Information Science: Science or Social Science

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Abstract

Collection, selection, processing, management, and dissemination of information are the main and ultimate role of Information Science and similar studies such as Information Studies, Information Management, Library Science, and Communication Science and so on. However, Information Science deals with some different characteristics than these subjects. Information Science is most interdisciplinary Science combines with so many knowledge clusters and domains. Information Science is a broad discipline more clearly; Domain of Domains. This is a combination of Science, Management, Technology, Engineering, Humanities and Social Science fields. Information Science extracts such special gradients which are related to Information and Technologies and helps in better Information Processing and Management. This paper talks about Information Science including its basic nature and characteristics. Paper also highlights the importance and value of Information Science and changing nature of Information Science due to the healthy interaction between Technologies and Engineering tools. The analysis concluded with how information science supports the development of both natural and philosophical sciences with the new age slogan 'Information-Technology-People' interaction.

Keywords

Information, Information Science, Informatics, Science, Social Science, Information Systems, Interdisciplinary Science, Computing, Information Technologies, Applied Science, Pure Science, Higher Education, IST.

Introduction

Information Science is most valuable and important domain which is a combination of so many domains and disciplines such as Computer Science, Information Technology, Information and Knowledge Management, Cognitive Science, Psychology and some other Social Science gradients. Information Science is responsible for information solution to several organizations and people such as Hospitality, Healthcare, Business, Commerce, Education and other sectors. Information Science provides information solution and side by side technological solution to these organizations and institutions. Information Science is also needed and indirectly utilized by the common people, and community [05, 09]. Information Science as far as education field is concerned, deals with so many faculty and division which includes School/ Faculty of Engineering, Technology, Science, Information Science and even with Social Science/ Humanities field and so many experts explain several ways this field. Information Science and its actual nature identification is too much tough due to its large and diverse nature [11], [14].

Objective

The main aim and objective of this field is include but not limited to as follows-

- To know basic about Information Science and its basic nature and characteristics in a brief manner;
- To know basic about the interdisciplinary nature of Information Science and changing trends;
- To know about the changing perception on Information Science provided by many expert and Information Scientist;
- To know about the Science nature in Information Science;
- To learn about the Social Science and Humanities nature of Information Science in a brief manner;
- To know briefly about Information Science education in India and further overview of the worldwide trends.
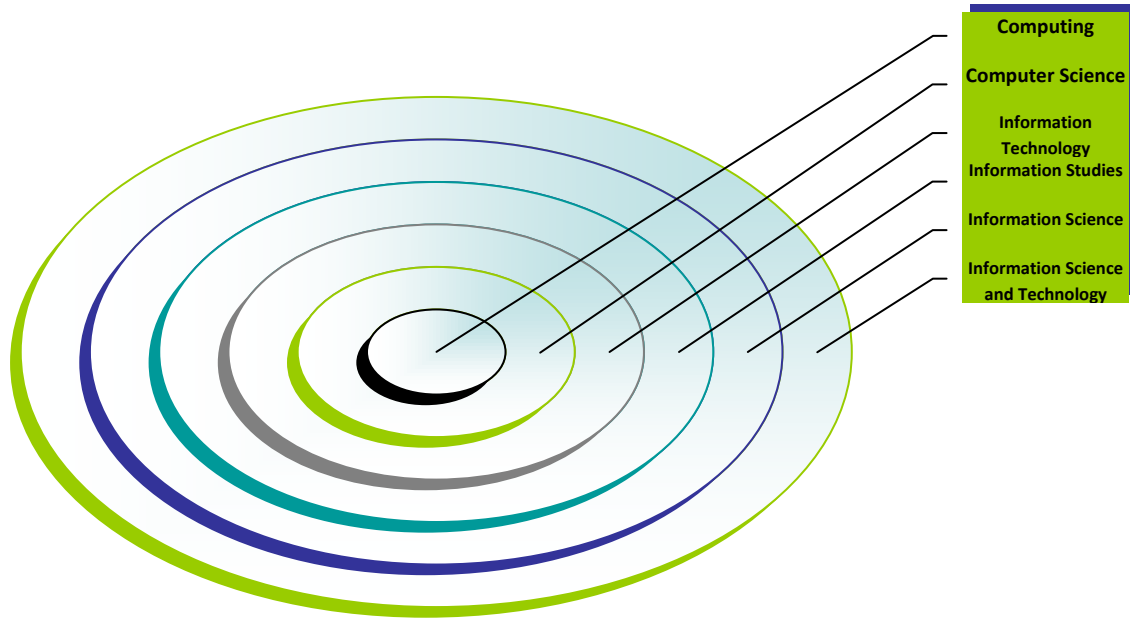
Fig: 1- Showing Information Science and its allied and related fields with broader to smaller knowledge field

Information Science: Definition and Meaning

In simpler manner, Information Science is a field and domain decided to Scientific Collection, Selections, Organization, Processing, Management, and Dissemination of information with the help of several tools or techniques and even Technologies [14], [16]. Various definitions are given by so many Information Scientist; some of them are as follows:-

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.

According to C.G. Viswanathan – Information science is concerned with the principle and techniques governing the transfer or communication of organized thought (knowledge) from one human to another and ultimately to society [01, 09].

Scientist 'Broko' in information Science – He 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, operations research, graphic arts, communications, library science, management, and other similar fields [13], [15].

However, due to advancement and integration of Information Technology and computing components in Information Science, the traditional nature of the domain become changes and positive treated as 'A Field of Interdisciplinary domain combination of so many domain which are directly and indirectly helps in Information Processing and Management, and other information activities and these knowledge gradients are part of so many domains and fields and particularly these are Computer Science, Information Technology, Cognitive Science, Psychology, Mathematics, Management Science, and traditional information related knowledge gradients/ subjects. Information Science and its definition differ generation and period wise due to development of the field; but clearly this is a field of Information and Knowledge with backup of technologies and Engineering fundamentals [06, 12].

Changing Shape and Periphery

Over the time, the scenario of Information Science changes and comes as an important domain of Applied Science and Technology focus. Today for almost all type of works like- information collection, selection, organization, processing, management and dissemination are the part of it. Today data management deals with database systems, data warehousing systems, data mining, intelligent information systems, and so on [08, 10].

Information collection and dissemination become more easy and possible just because of advancement of information technological devices such as cloud computing and virtualization technology. Resource sharing including content, document, software, and hardware become easy with the help of cloud computing. Similarly, Human Computer Interaction (HCI) and Usability Engineering help in healthy and sophisticated information delivery to the people, community and groups at organization and institutions and so on.
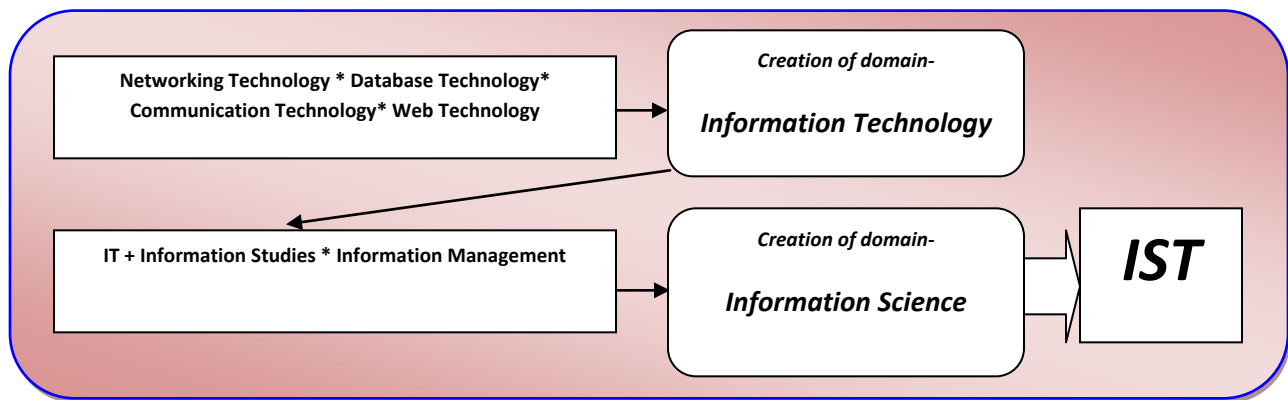

Fig: 1-Creation of Information Science and IST by integrating several knowledge clusters

Intelligent information systems, security systems are integral parts of today's Information Science practice and academics. Information Science and its interaction with computing and technologies place it as a programme of study of the Faculty of Engineering and Technologies in recent years. Information Science also changes its nomenclature as Information Science and Technology, Information Science and Engineering, Information Science, and Computing and so many specialized and domain focused Information Science programme like- Geo Information Science, Chemo Information Science, Bio-Information Science, and so on [09, 11].

Information Science: Social Science Nature

Information Science during 1960's originated and grown as an advanced area of studies with so many aspects and objectives such as-

- To build public information infrastructure;
- To build domain based information systems and information infrastructure;
- To build Library Information Systems more advance and helpful;
- To build information society with better information transfer cycle and better information activities;
- Information Science is also helpful for complete information development in almost all sectors including health, commerce, education, and so on;
- Information Science is helpful for community development through community information systems building [04, 09].

Information Science is also helpful for so many aspects apart from these. For example, Information Science during origin comes from the expert and people who practiced and handled Library Science and which is a part of social science and humanities faculty and centers [09, 13]. Information Science also deals with some more areas which are closely related to social science and humanities and such as-

- Social Information Systems and Social Informatics.
- Social Computing and Community Computing.
- Information Society and Knowledge Society.
- Knowledge Economy.
- Information Economics.
- Digital Divide.
- Information Divide.
- Community and Social Networking.
- Community Information Point.
- User Studies *[Deals with Psychology]*.
- Information Architecture.

- Information Behaviors and so on.

Thus, apart from experts and teaching departments, there are so many areas and subjects which are dealt with social science gradients. More clearly, though today's Information Science is focused on so many technologies but also plans for better interaction between People-Information-Technologies.
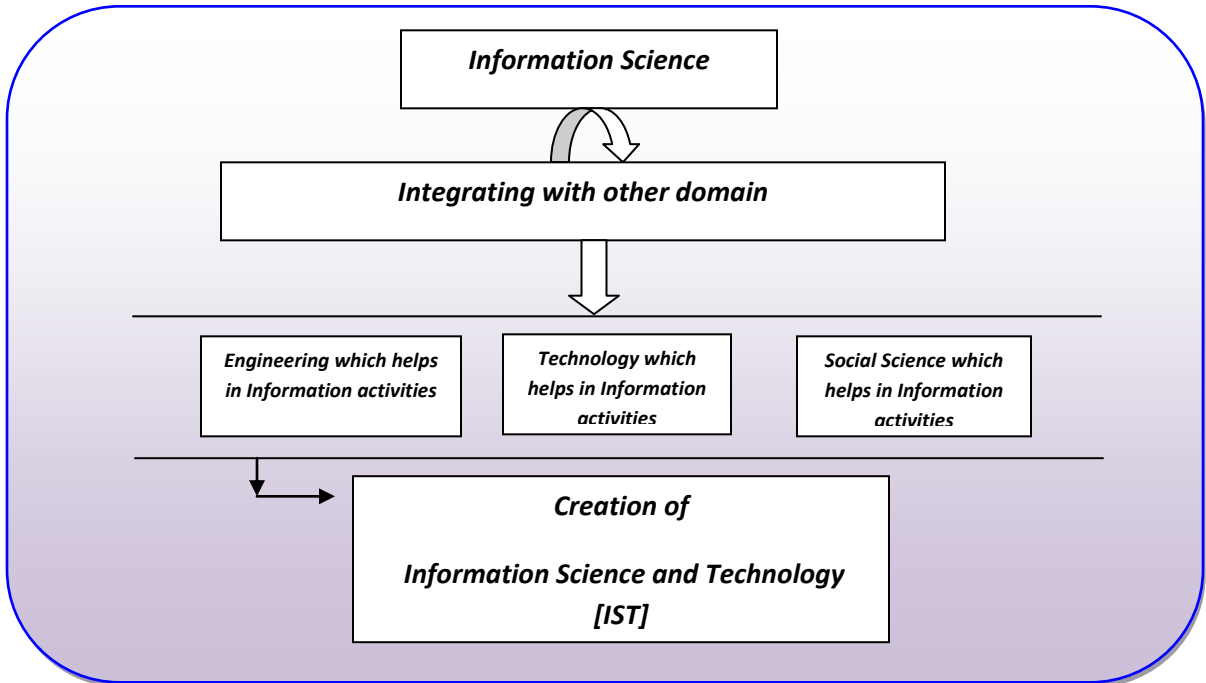

Fig: 2-Depicted way of building IST and close broad domain

Information Science: Science Nature

Information Science is today deals with so many aspects and features which are directly related to sciences-

- In collection, selection, organization, processing, management, dissemination of information sophisticated and scientific principles are essential to use;
- Information Science is user and people centric; and Information Science is trying to interact between technologies/information to the people/ user or community; directly and thus, here the use of user behaviors and user studies is important. Hence in Information Science, another science field i.e. Psychology and Cognitive Science is practiced [04,08];
- One of the important activity of Information Science is better information organization and management practice for almost all type of organization and field which includes Health and Medical, Business and Commerce Sector, Education and Training, Government sector and so on and hence here the use of POSDCORB and other scientific

principles are needed to use. The role and need of the following science in Information Science in increasing in respect of better information utilization-

-Management Science;

-Decision Science;

-Policy Making and Science.

Managing and organizing information needs Information Science and Mathematics and Statistical Science interaction and following are practiced in this respect-

-Bibliometrics;
-Informetrics;
-Scitometrics;
-Webometrics;
-Information Theory;
-Information Architecture and Modeling;
-Mathematical Solution to Information Design.

Information Science also deals with better information utilization and thus better designing aspects are very much urgent and hence are more scientific method or science domain is practiced, i.e. Architecture Science and Planning [02, 07]. In Information Science several things are like what to design, where to design, time and availability of sources and users and so on and thus, a better Information Science practice depends on healthy information designing and information interaction; and hence there is a close relationship and dependencies between Information Science and Architecture Science principles and Planning Science too [06].

Information Science: Pure Science and Technological Nature

Apart from Science domain such as Mathematical Science, Statistical Science, Cognitive Science, Psychology, Management Sciences; some more Science or Scientific domain have close impact for better Information Science practice and such Technological Science domain are as follows-

- Computer Science and Engineering;
- Information Technology;
- Mechanical Science;
- Electronic Science and Engineering;
- Electronics and Communication Engineering and so on.

As far as Computer Science and Engineering, Information Technology are concerned, Information Science has a very close relationship with these domains for several information

activities such as information collection, selection, organization, processing, management, and dissemination [01, 05].
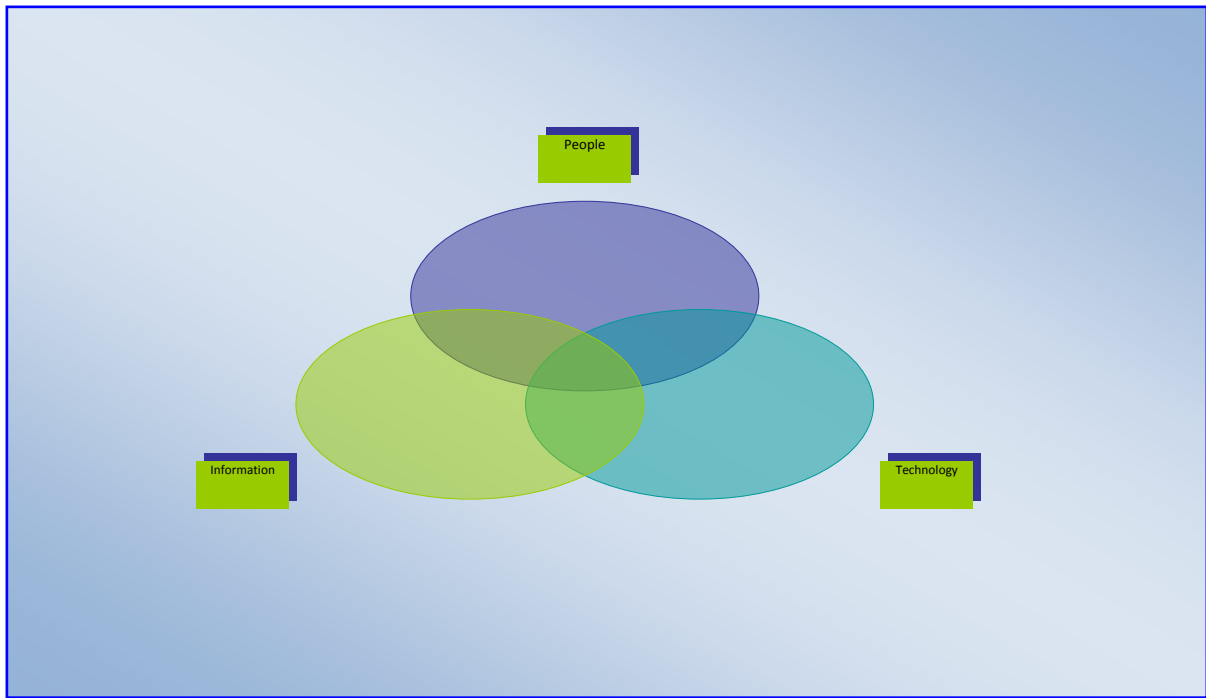

Fig: 3- The core stakeholders of the domain Information Sciences

Apart from Database Technologies, Networking and Communication Technology, Multimedia Technologies and some more are also deals with better Information Science practice which include Cloud Computing *[which is helpful for healthy resource utilization, hardware and software utilization, content sharing and so on]*, Green Computing and IT *[needed for better Green Information Infrastructure Systems building and for Eco Friendly Information unit designing]*, Usability Engineering and Human Computer Interaction *[Needed for usable and clear interface designing of information portal of Web, ATM, and Information point and so on]*. As far as Electronics Science and Electronics and Communication Science is concerned, Information Science also has the close concentration for better information networking and knowledge grid practice, even Cloud Computing, and virtualization are fallen under this category. The Mechanical Science and Engineering also has a wonderful relationship with several Information Science practice; such as better and intelligent information system practice, intelligent information centre, information networks, and web systems designing and development [11, 19].

Apart from these domain and discipline Information Science with domain focused approach also deals with some more discipline such as Chemical Science *[for building Chemical Information Science/ Chemo Informatics]*, Management *[for Management Information System /Science]*, Geo

Science *[for Information Science]*, Health Science *[for Health Information Science/ Medical Information Science]* and so on [07].

Thus, this way, Information Science deals with so many domains of Science, Management, Architecture, and Mathematical Science, and apart from technological domain such as Computer Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering, Information Technology and so on and even Information Science deals with Physics, Chemistry, Geography, Medical Science, and other domain of Humanities and Social Science. Practically this is an important domain for information and Technological solution for so many sectors such as Healthcare unit, Education sector, Government sector, and so on and Community Information and Technological infrastructure building and hence, Information Science takes the help of several Science, Pure Science, Technological domain assistance. So, it is a field of community and people and depends on several technologies or more clearly a domain of Applied Science for the Social work or humanities or in other words, ***Information-Technology-People interaction*** [6], [9].

Findings

- Information Science is a big domain and combines with so many general science domain such as Management, Mathematics, Statistics, Cognitive Science and so on engineering and technological fundamentals for better information practice for several community and sector apart from traditional information centre planning;

- Information Science is including with some more domains such as Physics, Chemistry, Geo Science, Medical Science, Environment Science for development of domain focused fields such as Materials Information Science, Chemical Information Science, Geo Information Science, Medical Information Science, Environment Information Science and so on;

- Information Science education is offering in so many departments including Engineering and Technology.
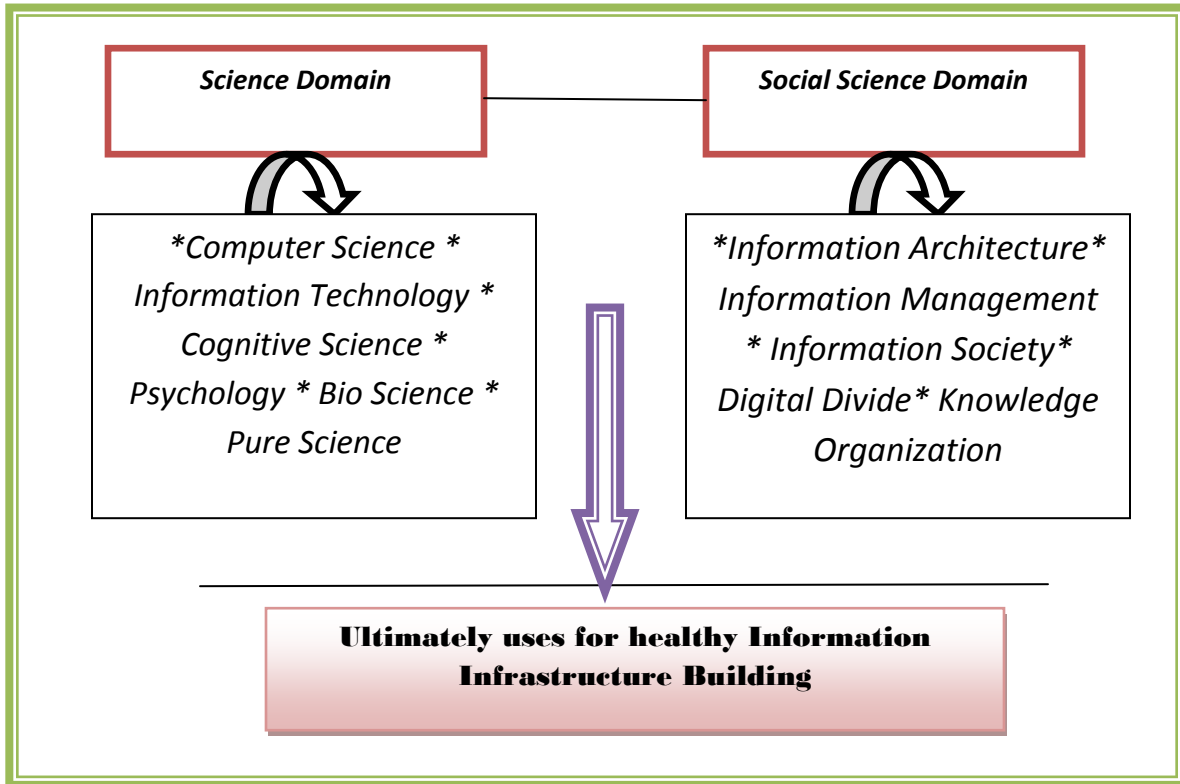
Fig: 4 Depicted some popular Science and Humanities gradients and aspects of Information Sciences

Suggestion

- Information Science and its interaction with technological field is needed but it should be dedicated to the people and community rather than technological product development, programming, and systems engineering;

- More interaction of Information Science with other domain may be helpful for more domain specific domain development or for information and technological development;

- Information Science may also need to offer as specialization of other engineering and technological programme for sophisticated development.

Conclusion

Information is the most valuable tool and needed in almost all fields and sectors and need of information management is increasing day by day ; virtually the size and amount of information is also getting triples each year and thus a sophisticated and advanced tools and systems is need to develop for healthy information infrastructure [08, 17]. Information Science practice is helpful in proper information utilization and complete development. Though Information Science is

63

designing with so many technologies/ engineering and Science domain but then also it has a strong communication for society and community and hence the new age slogan in information fields 'Information-Technology-People' interaction for more and complete development of both natural and philosophical sciences.

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