Chapter I

INTRODUCTION

Science and technology is a flourishing interdisciplinary field that examines the creation, development, and consequences of science and technology in its cultural, historical, and social context. This field is of great importance in the world as well as in whole universe. Majority of the countries in this international community are trying continuously to increase their annual budget for it. This development clearly suggests that decision-makers both in government and private sector industry are strongly convinced of its importance. It is a known fact that no nation can develop without science and technology. Science is the study of knowledge which can be made into a system and which depends on observing and testing facts while technology is the practical application of scientific knowledge (Walke, 2013).

One of the major scientific and technological developments in the history of mankind is the invention of computer which is one of the several important devices to access e-resources. Today, computer based communication technologies are influencing all the activities of human life. It is changing the way how people now access and utilize information. Information has become more digital and networked. The popularization of hyper textual structures has added a new degree of freedom to search information. Given the unique features of electronic media and their potential role and impact in access and delivery of information on the network, the emphasis has now shifted from conventional publishing to electronic publishing (Walke, 2013). The traditional environment has been rapidly changing to an electronic one and the demand for internet and e-resources among the academic and research community has increased manifold over the years being the most popular source of undertaking research (Sethi and Panda, 2012).

Electronic Resources Concept and Characteristics.

The evolution of ICT mediated e-publishing industry has provided the founding base of e-resources. It is an umbrella term for all digital resources. The information that are present in a computer are in digital format which is organized, transmitted and displayed by different components of a computer which can be accessed at the convenience of the person concerned. It involves the utilization of ICT for the production and electronic distribution of the texts through computer terminals that play deciding role in the storage and speedy communication of relevant information.
The e-resources cover a wide variety of materials, including indexing and abstracting services, electronic books and serials, electronic databases offered by information aggregators, document delivery services and web sites.

The importance of electronic information resources in academic institutions is ever growing. Their primary motto is to provide access rather than ownership (Michalko & Hughes, 1991).

What is E-Resource?

An electronic resource is defined as a resource which requires computer access or any electronic product that delivers a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. These may be delivered on CD ROM, on tape, via internet and so on (Kumar, 2006).

E-resources are resources in which information is stored electronically and are accessible through electronic systems and networks. ‘E-resource’ is a broad term that includes a variety of publishing models, including OPACs, CD-ROMs, online databases, E-journals, E-books, internet resources, print-on-demand (POD), E-mail publishing, wireless publishing, electronic link and web publishing, etc. In this context, the term primarily denotes “any electronic product that delivers collection of data be it in text, numerical, graphical, or time based, as a commercially available resource” (Bavakenthly et al., 2003).

E-resources are those resources which include documents in electronic or e-format that can be accessed via Internet in digital library environment. E-resources are that electronic product that delivers a collection of data, be it text, image collection, other multimedia products like numerical, graphical mode for commercially available for library and information centres. These may be delivered on CD-ROM / DVD, over the Internet and so on. Providing access to E-resources is a service to help users to find E-Databases, E-Journals, E-Magazines, E-Books/ E-Audio/ E-Images, Data/ GIS, Digital Library Projects, Electronic Exhibitions, E-Subject Guide, E-newsletters, E-White papers, E-conferences proceedings and Web search tools on a range of topic. Many of the electronic resources are freely available to anyone over internet access but some are commercial resources (Rani and Chinnasamy, 2014).

Academic system largely relies on teaching, learning and research. Eternally, education depends on information resources. These resources are the driving forces for
making an educated society. The educated society can exist only when information is stored, shared and utilised properly. In an academic arrangement, both ‘education’ and ‘library’ are inseparable – indivisible concepts, working for the promotion and evolution of teaching, learning and research for greater use of academia. Library is a repository of resources. It is an integral part of the educational system whose primary function is to serve users (students, faculty, researchers and staff). Computers and related electronic resources have come to play a central role in education. (Lang, 2008). Use of Internet by research scholars is an important area of study in today’s information environment. The Internet has now-a-days become an important component in academic institutions as it plays a pivotal role in meeting the information and communication needs of institutions. It makes possible to access a wide range of information, such as up-to-date research reports, from anywhere in the world. It also enables scholars and academic institutions to disseminate information to a wider audience around the globe through having web sites and a way to search them and organize the output (Madhusudhan, 2007).

Definitions
Various authors and organizations have defined E-resources as follows:

AACR-2 defined e-resources as “a material (data/ program) encoded for manipulation by computerized devices. Thus material may require the use of a peripheral directly connected to a computerized device (eg CD-ROM) or a connection to a computer network (eg Internet)”.

C. Tenopir (2000) has defined e-resources “as those electronic information resources and services that user accesses electronically via a computer network from inside the library or remote to library”.

International Coalition of Library Consortia (1998) defines electronic resources as “a broad term that encompasses abstracting and indexing services, electronic journals and other full text materials, the offering of information aggregators, article delivery services, etc. Electronic resources can be accessed through remote networks from information providers or locally mounted by a consortium or one of its member libraries.

According to IFLA/FAIFE (2007) these are “materials that are computer controlled, including materials that required the use of a peripheral (a CD ROM player) attached to a computer; the items may or may not be used in the interactive mode.”
Electronic resources are defined as being publicly available information resources, which can be accessed through a personal computer. These include commercially produced resources such as bibliographic databases accessed online or through CD-ROM, electronic journals, electronic books as well as resources that are freely available through the Internet specially to higher education institutions or to the public in general. (www.roehampton.ac.uk/customer/erpolicy.pdf).

Nature and Scope of e-resources.

The importance of the internet and e-resources was also highlighted by Khan and Ahmad(2009) who stated that the emergence of the internet and E-resources particularly the World Wide Web, as a new medium of information storage and delivery represents a revolution, which will have a lasting impact on the publishing and information delivery system in the twenty-first century. Increasing numbers of publishers – both commercial and private, as well as individuals – are using the internet as a global means to offer their publications and writings to the international community of scientists and technologists, as well as students. Electronic journals are simply serial publications in which the end products are made available in digital formats and online whose contents may or may not be peer reviewed.

The e-resources cover free internet resources and electronic resources purchased or licensed from commercial sources, nonprofit organizations, professional organizations or any external institutions.

Electronic resources allow easy access to information. The features of 21 century electronic high compact storage, ease of production, multiplication, manipulation of contents from one media are media to another, ease of transmission, communication and storage. ‘The nature of e-resources is to serve as a supplement to the print collection. It strives to satisfy the information needs of the user with greater speed, accuracy and efficiency (P. Venkata Ramana, 2000).

The scope of e-resources includes the following features:

- Electronic resources are not localized.
- They can be used from anywhere by the user and need not know where it is geographically located.
- It can be used simultaneously by many users at the same time. It is easy to copy and download them in user file.
- It reduces the distance between the user and the librarian. It creates global marketing environment.
- They are less bulky, very flexible, easy to revise, rearrange, reformat and combine with other documents (Prabha Chandra, 2007).

**Some E-Resources in Agriculture Sciences**

(A). **Electronic Journals in Agricultural Sciences:**

**Table 1.1 Electronic Journals in Agricultural Sciences:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of Journals</th>
<th>Publishers</th>
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<tbody>
<tr>
<td>1.</td>
<td>Agricultural and Forest Entomology</td>
<td>Blackwell – Wiley</td>
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<tr>
<td>2.</td>
<td>Chinese Journal of Agricultural Biotechnology</td>
<td>Cambridge University Press</td>
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<tr>
<td>3.</td>
<td>Experimental Agriculture</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>4.</td>
<td>Frontiers of Agriculture in China</td>
<td>Springer Link</td>
</tr>
<tr>
<td>5.</td>
<td>Genetic Resources and Crop Evolution</td>
<td>Springer Link</td>
</tr>
<tr>
<td>8.</td>
<td>Journal of Agricultural Science</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>11.</td>
<td>Potato Research</td>
<td>Springer Link</td>
</tr>
<tr>
<td>12.</td>
<td>Renewable Agriculture and Food Systems</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>13.</td>
<td>Russian Agricultural Sciences</td>
<td>Springer Link</td>
</tr>
<tr>
<td>14.</td>
<td>Seed Science Research</td>
<td>Cambridge University Press</td>
</tr>
<tr>
<td>15.</td>
<td>Weed Biology And Management</td>
<td>Blackwell – Wiley</td>
</tr>
<tr>
<td>17.</td>
<td>Annual Review of Entomology</td>
<td>Annual Reviews</td>
</tr>
<tr>
<td>18.</td>
<td>Vegetation History and Archaeobotany</td>
<td>Springer Link</td>
</tr>
<tr>
<td>19.</td>
<td>Nutrient Cycling in Agroecosystems</td>
<td>Springer Link</td>
</tr>
<tr>
<td>20.</td>
<td>American Journal of Agricultural Economics</td>
<td>JSTOR</td>
</tr>
<tr>
<td>21.</td>
<td>Journal of Agricultural and Environmental Ethics</td>
<td>Springer Link</td>
</tr>
<tr>
<td>22.</td>
<td>Paddy and Water Environment</td>
<td>Springer Link</td>
</tr>
<tr>
<td>23.</td>
<td>Precision Agriculture</td>
<td>Springer Link</td>
</tr>
</tbody>
</table>
(B). E-Books :
- Springer Book collections
- Cambridge E –Books
- Sage E - Books Collections (Encyclopedia and Handbooks)
- Encyclopedia Britannica

**Access to Electronic Resources in Agricultural Sciences**

1. Important Publishers, Portals etc. in Agriculture Sciences :

   Some of the important full-text digital collections available on on-line. Networking technology is now available for providing web-based access to electronic resources. The libraries have an option to subscribe to these full-text databases as part of their digital resources. Most of the now offer web-based interfaces and full-text of their journals. Some of the major players in agriculture electronic full-text journal publishing include:

   - Springer Verlag (Link Electronic Service) : [http://link.springer.de/](http://link.springer.de/)
   - Web of Science : [http://apps.isiknowledge.com](http://apps.isiknowledge.com)
   - CAB International : [http://www.cabi.org](http://www.cabi.org)
Some free on-line international journals in agricultural science is given below.

**Free full text E-Journals:**

- [Asian Journal of Plant Science](http://www.ajol.info/)
- Ag Bioforum
- [Agricultural Water Management](http://www.csiro.au/)
- Agronomy Research
- International Journal of Sociology of Agriculture and Food
- Journal of Agronomy
- Journal of Central European Agriculture
- Japanese Journal of Crop Science
- Japan Agriculture Research Quarterly
- Pant Biotechnology
- Plant Production Science
- World Journal of Agricultural Science
Agriculture Databases on the Web:

- **AGRICOLA** database of bibliographic records created by the National Agricultural Library (NAL) and its cooperators, which contains citations for books, audiovisual materials, and journal articles.

- **AGRIS**, by Food and Agriculture Organization (FAO) and several other FAO databases covering statistics, nutrition, plants, pests, and early warning systems are available through WAICENT.

- **AANRO**, Australian Agriculture and Natural Resources Online, an integrated knowledge discovery tool for agriculture and natural resources, funded by Australian Commonwealth and State Governments.

- **Aquatic Sciences and Fisheries Abstract (ASFA)** Covers the world's literature on the science, technology, management, and conservation of marine, brackish water, and freshwater.

- **CAB Direct** combines CAB ABSTRACTS and CAB HEALTH into one database accessible via the web. It is subscribed by BHU.

- **Current Research Information System (CRIS)** is the U.S. Department of Agriculture's (USDA) documentation and reporting system for ongoing and recently completed research projects in agriculture, food and nutrition, and forestry. Projects are conducted or sponsored by USDA research agencies, state agricultural experiment stations, the state land-grant university system, other cooperating state institutions, and participants in USDA's National Research Initiative Competitive Grants Program.

- **Food Science and Technology Abstract (FSATA)** is covers all areas of food science, food technology and human nutrition, including basic food science, biotechnology, toxicology, packaging and engineering.

- **Forest Science Database** forms the most comprehensive guide to the international forestry literature.

- **Biological Abstracts (BIOSIS) Biological Abstracts** is a database produced by Thomson Reuters through its subsidiary BIOSIS. It includes abstracts from peer-reviewed academic journal articles in the fields of biology, biochemistry, biotechnology, botany, pre-clinical and experimental medicine, pharmacology, zoology, agriculture, and veterinary medicine published since 1926.
• **PubMed** the National Library of Medicine's search service that provides access to over 10 million citations in MEDLINE, PreMEDLINE, and other related databases, with links to participating online journals.

**Useful Electronic Resources and Websites in Agriculture Sciences:**

- **AGLINET** ([http://www.fao.org/library/library-home/aglinet/en/](http://www.fao.org/library/library-home/aglinet/en/)) : is a voluntary network of agricultural libraries around the world with strong regional/country coverage and other comprehensive or very specialized subject resource collections. If FAO staff need material not available in the David Lubin Memorial Library, AGLINET member libraries are consulted for assistance. AGLINET Centers provide partner libraries with access to the literature originating in the country or region or for a given specialization. This voluntary co-operative library network was founded in 1971 within the framework of the International Association of Agriculture Librarians and Documentalists (IAALD). AGLINET libraries achieve a comprehensive resource coverage and mutual and rational use of library resources, not only for the benefit of members' own constituencies, but also in support of other libraries within their country/region.

- **AgNIC** ([http://www.agnic.org/](http://www.agnic.org/)) : is a guide to quality agricultural information on the Internet as selected by the National Agricultural Library, Land-Grant Universities and other institutions. It is a site providing access to a network of electronic sources on research and teaching in agriculture, food, renewable natural resources, forestry, physical and social sciences.

- **AGRIS** ([http://www.fao.org/agris/](http://www.fao.org/agris/)) : is the international information system for the agricultural sciences and technology. It was created by the Food and Agriculture Organization of the United Nations (FAO) in 1974, to facilitate information exchange and to bring together world literature dealing with all aspects of agriculture. It is a cooperative system in which participating countries input references to the literature produced within their boundaries and, in return, draw on the information provided by the other participants.

- **AGRALIN/Agricultural Literature Information System in the Netherlands** ([http://www.bib.wau.nl/](http://www.bib.wau.nl/)) : is a gateway to scientific information in the fields of food, agro technology, plant and animal production systems, nature and the environment, based at the Agricultural University of Wageningen.
AGRICOLA (http://www.nal.usda.gov/ag98/) : is a bibliographic database covering agriculture and related sciences/activities, produced by the US National Agricultural Library (NAL). It includes some 3 million references to journal articles, books, reports, conference proceedings, patents, audiovisuals, etc.

AGORA Access to Global Online Research in Agriculture (http://www.aginternetwork.org/en/) : The AGORA program, set up by the Food and Agriculture Organization of the UN (FAO) together with major publishers, enables developing countries to gain access to an outstanding digital library collection in the fields of food, agriculture, environmental science and related social sciences. AGORA provides a collection of 1900 journals to institutions in 107 countries. AGORA is designed to enhance the scholarship of the many thousands of students, faculty and researchers in agriculture and life sciences in the developing world.

AgREN Agricultural Research and Extension Network (http://www.odi.org.uk/work/projects/agren/links) : AgREN was established in the mid-1980s to link policy-makers, practitioners and researchers working in the agriculture sector of developing countries. It has over 1000 members located in more than 100 countries, with around 70 per cent located in developing countries. Members work in a range of organisations, predominantly in university and research organisations, as well as governments, parastatals, non-government organisations and aid agencies.

AQUASTAT(www.fao.org/AG/AGL/aglw/aquastat/main/index.stm) : is FAO's global information system, whose objective is to provide users with comprehensive information on the state of agricultural water management across the world, with emphasis on developing countries and countries in transition.

Agricultural Science and Technology Indicators (ASTI) (www.asti.cgiar.org/) : This site provides national, regional and global statistics on investments in agricultural R&D as well as more descriptive profiles on the structure of national agricultural research steadily.

CAB Abstract (www.cabdirect.org) : The most comprehensive database of its kind, CAB Abstracts gives researchers instant access to over 6.3 million records* from 1973 onwards, with over 300,000 abstracts added each year*. Its
coverage of the applied life sciences includes agriculture, environment, veterinary sciences, applied economics, food science and nutrition.

- **CGIAR Consultative Group on International Agricultural Research** ([http://www.cgiar.org](http://www.cgiar.org)) : The CGIAR is a global partnership that unites organizations engaged in research for sustainable development with the funders of this work. The funders include developing and industrialized country governments, foundations, and international and regional organizations.

- **Consortium for e-Resources in Agriculture** ([http://www.icar.org.in](http://www.icar.org.in)) : is a e-Consortium of Agricultural Libraries under the Indian Council of Agricultural Research for NARS.

- **Directory of Open Access Journals** ([www.doaj.org](http://www.doaj.org)) : This service covers free, full text, quality controlled scientific and scholarly journals. Because open access is a worldwide phenomenon, DOAJ includes publications from around the world in many languages. It is possible to browse through the journals, or search for articles within many of the journals through a web interface. In February 2011, the database contained 6100 journals, of which 2591 were searchable at article level. DOAJ is managed and partly funded by Lund University Libraries. DOAJ has received or is receiving funding from the Open Society Institute, the National Library of Sweden, SPARC, SPARC Europe, Axiell and EBSCO. The Directory of Open Access Journals participates in the Worldwide Science global science gateway.

- **The European Information System on Agricultural Research for Development** ([http://www.eiard-infosys.org/](http://www.eiard-infosys.org/)) : aims to increase the transparency of, and access to, European web resources on agriculture, environment, fisheries, forestry, socio-economics, rural transformation and other development topics. It also aims to create an information and communication platform as a service for a multitude of institutions and parties all over Europe involved in scientific development cooperation.

- **FAO Food and Agriculture Organization** ([http://www.fao.org/](http://www.fao.org/)) : is a specialized agency of the United Nations that leads international efforts to defeat hunger. FAO is a source of knowledge and information, and helps developing countries and countries in transition modernize and improve agriculture, forestry and fisheries practices, ensuring good nutrition and food security for all.
ICAR Indian Council of Agriculture Research (http://www.icar.org.in) : The Indian Council of Agricultural Research (ICAR) is an autonomous organisation under the Department of Agricultural Research and Education, Ministry of Agriculture, Government of India. The ICAR has its headquarters at New Delhi. The Council is the apex body for coordinating, guiding and managing research and education in agriculture including horticulture, fisheries and animal sciences in the entire country. With over 97 ICAR institutes and 45 agricultural universities spread across the country this is one of the largest national agricultural systems in the world. The ICAR has played a pioneering role in ushering Green Revolution and subsequent developments in agriculture in India through its research and technology development. It has played a major role in promoting excellence in higher education in agriculture. It is engaged in cutting edge areas of science and technology development and its scientists are internationally acknowledged in their fields.

SIDALC Agricultural Information and Documentation Service of the Americas (http://orton.catie.ac.cr) : is an international agricultural, livestock, forestry and environmental information service in which institutions in 22 countries of the Americas share information and services on line. Created in 1999, today it is one of the most important sources of knowledge and information in LAC. SIDALC is the result of earlier initiatives aimed at management of knowledge and information, all promoted by IICA, such as the Orton Commemorative Library (founded in 1943); the Scientific Exchange Service (SIC), created in 1958; the Inter-American Association of Agricultural Librarians, Document lists and Information Specialists (AIBDA), founded in 1965; and the Inter-American Agricultural Information System (AGRINTER), created in 1972.

TEEAL (http://www.teeal.org): is a digital collection of research journals for agriculture and related sciences. Researchers, students, faculty and librarians can discover and access thousands of full-text PDF articles without the use of the internet. TEEAL is available to institutions in income-eligible countries. TEEAL is produced by a cooperative effort between Cornell University's Albert R. Mann Library and leading science publishers, with the ongoing support of the Rockefeller Foundation and other agencies.
WAICENT Information Finder (http://www.fao.org/waicent/search/default.asp?lang=en) : allows users to search in two ways: Free Text Search of the entire FAO website for web pages and documents; and Directory Search of important sites and information within FAO.

Useful Web Sites in Agriculture for Accessing E-Resources:

There are various web site in agriculture for accessing the agriculture resources. Few important web site given bellows for accessing electron information resources on the web:

- http://www.cgiar.org
- www://www.fao.org
- http://www.agnic.org/
- http://www.agricultureinformation.com/
- http://www.agriculturallink.com/
- http://www.kisan.net/
- http://www.krishiworl.com/
- http://www.indiaagronet.com/
- http://www.agrisurf.com/
- http://www.agriwatch.com/
- http://www.isapindia.org/
- http://www.indiaagristat.com
- http://www.agriculture.gov.au
- http://www.icar.org.in
- http://agrifor.ac.uk/search/
- http://agmarknet.nic.in/
- http://www.agview.com/

Advantages of Electronic Resources

*Advantages of e-resources* (Bajpai et al., 2009)
The reasons for actually embarking on the purchasing of electronic resources are generally accepted because of the ease of usability, readability, affordability and accessibility. The following are the advantages of e-resources over the print media:

1. **Multi-access:** A networked product can provide multiple points of access at multiple points in time (24 x 7) and to multiple simultaneous users.

2. **Speed:** An electronic resource is lot quicker to browse or search, to extract information from, and to integrate that information into other material and to cross-search or reference between different publications.

3. **Functionality:** E-resource will allow the user to approach the publications to analyze its content in new ways by click of the mouse on search mode.

4. **Content:** The e-resources can contain a vast amount of information, but more importantly the material can consist of mixed media i.e. images, video, audio animation which could not be replaced in print.

Apart from the above some other advantages of e-resources may include: international reach, unlimited capabilities, reduced cost, convenience, search ability and linkage.

Looking at the importance of digital access the Prime Minister Shri Narendra Modi launched a programme Digital India on July 1, 2015. It is a central government funded programme to transform India into digital empowered society and knowledge economy. A projected fund of Rs 1,13,000 crores will be allocated for the purpose of preparing the country for the knowledge based transformation and delivering good governance to citizens by the means of synchronised and well co-ordinated engagement with Central and State Governments with the focus on being transformative-IT (Information technology) + IT (India Talent)= IT (India tomorrow). It is an Umbrella Programme as it cover many departments envisaged by Department of Electronics and Information Technology (DeitY) impacting ministry of communications & IT, ministry of rural development, ministry of human resource development, ministry of health and others. A good number of existing schemes will be restructured under this programme.
Pillars of Digital India

There are nine pillars of Digital India.

### Nine Pillars of Digital India

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<tbody>
<tr>
<td>2. Universal Access to Phones</td>
<td>5. eKranti – Electronic delivery of services</td>
</tr>
<tr>
<td>3. Public Internet Access Programme</td>
<td>6. Information for All</td>
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<tr>
<td></td>
<td>7. Electronics Manufacturing – Target NET ZERO imports</td>
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<td></td>
<td>8. IT for Jobs</td>
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<td>9. Early Harvest Programmes</td>
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**Pillar-1 Broadband Highways**

National Optical Fibre Network (NOFN) will be laid in in all 2.5 lakh Gram Panchayats of the country in a phased manner.

**Pillar-2 Connectivity**

Ensuring mobile access in around 44,000 uncovered villages in the country and government is taking steps to ensure coverage of all villages under mobile connectivity by the year 2018.

**Pillar-3 Public Internet access**

To expand the coverage of common services center (CSC) from 1.35 lakhs to 1.5 lakhs, i.e. one in every Panchayat.

**Pillar-4 e-Governance**

The process and service delivery will be improved through Business process re-engineering integrating the services with UIDAI, payment gateway and mobile platform.

**Pillar-5 e-Kranti**

e-Kranti focuses on electronic delivery of services whether it is education, health, agriculture, justice and financial inclusion.

**Pillar-6 Global Information**
The focus will be on online hosting of data and proactive engagement through social media and web based platforms like MyGov.

**Pillar-7 Electronics Manufacturing**
Focus is on set top boxes, VSAT, mobile, consumer electronics, medical electronics, smart energy meters, smart cards and micro ATMs.

**Pillar-8 IT Training for Jobs**
The government is planning to train one crore students from small towns and villages for IT sector.

**Pillar-9 Early Harvest Programmes**
The government is planning to deploy Aadhaar Enabled Biometric Attendance System in all central government offices located at Delhi. A web based application software system will enable online recording of attendance and its viewing by the concerned stakeholders.

**Types of Electronic Resources.**
There is no one fixed classification of e-resources and many approaches for categorising them are in practice like classifying them by distribution medium or by content or by type; primary and secondary sources; online and offline e-resources etc.

The distribution medium consists of online, CD ROM, Web etc. Content wise classification is on the basis of bibliographic, full text etc. while the classification by type of format includes e-book, e-journal, database etc. The classification on the basis of primary source includes e-books, E-journals, Electronic Thesis and Dissertations (ETD) etc while secondary sources include E-Course material, Indexing and abstracting databases, E-Reference databases etc. Bajpai et al. (2009) divided the e-resources in two major types:

1. Online E-resources, which may include:
   - E-journals (Full text & bibliographic)
   - E-books
   - On-line Databases
   - Web sites

2. Other electronic resources may include:
   - CD ROM
• Diskettes
• Other portable computer databases

**PROBLEM STATEMENT**

Understanding the growing importance of e-resources in education and research, agricultural educational institutes are stepping ahead to keep pace with the latest advances in information technologies. The government has also realised the importance of internet and thus have decided to wi-fi all the universities of the country under the early harvest programme mentioned in the ninth pillar of digital India programme. Realizing its growing significance in research, different agricultural educational institutions have expanded their e-resources available over the internet. The issue is to understand whether e-resources make any difference to agricultural research pursuits. Also it is not clear how this revolution in access has influenced information seeking behaviour of research scholars. The present study is an attempt to study the e-resource usage in different agricultural educational institutes and the current state of their in regard of preparedness to manage electronic information services. Several studies evaluating the use of e-resources have been reported in the literature. However, agricultural educational institutes had been less focused. Therefore, to fill the above gaps the study entitled “E-Resource Usage Among Research Scholars of Agricultural Educational Institutes of U.P.” has been undertaken with following researchable questions:

1) What are the e-resources facilities available in agricultural educational institutes?
2) Do the researchers possess knowledge about the e-resources?
3) Do the research scholars face any problem while accessing the e-resources?

**OBJECTIVES OF THE STUDY**

The major objectives of the study are:

1. To study the socio-personal profile of the research scholars.
2. To study the accessibility of various types of e-resources by research scholars at selected agricultural educational Institutes.
3. To know the usage of e-resources by the research scholars.
4. To find out the relationship between usage of e-resources with selected independent variables.
5. To find out the problems encountered by the research scholars while accessing the e-resources.
SCOPE & SIGNIFICANCE OF THE STUDY:

A deeper level insight into issues relating to the usage of e-resources will be helpful in understanding the current trend in utilization of e-resources for the purpose of research and education, and thus will be helpful in building the agriculture institutes more efficient by providing the right tools to the research scholars for the access of information. It is also significant from the perspective of how e-resources should be made available to the users in the coming years in the context of cost-effective approach in agricultural educational institutes.

LIMITATIONS OF THE STUDY:

- Besides the usual limitation of social science studies, this study will have limitations of time, funds and a single researcher. The findings of the study are based on expressed response of the respondents. Hence, the accuracy of the findings of the study is limited to the frankness and fairness of the respondents in furnishing the information.

- The study is also limited only to research scholars in selected agricultural educational institutes.