Information Science (IS) and It's Increasing Interaction with Electronic Science and Mechanical Sciences

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Abstract – **Information Science plays an important role in the field of applied science and technology. Information Science is truly responsible for several societal improvements like for removing information and digital divide, for improved Information society, creation of information based knowledge Economy and so on [9]. Information Science is mistakenly considered as Computer Science branch or Library Science field but it is totally different and interdisciplinary subject responsible for Information Transfer Cycle. Information Science has two foci manual and computational. The computational Information Science has several connection and relationship with the world of electronics and Electrical Science. In this paper we describe the interaction and interconnection in between the Information Science and with technology which mainly depends on Electronics and Electrical Science Emphasizing the contemporary scenario [10, 13].**

Keywords: **Information Science, Electronic Science, Applied Science, Information Science and Technology, IST, Computing, Pure Science**

I. INTRODUCTION

Information Science is a subject which mainly deals with several information activities ranging from collection, selection, organization and dissemination of information, data and related facet. The interesting fact about Information Science is that, Information Science may be depend on normal knowledge organization tool or may be applied Information and Computing tools and technologies [09, 10]. The relationships in between Information Science with electronic depend technologies are increasing day-by-day. The normal activities of Information Science is mainly responsible and applied in information centre, information systems, information networks, information grids and so on. Here in all most all the areas of Information Science, the main principle may be applicable. Cloud Computing, Grid Computing is no doubt wonderful tool of Electronic Science which may be applied on information science [02,13].

II. OBJECTIVES

The main objective of this research are:

- To know basic about Information Science;
- To learn the interaction in between Information Science and Electronic Science;
- To learn the latest about Information Science foci and strategies;
- To learn the role of Electronics and technologies for the improvement of Information science and technology (IST) from the traditional Information field.

III. INFORMATION SCIENCE

Information Science is subject which is centered in information activities and associated with computing and technological fundamentals from basic to advance [11]. Information Science is actually originated as pure information field as like Documentation and Information Studies but depending upon time and advancement come as an interdisciplinary knowledge cluster which is actually knowledge combination of Computer Science, Management Science, Information Technology, Documentation, Cognitive Science and other subjects are responsible and associated with Information Activities. Information Science is considered as field of fields and emerging Applied Science field. Computer and Information Technology are the key mover of this subject [05, 12].
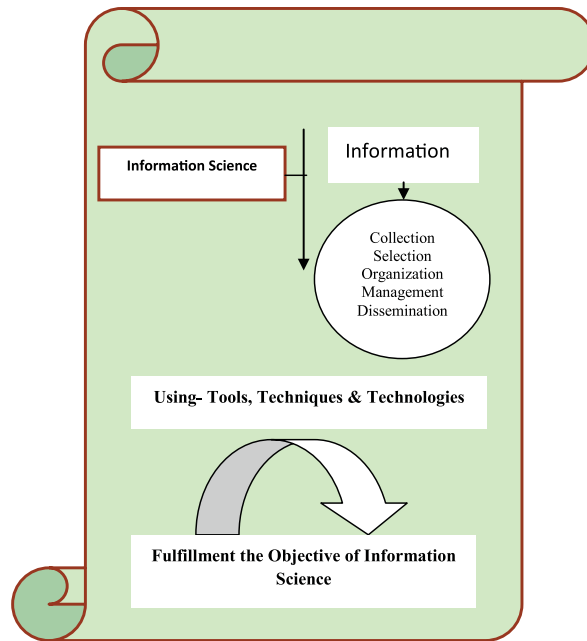
Fig. 1 Main task of information science

A.Information Science: Two Foci

Information Science practically has two foci or division, however the root of both the foci was actually Documentation Studies or Science which always depends on manual knowledge organization tools like indexing, abstracting, database, classification, cataloguing and so on. These foci are mainly applicable in Information Centre, Documentation Centre, Information Offices, Information Analysis Centre, Information Repositories and other related organization [13, 08].

Other hand next foci of Information Science depend on Mechanical and Electrical Science, particularly in Computer Science, Computer Technology and other Engineering Fundamentals [10]. This foci some times treated as follows:-

• Computerized Information Science;

• Applied Information Science;

• Information Science & Computing;

• Electronic Information Science;

• Industrial Information Science and so on.

The applied Information Science is actually considered as Informatics. This Information Science has some advance

Computing and Interdisciplinary topic like

• Web Technology and Systems;

• Information Repositories;

• Information Architecture;

• Advance Computing;

• Networking Technology;

• Computer Technology;

• Multimedia Information System;

• Database System;

• Information Management;

• Information Security;

• Cloud Computing and so on.

The applied Information Science is applicable in almost all the areas which are mention in Manual Information Science. However it is also applicable in the industries, organization and other areas.

B. Electronic Science and Its Utilization in Practice Field of Information Science

Electronic Science is today widely associated with Information Science and allied Sciences. In many areas application of Electronic Science is possible in Information Science in the following areas.
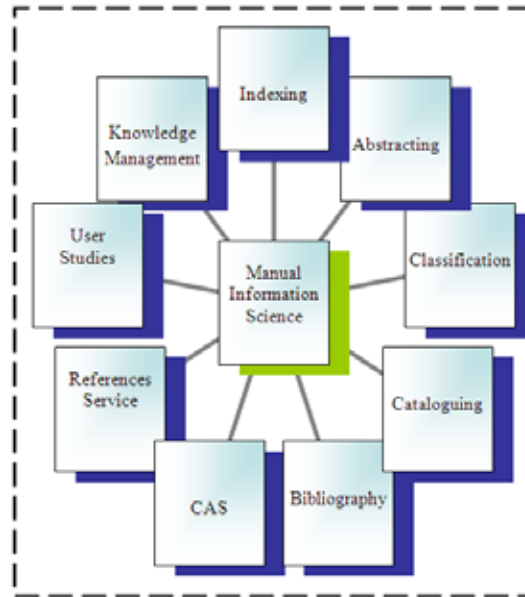
Fig. 2 Role and uses of Manual Information Sciences

1. General Communication: For general communication and more clearly in general networking we need the help of Electronic Science. The use and utilization we can use in the following activities.

- For in house communication in between one room to another or one section to another or one floor to another in the information centre or Information Networks; that means for Local area Communication, we need the help of Computer Networking.

- For the intercommunication in between one Information centre to another or one Information Network to another we need to take the help of computer Networking[10].

- For building general connection in between one international Information Networks to another or Information System to another we need the help of Computer Networks. For share of data, Resources, Hardware, Software and so on.
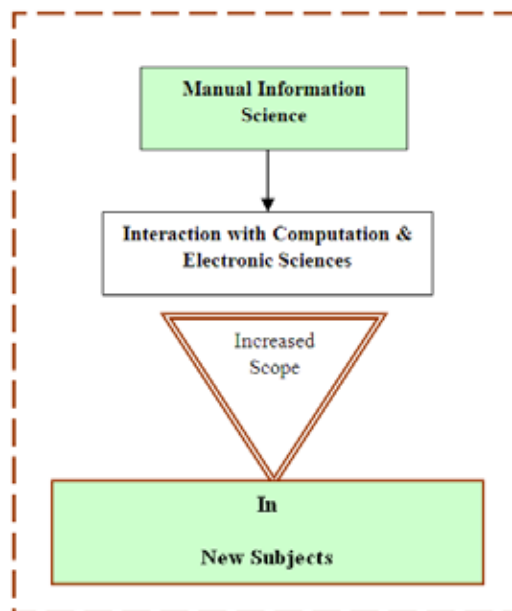

Fig. 3 New opportunities through Information Science

Information Science also takes the help general Computing and Computer Applications [11]. The general computing Application is including as follows:

- General official activities of an office of Information Centre;
- Computerized cataloguing and MARC systems;
- General E-mail system and services;
- General and computerized classification system;
- Official Documentation;
- In news paper clipping services, Current Awareness Services(CAS), Selective Dissemination of Information(SDI) and so on;

- In computerized Information Services;
- In Computerized Document Delivery system and services;
- In Reference and Referral Services;
- In Online Information Delivery System;
- In Digital Information Repositories;
- In Office Automation and so on.

Information Science today increasingly depends on Advance Computing tools and technologies like Cloud Computing, Green Computing, Usability Computing and so on.
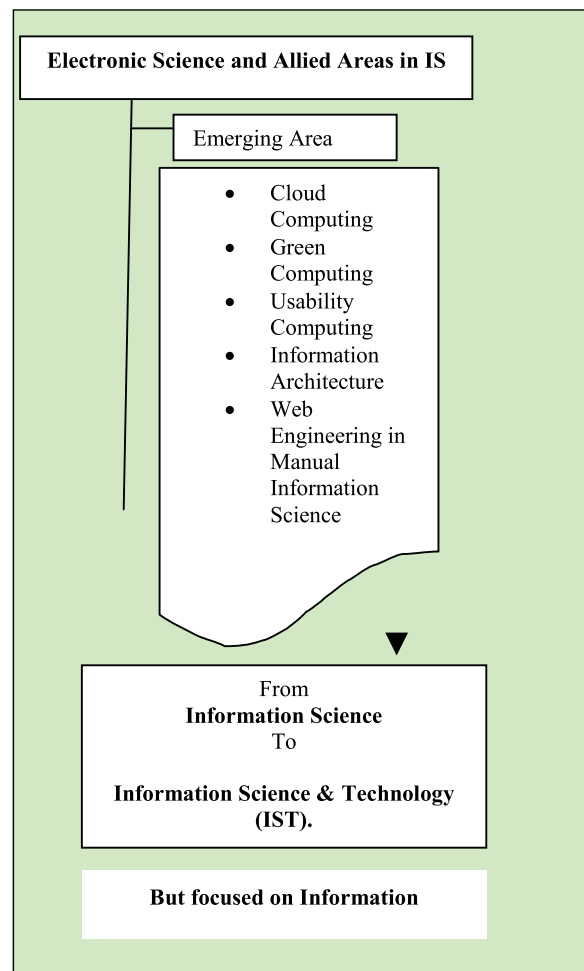

Fig. 4 From IS to IST nomenclature through Electronic Science

2. Cloud Computing: This is a kind of virtualization in which sharing of hardware, software and packages are possible like [11]

- All the software, hardware and application of information centre or related organization may share with the help of cloud computing;

- Expansion regarding IT and Computing infrastructure;

- To design, development and implementation of Information Systems and Information Networks, it is useful;

- It is useful in publishing house and journal for sharing of software and hardware and other packages;

- Online information mechanism it is widely applicable.

3. Green Computing: The main approach of Green computing is actually power management, material recycling and tele-conferencing and so on. Green Computing some times refers to Green Technology [12,13]. The main base of Green Computing in information science practice is actually as follows:

- Better algorithm design helps in power managed computing;

- As information practices deals with information and computing tools so that saving and designing Eco-friendly computing is useful;

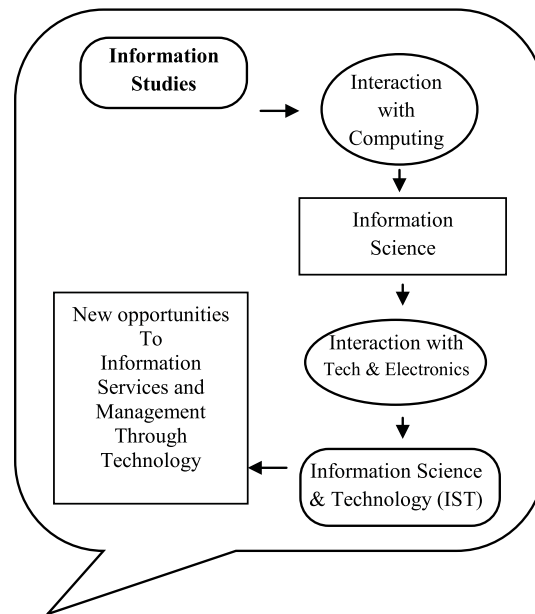- The information foundation may be re-cycling principle for future saving.

Fig. 5 Changing Character of IS

4. Usability Computing: Usability computing is actually designing and development of usability experience designing. This also indirectly helps in information activities. The main aim of Usability Engineering is design and development of user-friendly interface, picture designing so in several areas this is applicable like

- Design and development of information retrieval system;

- Design and development of web pages of Information Centre, Information Analysis Centre, Documentation Centre and related organizations;

- In search engines;

- In Graphical User Interfaces(GUI);

- Mobile Information Services.

5. *Quantum Information Service:* Quantum Information Science is most important and contemporary application of Electronic Science to the information services. The main benefit of this is including

- Easy and fastest information, data and knowledge delivery;

- Correct and current information and data delivery and sharing;

- Reliable information activities

- Easy and fastest decision making process;

- Better computing and information practices and so on.

IV. From IS to IST and Electrical Science

Information Science is an interdisciplinary subject responsible for information collection, selection, organization and management and lastly dissemination. During the evolution and development information science is considered as information field but due to application of Electronic Science and computing technology it is now totally considered as Applied Science and in some countries and scientific community as Applied Technology field.

Due to most Engineering IT and computing Application, Engineering Fundamentals Information sciences Traditional look and is totally changed and renamed with many new nomenclatures those we already discussed in this study. But most hot and contemporary thought of today's age is actually nothing but the IST or in full form Information Science and Technology. So new area of Electronic Science make this new wonderful knowledge cluster is including:

- Quantum Information Science-directly related with Electronic Science[10]

- Usability System and Engineering-indirectly related with Electronic Science.

- Web Engineering-indirectly related with Electronic Science.

- Digitalization-indirectly related with Electronic Science.

- E-Resource management-indirectly related with Electronic Science.

- Cloud Computing-directly relate with Electronic Science.

- Green Computing-directly relate with Electronic Science and so on.

V. Findings

During this study we find out the following:

- Information Science is now totally computing and Electronic Related discipline.

- Information Science has two foci.

- Information Science mistakenly consider as computer Science.

- Information Science is widely applied in several areas apart from existing held.

- New nomenclatures are emerged like Information Science and Technology, Information Science and Computing, Automated Information Science and so on due to emerging interaction with Electronic Science.

- Quantum Information Service, Cloud computing, Green Computing are the most emerging fact of Information Science.

VI. Suggestion

- Information Science needs much more Electronic Science and Computer Science interaction world wide for its subjective benefit.

- The Information Science syllabus needs moderation and changes due to industry requirement.

- Information Science programme needs much more merging with Electronic Science for creation of new nomenclature like IST In the developing country like India.

- It is essential to launch Information Science programme in the department of Computer Science and Electronic Science and related discipline.

VII. CONCLUSION

The role and nature of Information Science is changing day-by-day. The Electronic Science and Allied Science truly changed the entire arena of Information science [13, 14]. The Information Science, Information Systems, totally give a new look of Information Science and its industrial practices. The R/D activities need much more interaction and cooperation with Electronic Science as far as Information Science is concerned for better IT depended Knowledge Economy [10].

REFERENCES

[1] Diener, R. Information Science: What is it?...What Should it Be? in *Bulletin of ASIS,* June/July, 1989, pp 17-21.

[2] Buckland, M. Information as Thing. in *JASIS,* June 1991, vol 42, No 5p 351-359.

[3] Kaula, P.N. "Hundred years of library and information science education" In Kumar, P. S. G. and Vashisth, C.P. Eds., *Library and information science in India.* New Delhi: Sterling Publishers. 1992

[4] Keren, Carl. "On information science". *Journal of the American Society for Information Science* 35(2): 137. 1984

[5] Kumar, P.S.G.. Research in library and information science in India. Indexed by A. Tejomurty and H.R. Chopra. New Delhi. 1987

[6] Lahiri, Ramansu. "Research in library science in India (1950–95): an account of Ph.D. Programme". *Annals of library science and documentation* 43(2): 59–68. 1996.

[7] Mitra, C.R. "University-Industry interaction with reference to RECs". University News 35(25) June 23:1–4. 1997.

[8] Prytherch, Ray. "Problems of research". Information Management Report (Sept): 18. 1997

[9] Paul, Prantosh Kumar, Dipak Chaterjee and Bhaskar Karn "Information Science Education and Research: emphasizing contemporary Indian scenario- an overview" in IEM/IEEE sponsored international conference proceedings (IEMCON-12). P-349-353. [indexed, abstracted in Google Scholar[USA], Cite Ceer, EBSCO]

[10] Paul, Prantosh Kumar, Dipak Chaterjee and Bhaskar Karn "Cloud Computing: emphasizing its possible roles and importance in Information Systems and Centers" in IEM/IEEE sponsored international conference proceedings (IEMCON-12). P-345-348. [indexed, abstracted in Google Scholar[USA], Cite Ceer, EBSCO]

[11] Paul, Prantosh Kumar, Dipak Chaterjee and Bhaskar Karn "Cloud Computing: beyond ordinary Information Transfer Cycle" submitted in National Conference on Computing and Systems, Dept of Computer Science, Burdwan University. (Status- Accepted) 15 March

[12] Saracevic, Tefko, Information Science, JASIS, 50(12):1051–1063, 1999,ASIS,USA,1999

[13] www.en.wikipedia.org

[14] Williams, J. "Information Science: definition and Scope" in Williams, J. and Carbo T. (eds.) Information Science: Still an Emerging Discipline. Cathedral Publishing, Pittsburgh, Pa, 1997.