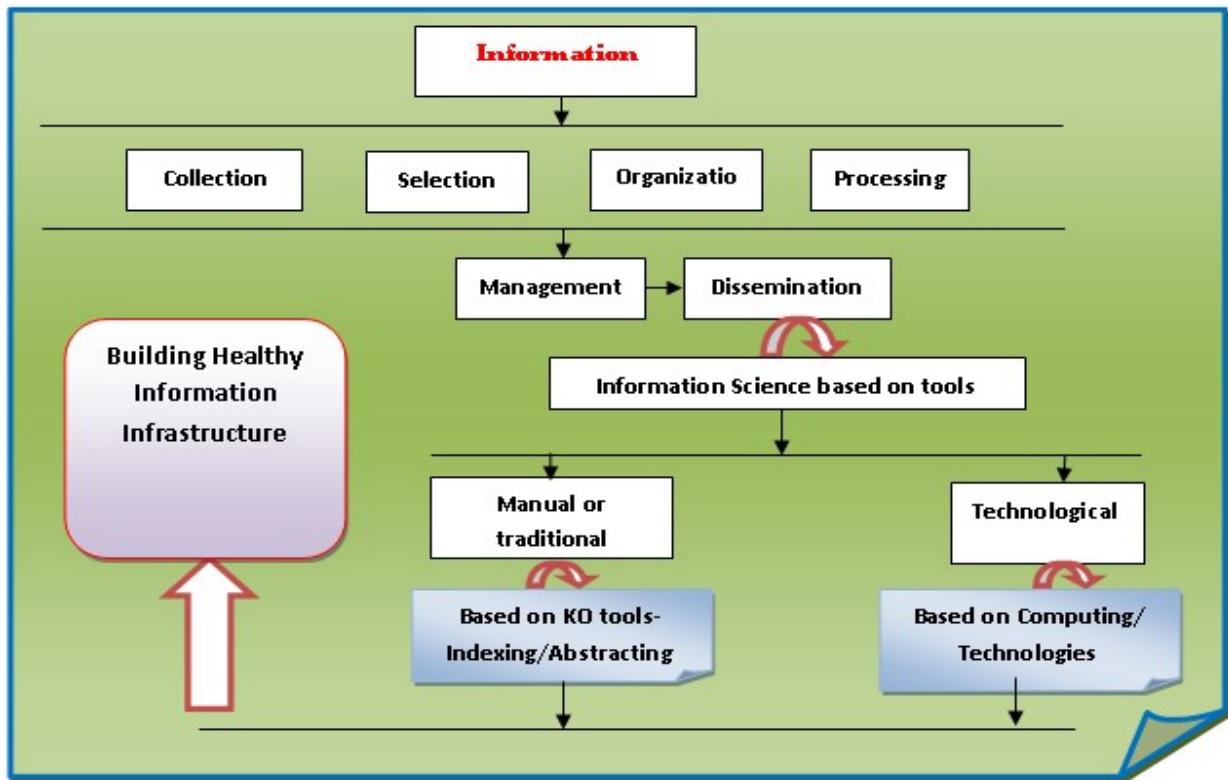


Fig: 3-Depicted Information Science with its basic nature and types at a glance [20]

However, Seracevic [1995] explains that this is an important field which has a connection and combines aspects from Librarianship, Computer Science, Cognitive Science, and Communication.

Hence, today, it may be treated as a domain for information and side by side technological solution and very broad in nature for Librarian or Computer Science or Information Technology and make an Interdisciplinary domain with greater focus on Human Information Interaction powered by Technologies and manual tools. We can also see such differences in earlier too; Seracevic [1995] also mentioned as follows in his research paper-

- (1) Selection of problems addressed and the way they were defined—a majority of the problems listed above were not and are not addressed in library science;
- (2) Theoretical questions asked and frameworks established— the theories and conceptual frameworks in librarianship (mostly based on philosophy and some on communication) have no counterpart in information science, and vice versa;
- (3) The nature and degree of experimentation and empirical development and the resulting practical knowledge and competencies derived—there is very little overlap in experimentation and development between the two, and professional requirements differ as well to a significant

Degree;

(4) Tools and approaches used—a most telling example is the very different approach undertaken in relation to utilization of technology in IR and in library automation; and

(5) The nature and strength of interdisciplinary relations established and the dependence of progress on interdisciplinary approaches—librarianship is much more self-contained [22-23].

Information Science and Future Direction and Concept:-

Information Science is changing rapidly after web revolution and healthy accessibilities of web and IT services. Information Science today deals with so many IT and Electronics gradients such as-

- Cloud Computing and Virtualization;
- Human Computer Interaction;
- Usability Engineering;
- Usability Experience Design;
- Intelligent Information Systems;
- Green Computing and Green IT;
- Green Information Services;
- Decision Support Systems;
- ERP Systems;
- Information Security;
- Advance Manual Knowledge Organization;
- IT Enabled Knowledge Organization;
- Human Information Interaction and so on.

Virtually, the growing gradients in Information Science change its academic position too. Earlier after the development of IT and Computing, some departments change the name of their department nomenclature. The University of California-Berkeley changes its name to School of Information Management and Systems from School of Library and Information Science. Like this, the University of Pretoria changes its faculty position and merged Department of Information Science with School of IT. Like other countries, in India too, Library Science department changes to Library and Information Science department and also some Information Science department first time established. The first Information Science department was established on 1993 at BIT Mesra with flagship programme MSc- Information Science. Similarly, some new Information Science programme introduces with IT focus and some institutes are MCIS-Manipal University, Periyar University, and WBUT [17].

The advancement of IT/Computing introduced so many new nomenclatures in department name and programme nomenclature too, such as-

- Information Science and Technology;
- Information Science and Computing;
- Information Science and Engineering;
- Information Science and Management and so on.

Conclusion:-

In conclusion, we may explain the modern idea of Information Science as provided by the I-School caucus foundation, US. 'It is an interdisciplinary field of People-Information-Technology interaction [05, 19]. The changing scenario of Information Science is helpful in the various way, first of all, in interdisciplinary research work it is helps in related subjects and domain such as computing, electronics and IT and management science and so on. Secondly, it helps to achieve new job position and title and which includes information related job and computing focus job and so on. The perception and view on Information Science is changing [06, 16]. We are the witness of so many nomenclatures of this field like Documentation Science, Information Studies, Information Science and recently Information Science and Technology [IST]; which is blended with information fundamentals with IT and system sciences.

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