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Information Science (IS): Its Nature and Characteristics as Science and Technology

Prantosh K Paul[1] and K.S.Shivraj[2]

[1]FBAS, Bengal Enginnering and Science University, Shibpur,West Bengal, India

[2]K L University, Vijayawada, Andhra Pradesh, India

E-mail:prantoshkpaul@gmail.com

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***Abstract* - Information Science has so many gradients of Science and Technology. Information Science mainly deals with information; which includes collection, selection, organization, processing, management and dissemination. Information Science takes the help of several tools, techniques for such activities. Information Science is virtually a science of science and combines with so many gradients and domain such as Computer Science, Information Technology, Cognitive Science, and Social Science and so on. Information Science is one of the important and valuable domains for overall Information Infrastructure building. This paper is talks about Information Science; which includes its nature, types and role. Paper also discusses the combination of other sciences which makes Information Science much more broader field.**

***Keywords:*Information, Information Science, Informatics, Science, Technology, Applied Science, Humanities, Service Science, Community Science**

I. Introduction

Information is the power and most valuable term; information is needed in all most all the fields which includes Education, Business, Healthcare, Governmental works and so on. Information Science is actually doing well in several Information Systems building in such organization and field. Virtually, Information Science is help in personal information infrastructure building besides Social Information Infrastructure building, organizational information infrastructure building.

Information Science traditionally treated as valuable field and responsible for information transfer cycle. Ultimately, this smoother Information Channel helps in Information rich in several perspectives [01, 05]. Information Science ultimately helps in removing Information Divide and Digital Divide; many ways and thus Information Science works as healthy community science/ community technology field. Information Science historically originated from the information field such as Information Studies, Documentation Studies and Information Management principles and such principles may be treated as 'Science'[10].

II. Objectives of The Study

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

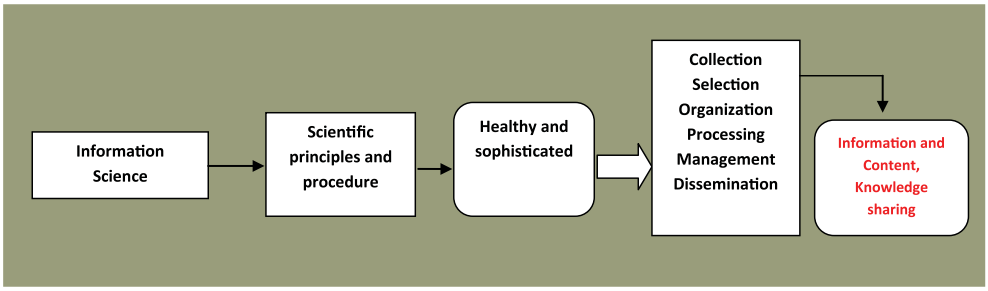

Fig. 1 Depicted General Information Activities At A Glance

1. To know latest about Information Science; its nature and characteristics;
2. To know latest about Information Science and its basic component;
3. To know basic Science and Tech component of Information Science;
4. To know emerging and changing aspects, components and gradients of Information Science;
5. To find out historical background of Information Science and related field.

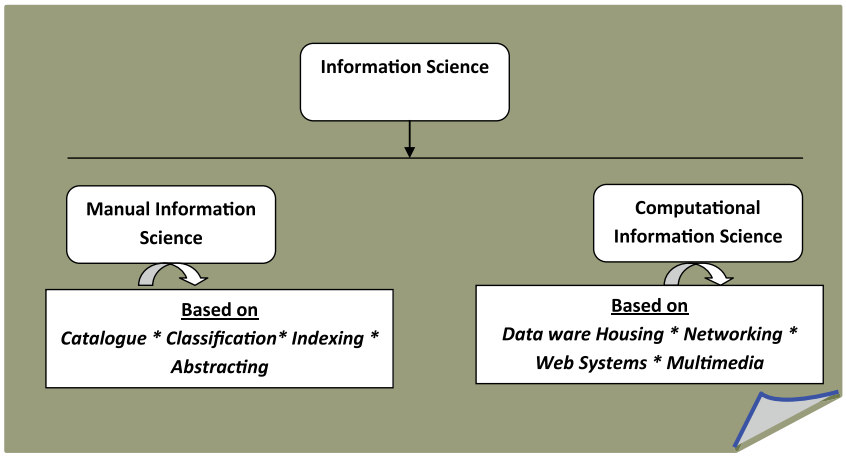

Fig. 2 Information Science and its types with ingredients

III. Information, Science and Information Science

Information is processed data and this conveys meaning. In other words, combination of data and similar facet makes Information. However, the broader field and aspects of Information is 'Knowledge'. Information is most valuable and important term needed in almost all the sector and domain such sector are includes but not limited to Healthcare, Hospitality, Government, Business, Education and Society and so on. Science is governed by principle and conditional theoretical bases; thus combination of information and science makes 'Information Science' which is mainly deals with collection, selection, organization, processing, management, dissemination of information and similar facet such as Knowledge, Data, and Document [11,12].

Hence, for proper Information Transfer Cycle and better Information Channel, Information Science takes the help of Scientific Principles and procedure. Information Science ultimately combined with some other subject and thus treated as Science of Science or field of field such as Science domain includes:

- Computer Science;
- Information Technology;
- Mechanical Science and Engineering;
- Cognitive Science;
- Management Science and so on.

Today Information Science is fall under the category of Applied Science and thus combines a big Interdisciplinary Science; called Information Science. Information Science is may be defined as it is a domain of collection, selection, organization, processing, management, dissemination of information and directly and indirectly related with computing, management science, information technology, cognitive science, community and social science and so for manual as well as computational informatics solution [15,25].

As far as new nomenclature is concerned, the combination of Information Science [which is combination of so many Science] and other Pure and Bio Science created so many new domain and nomenclature. Medical Science and Information Science combines and makes 'Medical Information Systems' [06, 13]. Thus, from two sides it is a Science. Like this, the combination of Information Science

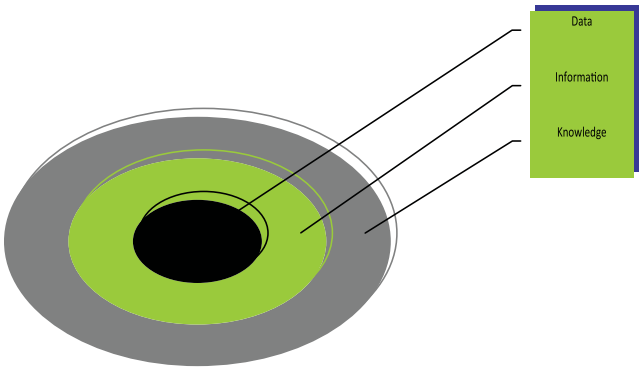

Fig. 3 The core gradients of Information Sciences

and other domain like-Geo Science and Information Science makes Geo Information Science, Computing Science and Information Science creates - Computer Information Science, Health Science and Information Science makes Health Information Science, Chemical Science and Information Science creates Chemical Information Science. Similarly in Physics and Electronics; such domain combines with Information Science and creates emerging domain 'Quantum Information Science'.

IV. Emerging Technologies and 'Science' Nature

Today Information Science is greatly influenced by the emerging technologies and tools. This tools and technologies include:

- Database Technologies;
- Networking Technologies;
- Communication Technologies;
- Multimedia Technologies;
- Bar-coding Technology/ Image processing and so on.

Thus, all these gradients are deals with Science and Technologies and tools. However, apart from these, Information Science combines with some more advance tools and all these are originally come from any Science Field. These fields and gradients like:

- Cloud Computing;
- Usability Engineering;
- Human Computer Interaction;
- Green Computing;
- Artificial Intelligence;
- Content Development and so on.

Cloud Computing today treated as important domain which is responsible for Virtualization of content and information which includes; but not limited to Information, Audio, Video, Software, Hardware and Application packages. As Cloud Computing is provides by the centralize service provides and thus some machine may serve so many organization at a time. Thus, apart from saving money it also helps in Environment from less Carbon emission. Thus, Cloud Computing also saves Green Computing principles as are agency provide overall Information and Technological Infrastructure. Cloud Computing is needed in overall organizational development and provide speedy work environment [09, 14].

Usability Engineering is another tool and domain needed for building healthy, clear and sophisticated Information Display unit building. Usability Engineering is applicable in so many field and unit such as monitor, ATM, Laptop, Mobile Interface building. Usability Engineering is needed for better clarity and usability and thus helps in better Information Dissemination.

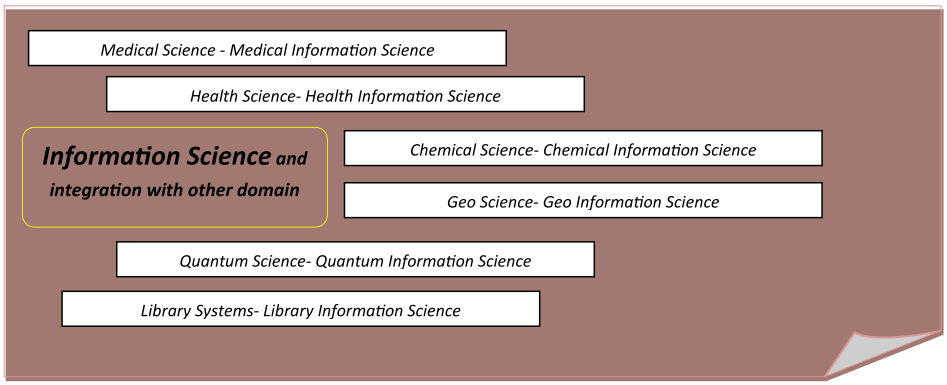

Fig. 4 Depicted Information Science and its results and creation of new field

Green Computing is a principle, mechanism and technologies needed for Eco-Friendly Technological and Computing solution. Green Computing is designing of Energy consumed Computing System building and its extension may be treated as Green Information System or Green Information Infrastructure building which is responsible for overall Eco Friendliness in Information System designing and development. Virtually, Green Computing, Green IT helps in complete sustainable developments.

Hence, it is noticed that, Information Science and its latest technologies are Purely from Science group. The Green Computing, Usability Engineering, Cloud Computing, Big Data Management, Content Development all are fall under the category of Science and Technology.

V. Conclusion

It is noticed that Information Science though initially originated from the humanities and social science domain but due to advancement of tools and technologies and computing and their integration with Information Science make an Applied Science domain with Community Science nature [12, 18]. Information Science today offered in the Faculty of Science, Faculty of Applied Science, Faculty of Computing and Informatics, Faculty of Engineering rather than in Faculty or Schools which are close with Arts and Humanities.

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