International Journal of Information Science and Computing 1(1): June, 2014: 25-34

RENU PUBLISHERS

Information Science: The Multidisciplinary, Interdisciplinary field for Information cum Technological Solution for People and Wider Community

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Abstract

Development of Society, Community many ways responsible and depends on information. The better information processing and dissemination is helpful in removing digital divide and information divide and which is responsible for sophisticated information development. Information Science [IS] is one of the important stakeholder of information activities; which including collection, selection, organization, processing, management and dissemination. Information Science [IS] is an important interdisciplinary domain responsible for information solution with the help of technologies for several organization and institutions. The Information Science [IS] is changing rapidly throughout the world; today we can see several ingredients in Information Science [IS] in Information Science [IS] ranging from Science, Technology, Commerce, Management, Humanities and so on. This paper is talks about Information Science [IS]. This is paper talks about several changes in Information Science [IS] - domain, dimension and so on, briefly.

Keywords: Information, Information Science, Informatics, Interdisciplinary, Science, Multidisciplinary, Development, Community Development, Information Infrastructure, Information Transfer Cycle

Introduction

Information Science [IS] is an important and valuable interdisciplinary domain responsible for several information activities; such as information collection, selection, organization, processing, management, dissemination and broadly Information Processing and Management [02, 04, 08]. However, for such works, Information Science [IS] takes the help of several tools and technologies. out of such technologies, Database Technologies, Multimedia Technologies, Communication Technologies, Networking Technologies play an important role and footprints. Information Science [IS] is tries to act as an intermediator between people/

user/ community and Information/ Technological solution. Due to close connection of Information-People-Technological relationship; Information Science is treated as Information-People-Technological intersecting field. Information Science [IS] recently get so many new nomenclature such as 'Information Science and Technology', 'Information Science and Engineering', Information Science and Computing and so on. But out of these, Information Science and Technology [IST] get most popularity in academics around the world and in industries too. Information Science [IS] deals with Humanities, Technologies, Management, Science and so on [05, 09].

Objectives

The main aim and objective of this study is includes; but not limited to as follows:-

- To know basic about Information and Information Science;
- To learn about Information Science [IS] and its characteristics;
- To know about Information Science [IS] and its ingredients, briefly and about changing scenario;
- To know about interdisciplinary nature of Information Science [IS] and period wise differentiation;
- To find out various dimension of Information Science [IS] and misconception regarding it;
- To learn about Information Science [IS] educational activities; around the world.

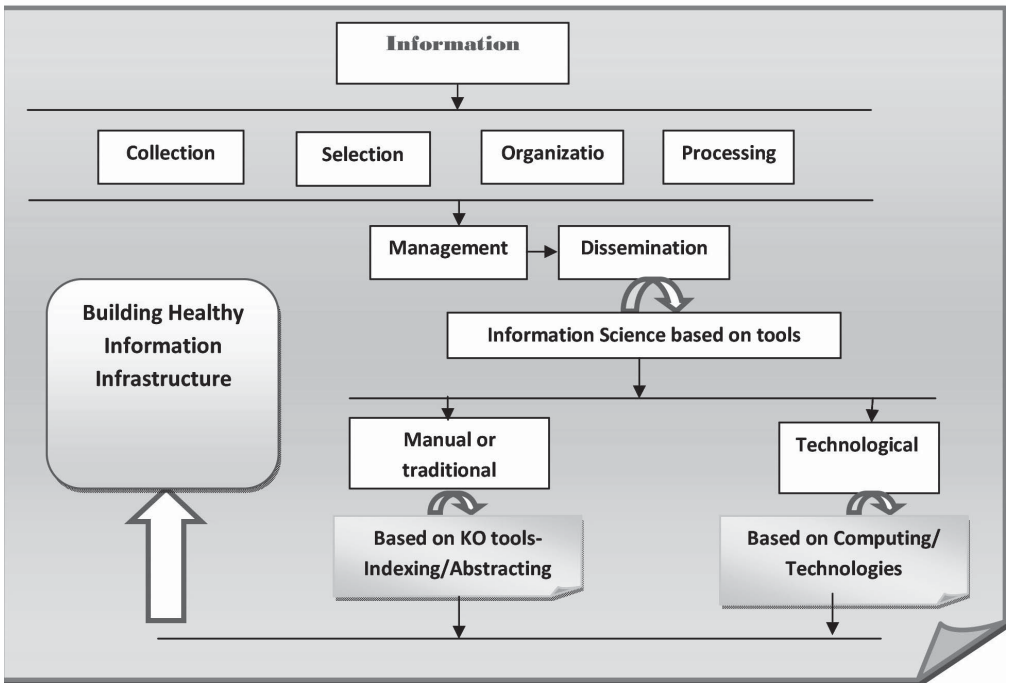

Fig. 1: Depicted general role of Information Science, its types based on tools and ultimate role

Information Science [IS]: Interdisciplinary nature

Information Science [IS] is an interesting interdisciplinary field responsible for so many information and technological task. Information Science [IS] is integrated with so many other domain and subfield such as computing, management science, information technology, cognitive science, information studies and so on.

- Information Science [IS] is actually responsible for information activities and for several activities Information Science [IS] takes the help of so many sub fields *[that means tools]* which are mentioned earlier. For information collection, today database and data mining technologies are using rapidly. This is ultimately helps in better information solution too. Use of communication and networking technologies is needed for better and healthy information communication between information foundations, is also possible with communication and networking technologies [06, 12, 13].
- Multimedia Technologies, is needed for representation of information with the help of sophisticated tools and visualization systems. Audio Information delivery, video information delivery and content dissemination, textual information transfer among the foundation and user. Use of Multimedia Technology in information dissemination is make smarter and advanced information system building and development. Multimedia Systems helps in better usability and interface building in information representation. Thus, Touch screen based Information kiosk, web pages, offline database and interface become much more alive and dynamic [14, 15].

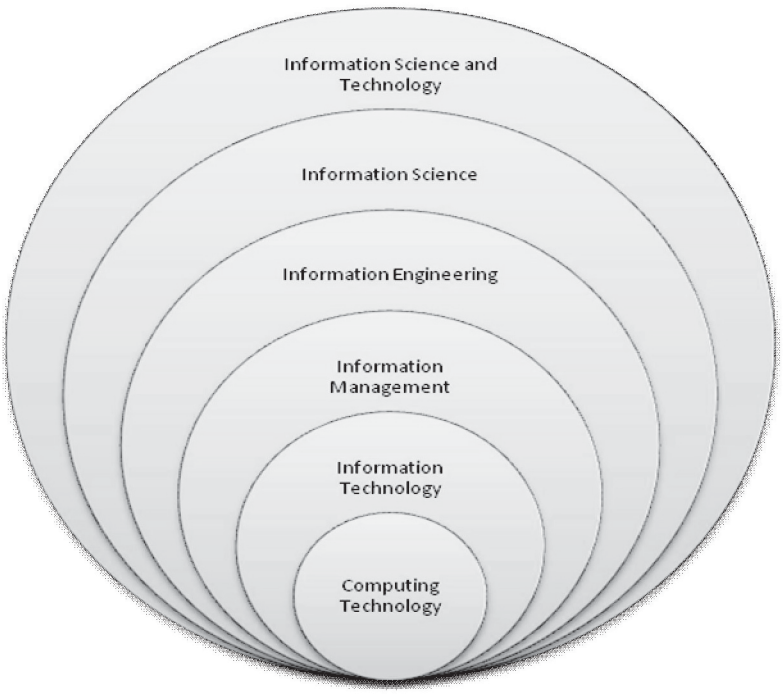

Fig. 2: The smaller and larger domain of Information Science

- Apart from Multimedia Technology, Networking Technology and Communication Technologies; some other arte also fall under Computing/ Computer Science domain; which is enriched Information Science [IS]. Information Technology is also play a hand some role for several information activities cloud computing and virtualization technologies improved information make available through out and in wider spectrum. It saves information and technologies available round o' clock by one centralized data centre or service providing institutions. Use of Green Computing and Green IT may helpful for building Green Information Systems or Green Information Science practice.
- Like IT, Computing, Management Science is also needed and used in information management and side by side technological management. Manual information resources such as documents, CD, and Digital Devices are also essential to affiliate with Management Science. Managing Digital Information also required Management Science principles.
- Cognitive Science is another important domain in Information Science [IS] which is needed for information designing and information architecture building. Cognitive Science give importance in user's expectation and demand and preparing information systems based on user requirement. Building website, information kiosk, data centre, manual information centre may get wider benefit with better cognitive and psychological practice [16, 17, 22].
- Information Studies is another most important domain for Information Science [IS]. Information collection, selection, organization, processing, management and dissemination are the main fundamentals of information studies; it is responsible for healthy information processing and management. Managing manual document and information as well as digital document and information influenced by Information Studies principles. Thus, the core of Information Science [IS] is Information Studies; and advancement of computing and technologies creates the contemporary Information Science [IS].

Information Science [IS]: origin and continuous development

Information Science [IS] evolved during 1960's after the development of the term information and need and application of information in several fields such as education, healthcare, hospital and medical, Government and so on. The continuous progress and development of Information Science [IS] results a new Applied Science nature which is combines with IT, Computing, Information Studies, and Management Science and so on.

Today it is a multidisciplinary field; combining technologies, sciences, humanities, management science and so on. Thus, as like nomenclature 'Interdisciplinary Information Science', it is also treated as 'Multidisciplinary Information Science'. ***From Technological side***, we can see the domain such as Database Technologies, Networking Technologies, Communication Technologies, Multimedia Technologies, Cloud Technologies, Green Technologies, Usability Engineering, Human Computer Interaction and so on; that means, from broader perspective, IT and Computing. ***From Science perspective***, subjects such as Research Methodologies, statistical techniques, Information Management related and close with Information Science. ***From Management Science perspective,*** managing document and initial activities such as planning, organization, staffing, directing, coordinating, reporting, and budgeting in relation to information and documentation fall under the category of Management Science. Apart from POSDCORB, Overall Information Service Management and Management Information Systems [MIS] requires Management Science [09].

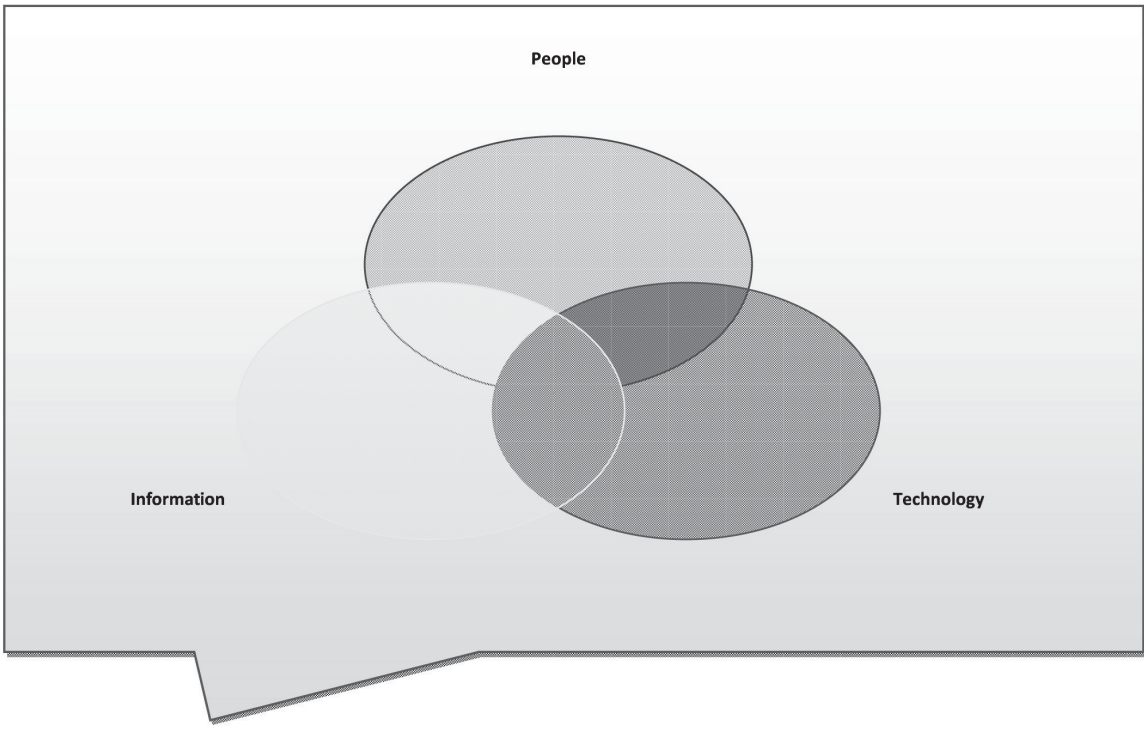

Fig. 3: Showing main stakeholders of Information Science or IST

Thus, Information Science [IS] is a multidimensional field incorporated with technologies, science, management science, humanities and social science domain dedicated to information infrastructure building. The knowledge management and technological solution in Health and Hospital Management Sector, Chemical Organization and foundation, Information Foundation, Educational Foundation is responsible and powered by Information Science [IS].

From Humanities and Social Science perspective, Information Science [IS] is deals with people, their need, information literacy, digital divide and so on. Aspects of Social Information Science practice including Social Networking, Community Information, and Community Library Service and so on fall under social and humanities aspects of Information Science [IS].

Recently, Information Science [IS] is changing and more integration of technological areas are emerging as a new concept and domain called Information Science and Technology [IST] with the main focus of integrating Information-People-Technologies[10, 19, 20].

Information Science [IS]: Domain and Dimension

Virtually the requirement of healthy Information Management in other field, domain and places brings some new Information Science [IS] foci. Now let discuss about them, Information Science [IS] and its interaction and application in Library Science brings 'Library and Information Science' nomenclature. Like this way, Information Science [IS] interaction with Pure Science fields emerged several new Pure Science based

Information Science [IS] or *Pure Information Science* and simultaneously Biological Science and Information Science brings *Bio- Information Science* fields.

Pure Information Sciences does not mean fundamental, basic or actual Information Science. This is actually interaction and relationship between some Pure Science domain such as Physics, Chemistry, and Mathematics with Information Science. The relationship and integration between Information Science and Physics mainly lead a domain called Quantum Information Science; which is mainly talks about speedy and transparent information access or Information Transfer Cycle from one place to another. The Quantum Computer Systems and its higher gradients lead the development of *Quantum Information Science* [QIS].

Like this, in Chemistry, Chemical Information Science or Chemo-Informatics evolved for dealing Chemical related Information and knowledge, the structure, formation of several chemical compound management, DNA, RNA and Pharmaceutical need lead the birth of *Chemical Information Science*. The interaction between Mathematical Science with Information Science results a sub field of Information Science i.e. *Mathematical Informatics*; which is responsible for design and development of Information Systems tools powered by good algorithm and simulation systems.

Bio Information Sciences are those fields which are connected with Information Science [IS]. Some Biological Science creates new fields by interaction with Information Science like Health Information Science, Medical Information Science, Bio Informatics, Green Information Science, and Geo Information Science and so on. *Health Information Science* [HIS] is mainly deals with Health Information Management and promote several health and hospital aspects such as tele-medicine, health 2.0, hospital information management, patient and doctor information storage and retrieval, diagnostics and pharmaceutical aspects and son on; *Medical Information Science* [MIS] is close related with Health Information Science [HIS]; but it is smaller knowledge domain than that and mainly uses is diagnostics Information Management, RNA,

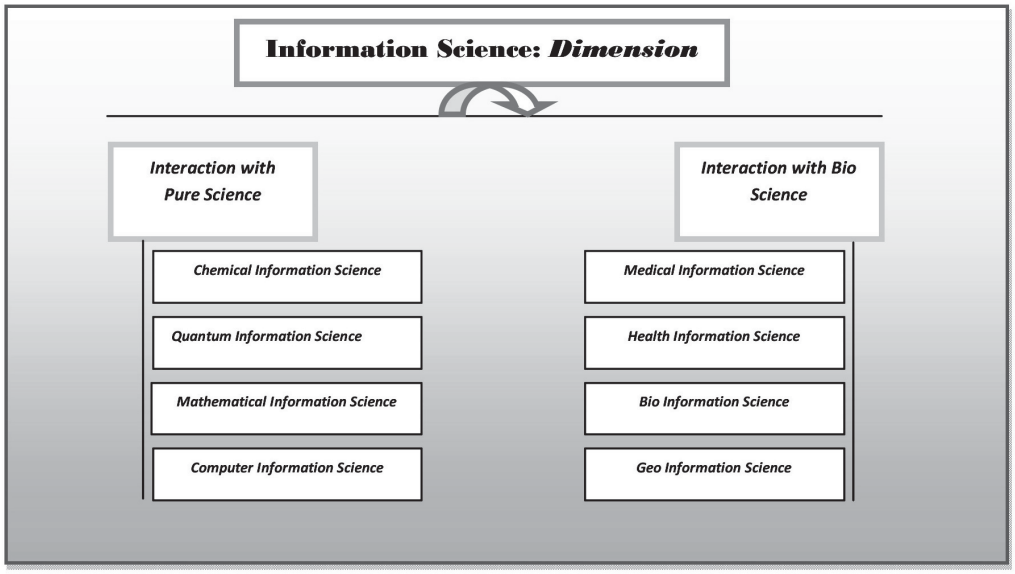

Fig. 4: Showing some popular dimension of Information Science in 21st century

DNA Analysis, Molecules and Allied Activity. *Bio-Informatics* is directly related wit DBMS, Data Mining, Knowledge Discovery in terms of RNA, DNA, and Genetics and so on. like these, Environmental Information Science deals with Environmental Information Management, Environmental Monitoring, GIS and Remote Sensing and so on. Geo Information Management, Disaster Management, Travel and tourism, Geological Solution, Digital Geo Image Processing, Geo Model development and so on.

Thus, like these, Pure and Bio related Information Science, several new Information Science domain are emerging due to wider application and interaction of Information Science with other fields. The interdisciplinary research many ways helps this promotion in academic affairs [22].

Findings

- Information Science [IS] is an interdisciplinary field and mistakenly treated as IT or Information Studies; however this is broader than that and combine with IT, Information Studies, Computing, Management, Cognitive Science and so on;
- Information Science [IS] interaction with Pure Science fields emerged several new Pure Science based Information Science [IS] or Pure Information Science and simultaneously Biological Science and Information Science brings Bio- Information Science fields.
- The most popular nomenclature of Information Science is MSc- Information Science around the world and in India too. In India some notable institutions in this field are- BIT-Mesra, IEM-Saltlake, KITM-Buniadpur, Techno India-Hooghly, Techno India-Saltlake, Periyer University and so on.
- Out of so many new nomenclature of Information Science, Information Science and Technology or simply IST gets most popularity.

Suggestion

- Government may involve in the awareness programme regarding the benefits of IS;
- There should be an opportunity to avail IS research in the related departments/ schools/ centers;
- Government should increase the budget for R & D activities for the further development of educational activities;
- Computer Science, Media Science, Communication Science, Library Science and IT related department may merge into one school or faculty of Information Science for further development and initial research [14].

Conclusion

Information Science [IS] is an important domain for societal development and through proper information infrastructure building among the organizations, institutions, educational institutions and so on. Due to importance of Information Science [IS], it is initiated during 1960's in the United States and then through out the world gain rapidly as a healthy educational programme. The healthy and sophisticated relationship between information science and technologies/ computing results better information processing such as collection, selection, organization, processing, management and dissemination improves societal development and makes an enriched Information Society and side by side improve better condition knowledge economy. The tendency towards Information Science [IS] degree and educational programme is increasing day by day; this is also a good symptom for healthy information and technological infrastructure building [02, 13].

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