



Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. U/s 3 of UGC Act 1956, Category 'A' by MHRD

Re-accredited with 'A++' Grade. CGPA 3.65/4 Category 1 by UGC

Coimbatore - 641 043, Tamil Nadu, India

AIU-AI-AADC

Report on First Short-Term Capacity Building Program on
Smart Data Storage: Next-Gen Archiving and Retrieval

19.02.2024-23.02.2024

The AIU-AI-AADC (Association of Indian Universities - Avinashilingam Institute - Academic & Administrative Development Centre) and the Central Library organized its First Short Term Capacity Building Program on Smart Data Storage: Next-Gen Archiving and Retrieval for 2024 between *19th to 23rd February 2024* with multi-fold objectives: equip participants with a deep understanding of the latest innovations in smart data storage technologies, enhance retrieval capabilities through advanced techniques for quick and accurate data access, explore the benefits and best practices of leveraging cloud-based solutions for scalable and secure archiving, provide strategies and tools for efficient management and archiving of large datasets in the educational context, showcase real-world applications of smart data storage technologies through case studies and success stories, tailor content to the specific needs of information scientists, focusing on advanced topics and specialized knowledge, facilitate networking and collaboration, encouraging the exchange of best practices and community-driven problem-solving. There were 18 participants from various higher educational institutions (HEIs) attended the program in online mode. This is an international program. The following image shows some of the participants with their videos unmuted.



Few of the Participants and Organisers with their videos unmuted

Day I Inauguration (19.02.2024; 9.30 am-10.15 am)

The program started with a prayer, Dr. K. Ramya, Nodal Officer, AIU-AI-AADC, Assistant Professor - SG, Business Administration, welcomed the gathering, followed by a prologue of the program by Dr. T.Thilagavathi, Assistant Librarian (SG) and Programme Coordinator. Dr. Devika P. Madalli, Director, INFLIBNET Centre, Gandhinagar, Gujarat, inaugurated the program, and madam, in her inaugural address, opined that data sets produced in various contexts and become a knowledge resource. There needs to be a paradigm shift in the libraries handling datasets and their retrieval to the user fraternity. Dr. K. Mahalakshmi, Assistant Librarian, proposed a vote of thanks, and the master of the ceremony done by Mrs. J. Geetha, Information Scientist.



Inauguration by Dr. Devika P.Madalli

Day I Session I (19.02.2024; 10.00am-11.15am)

After the inauguration, the first-day first session was handled by Dr Devika P. Madalli, Director, INFLIBNET Centre, Gandhinagar, Gujarat, on "Smart data storage in Higher Education Institutions". Madam highlighted the need for smart data storage to manage the explosion of data, optimize business operations, efficiently utilise resources, and enhance retrieval speed. She also discussed the challenges involved in the volume of data and scalability issues, data security and compliance, and the complexity involved in data migration, accessibility, and retrieval speed. The following strategies can be adopted in smart data archiving: data classification and prioritisation, automating archiving due to the data and complex nature, dynamic storage allocation and regular data audits. When dealing with intelligent retrieval techniques, she emphasised the role of libraries in indexing and metadata tagging, search algorithms, leveraging AI for intelligent retrieval and dynamic query optimisation. Madam clearly explained the need for smart data storage with case studies of financial institutions and the healthcare industry.

Take away messages

Data sets are a knowledge resource
Smart data storage are backbone of knowledge exploration
Provides a foundation for technological advancements



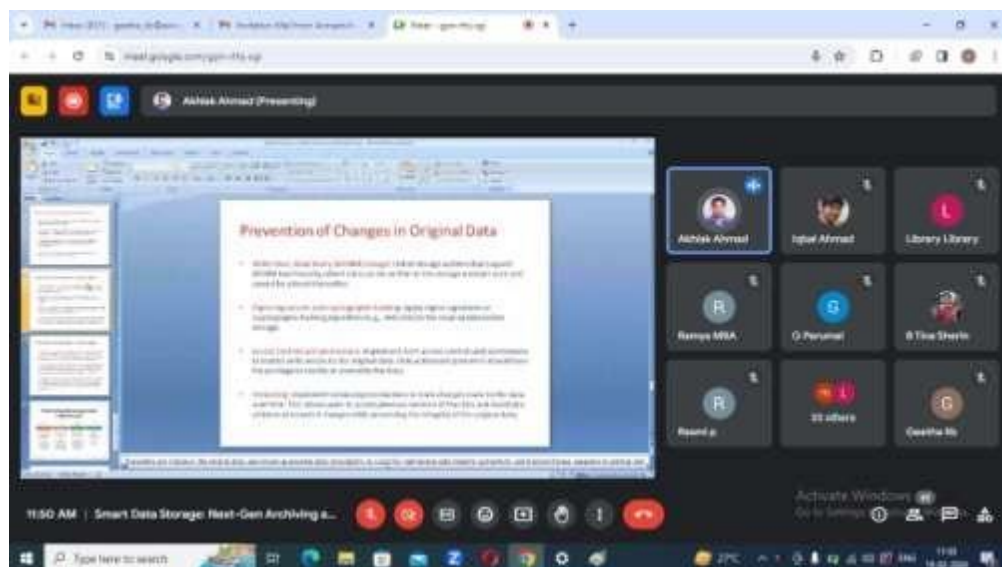
Day I Session I on Smart Data Storage in Higher Education Institutions

Day I Session II (19.02.2024; 11.15am-12.45pm)

Dr. Akhlaq Ahmad, Library Associate, Centre for Women's Development Studies, New Delhi, handled a session on "Best Practices in Data Archiving and Retrieving in HEIs." He shared the practices that they have undergone in their library. Also, he spoke about the various structures and types of metadata, file formats, key characteristics of data archiving, multiple steps involved in data migration without data loss, storage medium, and data integrity and security aspects. He also highlighted the role of PREMIS, an internationally recognised digital archiving standard.

Take away messages

Case study of CWDS
Metadata standards
Data migration without its loss



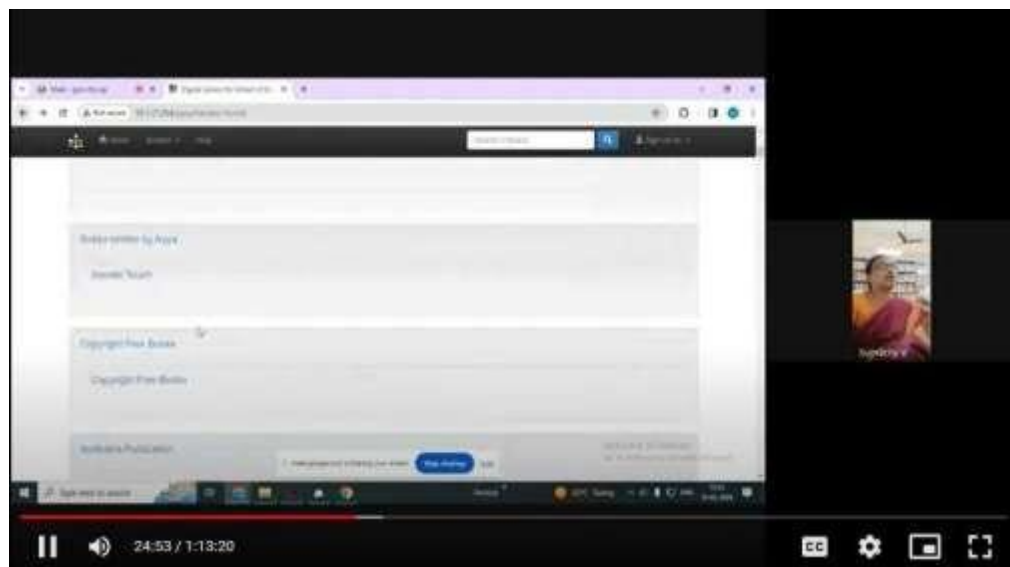
Day I Session II Best Practices in Data Archiving and Retrieving in HEIs

Day I Session III (19.02.2024; 01.30 pm-03.00 pm)

Dr K. Mahalakshmi, Assistant Librarian of Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, handled a session on "About the Library of Avinashilingam Institute for Home Science and Higher Education for Women." She highlighted the library's resources and services in two videos. One video is for the School of Education Library, and another is about using print resources such as books and journals, with students and scholars portraying articles from journals and the contents of the books. She has also shown the online demo of the library website, the facility for the divyangjan, and the archival activities in the School of Education Library.

Take away messages

Library Website Archival
Activities of the Library
Special services of the library



Day I Session III About the Library of Avinashilingam Institute

Day I Session IV (19.02.2024; 3.15 pm-04.45 pm)

Dr. Dhanukumar Pattanashetti, IEEE Client Services, discussed about "Enhancing Research on Smart Data Storage with IEEE Publications" session with examples from the IEEE database. He has also shown the online demo of new features, such as the author center and my research project added to the IEEE database. He also highlighted the top tech trends for 2024, IEEE conferences, new journals, and publications. In between the sessions, there was an online quiz to keep the participants active; apart from that, he also showed the live demo of the IEEE website with search options such as advanced search, command search and citation search.

Take away message

Search options and storage in IEEE database
New features added in IEEE



Day I Session IV Enhancing Research on Smart Data Storage with IEEE Publications

Day II Session I (20.02.2024; 10.00am-11.15am)

Dr. Nabi Hassan, Librarian and Head of Central Library, Indian Institute of Technology, New Delhi, handled the I session on “Artificial Intelligence in Libraries”. He discussed the origin of artificial intelligence, components of AI, areas of AI application in libraries, advantages and disadvantages. He has shown the live demo of the IITD library website with AI-supported features, such as a chatbot named BibDAIL+, and shown the AI-enabled smart library assistants of other libraries worldwide and the work it is doing in their respective Libraries. A few are Yamanaka Public Library and the Library of Konan University. He has also shared his experiences with augmented reality at the Kalaignar Centenary Library, Madurai.

Take away Messages

- Role of AI in the Libraries with Live examples
- AI-enabled service in IITD
- Content generation using ChatGPT



Day II Session I Artificial Intelligence in Libraries

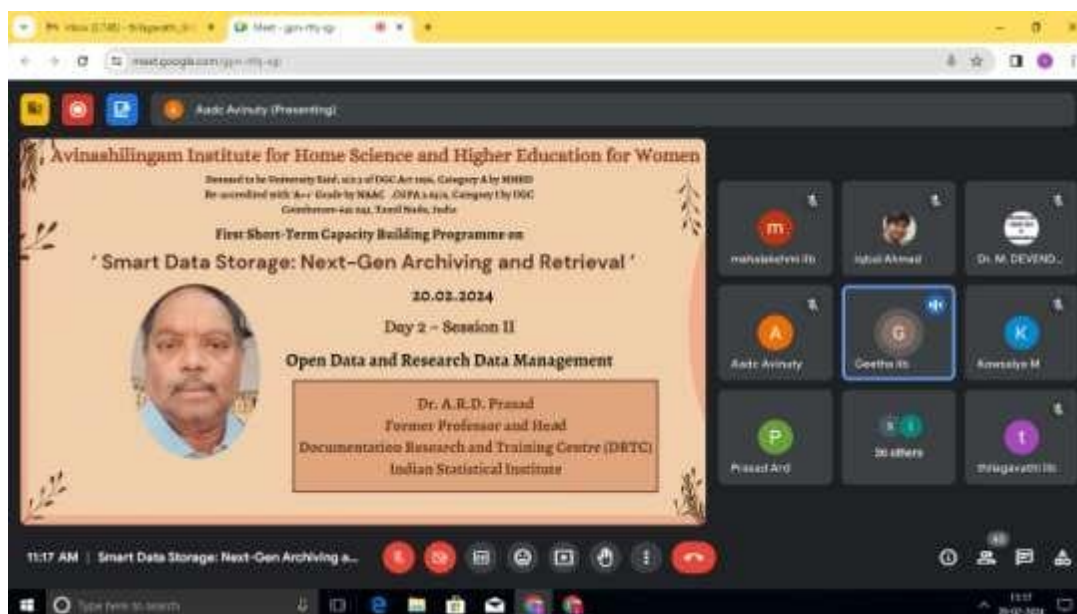
Day II Session II (20.02.2024; 11.30am-12.45pm)

On the second day II, session II was handled by Dr. A R D Prasad, Former Professor and Head of the Documentation Research and Training Centre (DRTC) on “open data and research data management.” He started his session by defining data, its sources, and formats such as experimental, clinical, and survey. He also touched upon big data, three Vs, such as veracity, validity, and volatility of big data, as well as who all the stakeholders of big data, open data, and research data management are. While dealing with Research Data Management, its definition, need for it, rules involved, types of various research data, and the FAIR Policy wherein F stands for findable, A-Accessible, I-Interoperable, and R-Reusable. He also discussed the different data formats, licenses, and competencies librarians require in research data management.

Take away Messages

Domain-Specific Curation Strategies

GoI shall come out with a Policy decision about repositories for data sets
Data-intensive domains



Day II Session II Open data and Research Data Management

Day II Session III (20.02.2024; 1.30pm-03.00 pm)

Dr. R. Karthikeyan, Professor & Head, Department of Artificial Intelligence and Data Science, Dr.NGP Institute of Technology, Coimbatore, handled a session on “Cloud Archiving Trends and Best Practices, Multi-cloud Strategies”. He described the various storage mediums, categories of cloud space such as public, private, and hybrid, and services of cloud computing such as SaaS (Software as a Service), PaaS (Platform as a Service), and IaaS (Infrastructure as a Service). He explained the definition of cloud archiving and the processes involved in cloud archiving. In between, the Resource Person asked questions to keep the participants interactive. He clearly explained the steps involved in cloud archiving with an example of Oracle cloud storage, how to download an uploaded object from the cloud space and, of course, its advantages and disadvantages. He also highlighted the key trends in

data archiving such as data lifecycle management and integration with machine learning and security considerations of cloud archiving. While dealing with compliance and regulatory requirements for cloud archiving, the following points are to be considered: industry-specific regulation, data retention policies and regular compliance audits. At the end of the session, the participants had questions, and the Resource Person answered them well.

Take away Messages

- Types of Cloud computing service
- Cloud archiving
- Security



Day II Session III Cloud Archiving and Multi Cloud Strategies

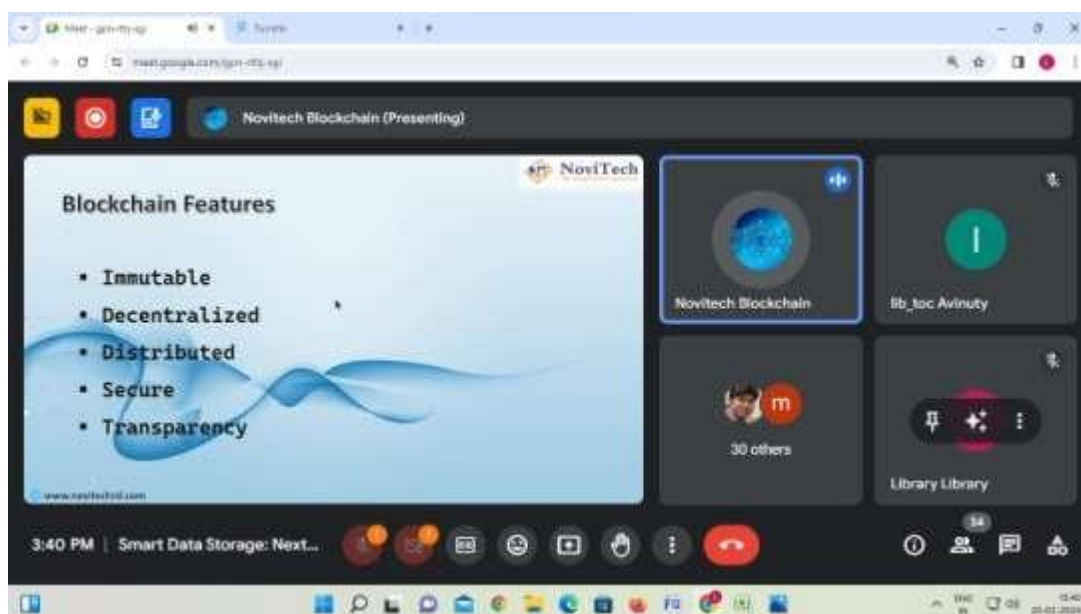
Day II Session IV (20.02.2024; 3.15 pm-04.45 pm)

"Application of Blockchain in data Archiving" was the topic handled by Mr.Sadhrul Hudha A.H., Software Engineer, NoviTech R &D Pvt Ltd., Coimbatore. He started the session by briefly introducing the company, its services, and its expertise. He clearly explained the concepts of blockchain and real-life examples of blockchain storage. He also touched upon the features of blockchain, such as immutability, decentralisation, distribution, security, and transparency. Blockchain is used in the creation, distribution, trading, and storing of Bitcoin. He also explained the steps involved in creating a block, bitcoin, its inventor, and its process. The following are the areas of application of smart contracts: voting, money transfers, lending of loans, real estate, and security of personal information. He has shown the live demo of the website OpenSea. The participants were introduced to the "Ganach" app to run blockchain in a system.

Take away messages

Concepts and applications of

Bloch chainSteps involved in Bitcoin



Day II Session IV Application of Blockchain in data Archiving

Day III Session I (21.02.2024; 10.00am-11.15am)

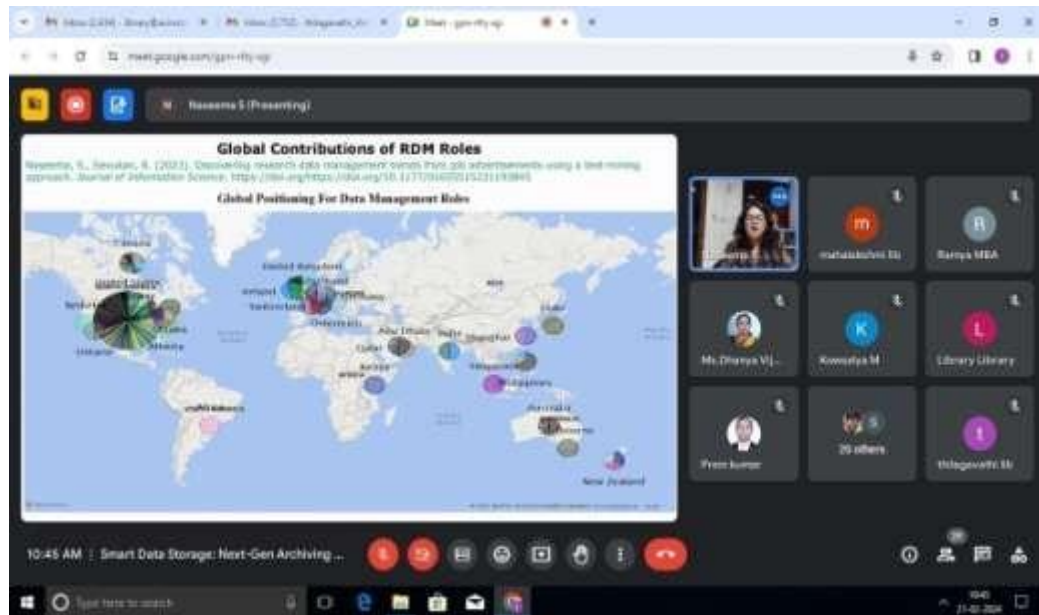
Ms. Naseema Sheriff, Senior Research Fellow, Pondicherry University handled a session on “Collaborative Data Governance and Data Management Committees”. She described the ways of managing and organizing data, Research Data Management(RDM), Data governance and Data management. She highlighted the roles and responsibilities of RDM, which involve researchers, institution support services, funding agencies, publishers, and repositories. She also explained the data management committees implement the operational aspects of data management practices. RDM helps research integrity, funding opportunities, increased research impact, efficient collaboration, cost saving, preservation of institutional knowledge and competitive advantages.

Take away messages

Roles and responsibilities of Research Data Management

Data Governance

Data Management Committees



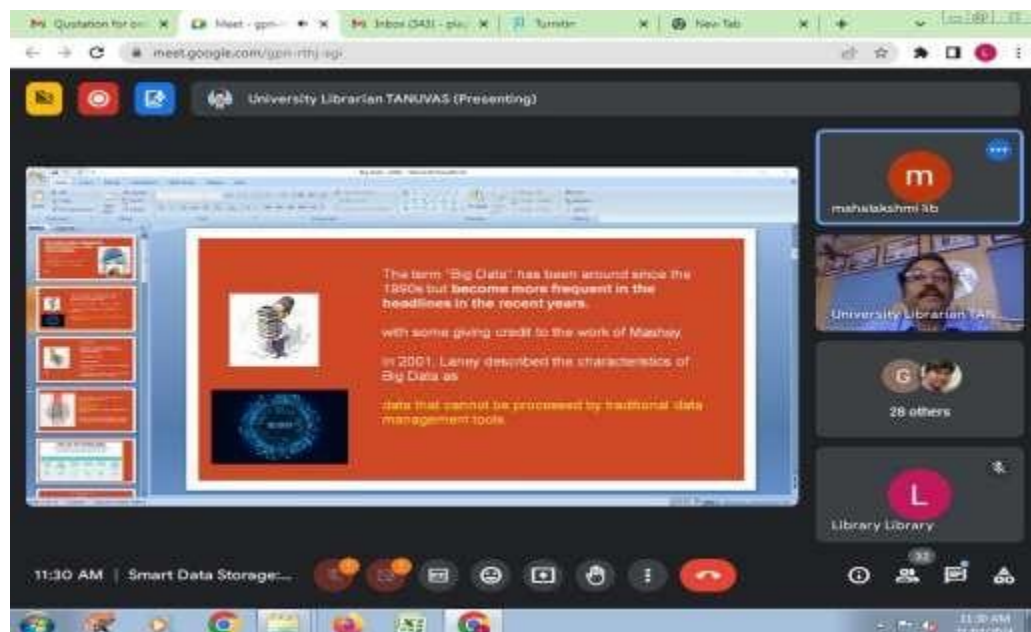
Day III Session I Collaborative Data Governance and Data Management Committees

Day III Session II (21.02.2024; 11.30am-12.45pm)

Dr. Rathinasababathy. G, University Librarian, Tamilnadu Veterinary and Animal Sciences University, Chennai, handled a session on **“Big Data and Libraries : Opportunities and challenges”**. He explained the concept and types of big data, the six v’s involved in handling big data such as volume, variety, velocity, veracity, value and variability. He emphasized the role of various libraries in organising, preserving, disseminating and the challenges of archiving big data.

Take away messages

- Big Data organization
- Preservation
- Dissemination



Day III Session II Big Data and Libraries : Opportunities and challenges

Day III Session III (21.02.2024; 1.30pm-03.00 pm)

Dr. S. Rajalakshmi, Professor, Department of Artificial Intelligence and Data Science, Dr.NGP Institute of Technology, Coimbatore handled a session on **“Importance of cyber security in Data Archiving”**. She discussed the predicament of today’s world, which includes cyber threats, malware, viruses, worms, and password attacks. She highlighted the various cyber laws that are available to help people face these challenges.

Take away messages

- Cyber threats
- Cyber Security
- Cyber Laws



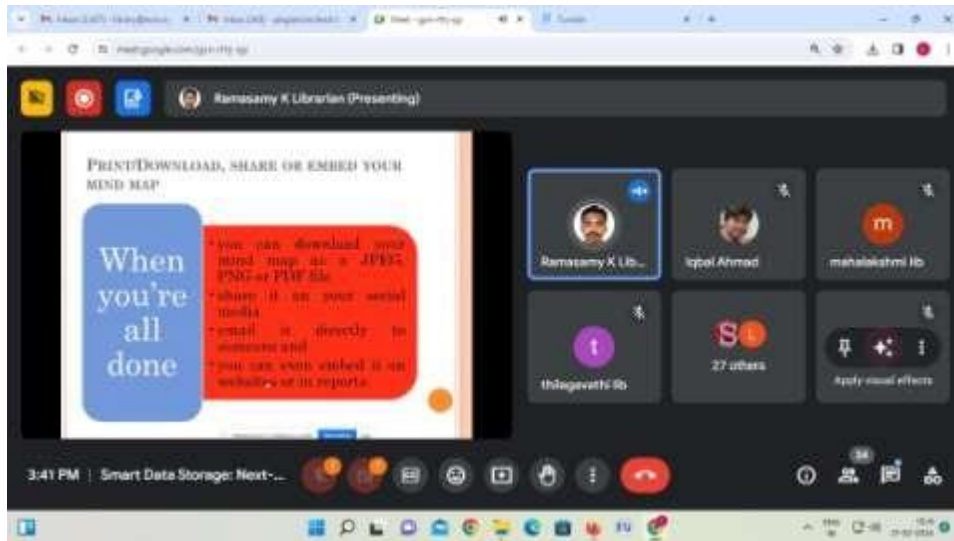
Day III Session III Importance of cyber security in Data Archiving

Day III Session IV (20.02.2024; 3.15 pm-04.45 pm)

Dr.K.Ramasamy, Librarian, M.V. Muthiah Government Arts College for Women, Dindigul, handled a session on **“XMind : Mind Mapping Tool ”**. He explained the mind-mapping tool supports clarity of thinking, manages complex information, and leads to creativity. He shared his views on installing and using XMIND with an online Demo.

Take away messages

- Mind Mapping Tool



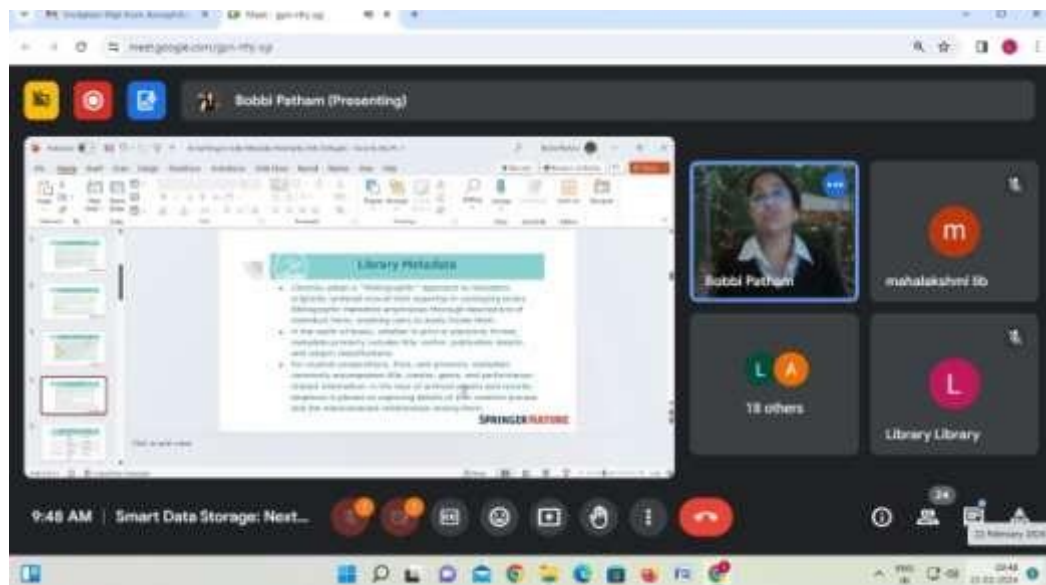
Day III Session IV XMind : Mind Mapping Tool

Day IV Session I (22.02.2024; 10.00am-11.15am)

Mrs. Parvathi Patham, Global Manager, Discovery & Discovery Services, Springer Nature, USA, handled a session on **“Metadata Formats for Effective Information Retrieval”**. She explained **the** types, uses, storage of metadata and metadata standards. She also **highlighted** the role of discovery providers in information retrieval, open discovery initiatives, KBART and KBART Automation.

Take away messages

- Metadata Standards
- KBART



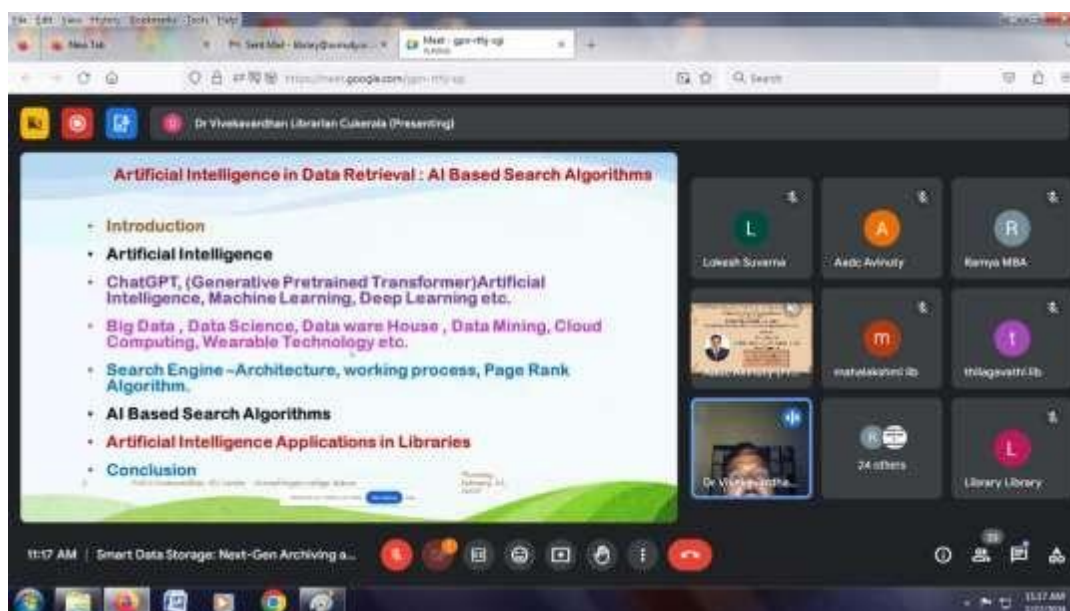
Day IV Session I Metadata Formats for Effective Information Retrieval

Day IV Session II (22.02.2024; 11.30am-12.45pm)

Dr. J. Vivekavardhan, Professor/ University Librarian, Central University of Kerala, handled a session on “**Artificial Intelligence in Data Retrieval - AI Based search algorithms**”. He explained the concepts of Artificial Intelligence, Chatgpt, Machine Learning and Deep Learning influence our day-to-day lives. He highlighted the application of AI in smartphones, smart homes, and the Internet of Things (IoT).

Take away messages

Data Warehousing
Data Mining



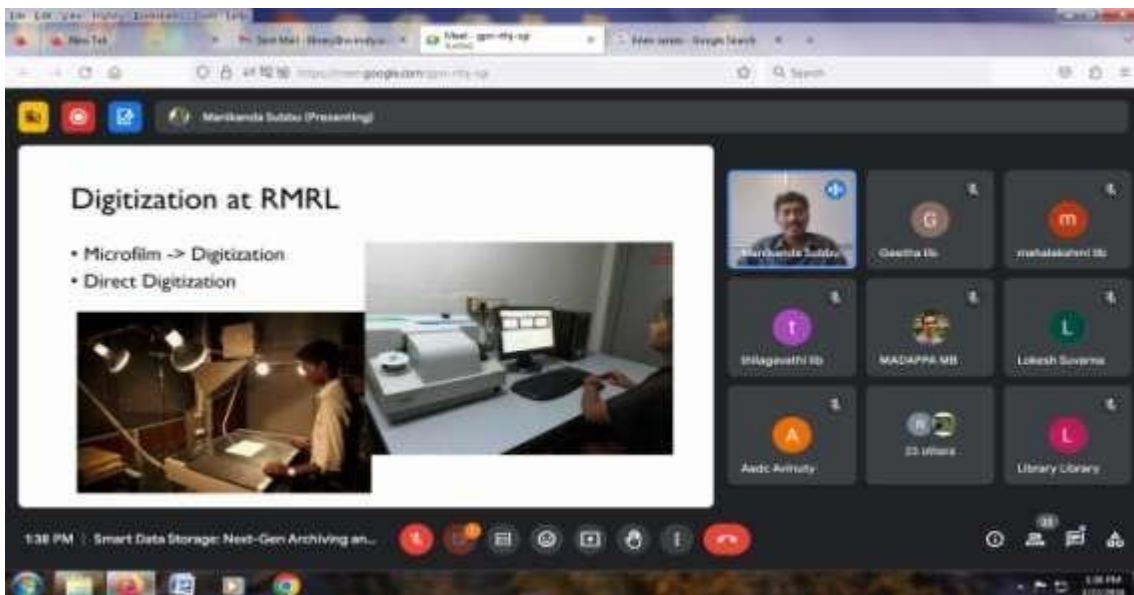
Day IV Session II Artificial Intelligence in Data Retrieval - AI Based search algorithms

Day IV Session III (22.02.2024; 1.30pm-03.00 pm)

Mr. M. Manikanda Subbu, Assistant Director, Roja Muthiah Research Library, Chennai, handled a session on “**Digital Archiving: Roja Muthiah Research Library-A case study.**” He explained the practices that they have followed in their library to preserve information for posterity. He highlighted the various structures and types of metadata, file formats, key characteristics of data archiving, various steps involved in data migration without data loss, storage medium, and data integrity and security aspects. He described the role of PREMIS, digitization and archiving of materials, equipment used, preservation formats, editing, quality control, types of storage media, network attached to storage and cataloging.

Take away messages

Digital Archiving



Day IV Session III Digital Archiving: Roja Muthiah Research Library-A case study

Day IV Session IV (22.02.2024; 3.15 pm-04.45 pm)

Professor (Dr.) Ramesh C. Gaur, Dean (Administration), Indira Gandhi National Centre for the Arts (IGNCA), New Delhi, Ministry of Culture, Government of India a session on **“Basics of Next-Gen Archiving : Concepts and Principles”**. He explained the significance of archiving, next generation archives, Mausam and preservation of archives in India. He highlighted the challenges and issues in digital archiving and management and Unesco’s charter for the preservation of digital heritage and monuments.

Take away messages

Next-Gen Archiving
Mausam



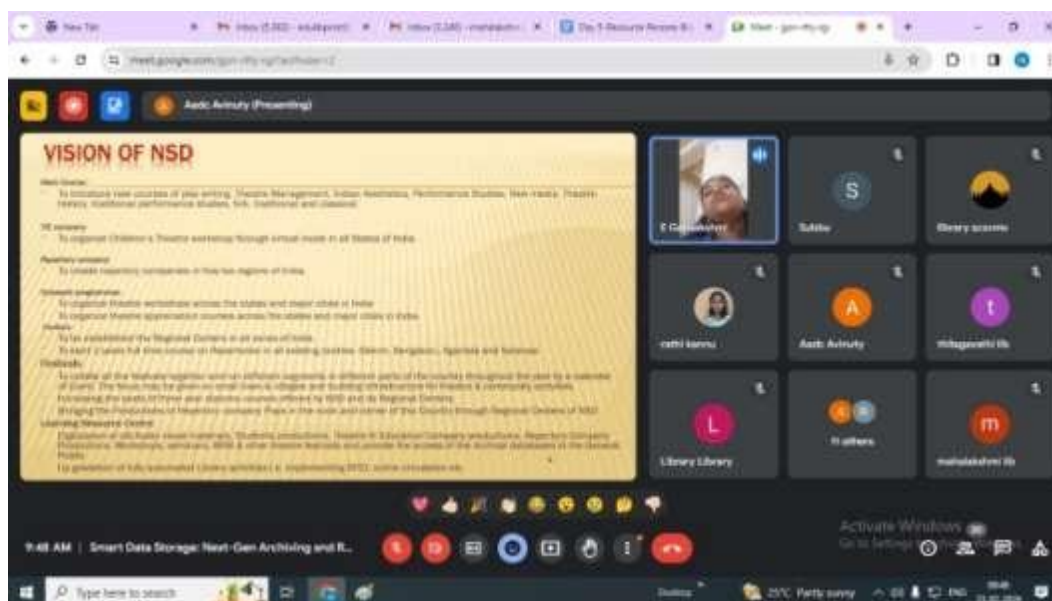
Day IV Session IV Basics of Next-Gen Archiving: Concepts and Principles

Day V Session I (23.02.2024; 9.30 am- 11.00 am)

Dr. E. Gajalakshmi, Librarian of the National School of Drama, Ministry of Culture, Govt. of India, handled a session on "The National School of Drama and its Archival Repositories - An Overview." She started the session with the major activities of NSD, courses offered, and outreach programmes organised by NSD, with particular emphasis on learning resource centres. She also spoke on the collection development of NSD Library, what are all the archiving activities they are undertaking, techniques for preserving the archival data for audio, video, negatives, and photographs, and the creation of metadata with emphasis on fields needed for archival of non-book materials, prerequisites needed for archival work and storage specification of storage medium. She has also shown the demo of the NSD library portal (<https://nsd.gov.in/delhi/index.php/nsd-library/>), National Archives of India (<https://www.nationalarchives.nic.in/>), Indian Culture Portal (<https://indianculture.gov.in/join-us>) and the role of NSD and Ministry of Culture in preserving the rich cultural heritage of India.

Takeaway Messages

NSD and the Ministry of Culture have taken several initiatives to promote India's Rich cultural heritage
Voluminous work of NSD



Day V Session I NSD and its Archival Repositories - An Overview

Day V Session II (23.02.2024; 11.15 am- 12.45pm)

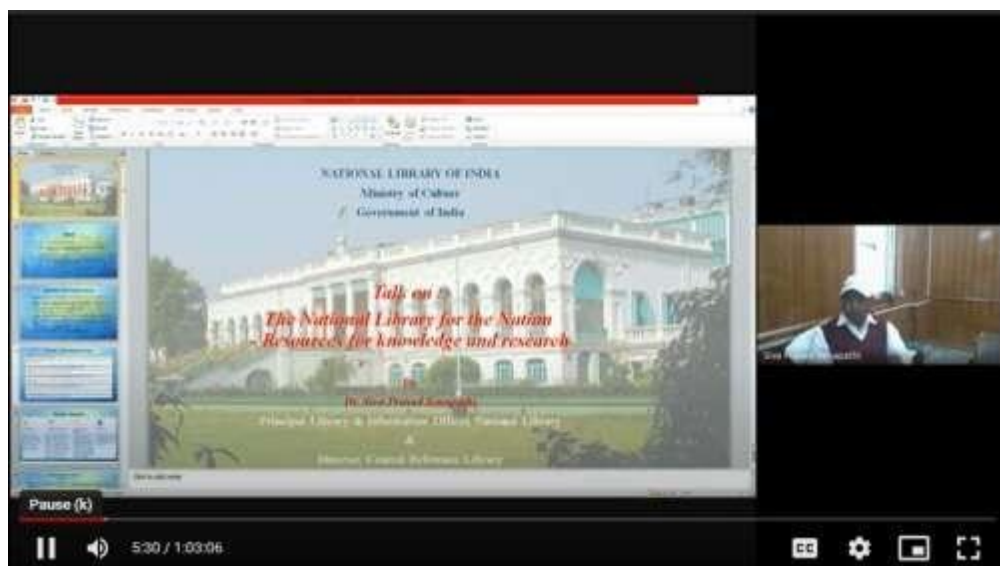
Dr.S.Siva Prasad Senapathi, Principal Library & Information Officer, National Library of India, Ministry of Culture, Govt. of India, Kolkata, handled a session on "The National Library of India: Resources for Knowledge and Research." He gave a detailed presentation on the origin of the National Library of India, its collection, and means of resource generation such as legal deposits, book orders, Gifts and exchanges, and most importantly, repositories. He also touched upon the initiatives by the Ministry of Culture for the betterment of Libraries such as the Museum of Words, which exhibits the

multilingual oral and written diversity of Indian languages, and the infrastructure development and upgradation, facilities for particular users and outreach for the Public libraries of India. In the future, they plan to add a service named "Bibliographic services on demand," a curated list of reliable sources based on user's demand. He has also shown NLI's archival activities in protecting the oldest newspapers, India's maps, and various microfilm collections. He is also concerned that the NLI is giving free services, and there are minimal takers.

Takeaway messages

National Library of India

Archival Activities of NLI



**Day V Session II The National Library of India:
Resources for Knowledge and Research**

Day V Session III (23.02.2024; 01.30pm- 03.00pm)

"Copyright Issues in Data Archiving" was the topic handled by Dr. K. Elavazhagan, Librarian and Chief Knowledge Officer of the Indian Institute of Management, Tiruchirappalli. He clearly explained copyright, copyleft, and creative commons with live examples. While dealing with copyright, he touched upon fair dealing of material for academic purposes, common copyright infringements, and the basics of contract and licensing. He highlighted digital preservation initiatives such as LOCKSS (Lots of Copies Keep Staff Safe), CLOCKSS (Controlled Lots of Copies Keep Staff Safe), and PORTICO. While taking photocopies/ copies of documents for academic purposes, utmost care is to be taken. The following are the notable open content licenses: Creative Commons and Science Commons, which are tailored for scientific data and publications, and the GNU free documentation license, which Wikipedia uses. FAIR is a data sharing principle where F – Findable, A – Accessible, I – Interoperable, and R- Reusable. Recently, with AI, the voices of famous playback singers who are no longer alive are cloned and have been used in recent films.

Take away Messages

Clear explanation of copyright, copyleft and creative commons with live examples

Awareness about copyright infringement

Points to be taken care of while photocopying the material for academic purpose



Day V Session III Copyright Issues in Data Archiving


Day V Session IV Valedictory (23.02.2024; 03.15pm- 04.30pm)

The session started with a prayer. Mrs. J. Geetha, Information Scientist and Organising Secretary, welcomed the gathering, followed by a brief overview of the programme by Dr K. Mahalakshmi, Assistant Librarian and Organising Secretary. The following participants were given positive feedback about the programme: Dr.Devika, Librarian of SCSVMV, Kanchipuram opined that it “loaded with more knowledge on smart data, archiving and copyright details.” Dr.Devendra, Professor & Principal, Maharishi Institute of Master Management, Bangalore shared that “it’s a refresher programme; not a short-term capacity building programme.” Dr.Madappa Mithra, IQAC Co-ordinator, St.Joseph’s University, Bangalore shared that “programme was an eye opener to him as he has come from Biotechnology background, versatility and clarity in all concepts covered in the programme.” The Vice-chancellor delivered the presidential address. Madam opined that there needs to be ease of retrieving the information. She is also concerned that human support is not possible with the technology and quantification of data. Dr. K. Elavazhagan, in his valedictory address, felt that there is a paradigm shift in the behaviour and attitude with the advent of industry 5.0 and present-day learners are using unstructured data for lifelong learning and it becomes a mandate because of fake information. Dr. T. Thilagavathi, Assistant Librarian and Programme Co-ordinator, proposed a vote of thanks, and the master of ceremony was done by Dr. K. Ramya, Nodal Officer, AIU-AI-AADC, Assistant Professor - SG, Business Administration.


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I Short Term Capacity Building Programme for the year 2024
 ' Smart Data Storage: Next-Gen Archiving and Retrieval '

VALEDICTORY ADDRESS



Dr. K. Elavazhagan
 Librarian & Chief Knowledge Officer,
 Indian Institute of Management, Trichy



45:18 / 1:02:13

Valedictory Address

Participants List

S.No	Name	Designation	Department	Institution/ Organisation Name
1	Dr. Jasper Jemima. G D	Assistant Professor	Economics	Margregorios College of Arts and Science
2	Mrs.Poongothai D	Research Scholar	Business Administration	Avinashlingam Institute
3	Dr. S. S. Devika	Librarian in charge	Library	Sri Chandrasekharendra Saraswathi Viswa Mahavidyalaya
4	Dr. Sanjay Gupta	Librarian	Central Library	Sant Longowal Institute of Engineering & Technology
5	Dr. Brinda Ramanujam	Associate Professor	Information Technology	M.O.P vaishnav college for women, chennai
6	Dr. S. Jayanthi	Assistant Professor	English	Meenakshi College for Women, chennai
7	Mr. Perumal G	Superintendent (library)	Library	IITDM Kancheepuram, Chennai
8	Mr. Iqbal Ahmad nsari	Faculty Librarian, Gr-I	Central Library	Dayalbagh Educational Institute (Deemed to be University)
9	Mr. Gaurav Agrawal	Assistant University Librarian	Central Library	Dayalbagh Educational Institute Agra
10	Ms. Kiruthika Selvaraj	Lecturer	Public Health Nutrition	Public Health Foundation of India
11	Dr. M. Devendra	Principal & Professor	Tourism and Hospitality Management	Maharishi Insitute of Master Management
12	Dr. H.A Archana	Assistant Professor	Department of Agronomy	SRM College of Agricultural Sciences

13	Mr. Premkumar	University Librarian	University Central Library	St Joseph's (PPP) University, 36, Lalbagh Road, Bengaluru-560027, Karnataka, India.
14	Mr. Lokesh Suvarna	System Administrator	CCC	St. Joseph Engineering College
15	Mr. Binu P D	Research scholar	Managment	PMIST
16	Dr. Madappa Machamada Bheemaiah	Iqac Director	Biotechnology	St. Josephs University
17	Dr. B.Tina Sherin	Assistant professor	Computer science	Madras Christian college
18	S. Rathikannu	Assistant Professor	Agriculture	Karunya Institute of Technology and Sciences

Sample Certificate

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AIU - Avinashilingam Institute - Academic & Administrative Development Centre (AIU-AI-AADC)
 &
 Central Library

Certificate No: AIU - AI - AADC/ 2024 /01/007

CERTIFICATE OF PARTICIPATION

This is to certify that

Dr. M. Devendra
 Principal & Professor, Department of Tourism and Hospitality Management
 Maharishi Institute of Master Management, Bangalore

has participated in the Short-Term Capacity Building Programme on
 “Smart Data Storage: Next-Gen Archiving and Retrieval” conducted by
 AIU - Avinashilingam Institute – Academic & Administrative Development Centre (AIU - AI- AADC) & Central Library
 from 19/02/2024 to 23/02/2024 and his performance was Excellent.


 Dr. K. Ramya
 Nodal Officer, AIU-AI-AADC


 Dr. T. Thilagavathi
 Programme Coordinator


 Dr. Amarendra Pani
 Joint Director & Head
 Research Division, AIU


 Dr. Pankaj Mittal
 Secretary General
 AIU


 Dr. S. Kowsalya
 Registrar
 Avinashilingam Institute


 Dr. V. Bharathi Harishankar
 Vice Chancellor
 Avinashilingam Institute