Digitization and Digital Preservation of Archival Materials

Experiences at IGNCA, New Delhi

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(An Autonomous body under Ministry of Culture. Govt. of India)

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Topics covered

- About Indira Gandhi National Centre for the Arts (IGNCA)
- Kalanidhi-Indian Cultural Heritage Resource Centre at IGNCA
- Digitization of Indian Cultural Heritage at IGNCA
- Digital Archiving at IGNCA
- Digital Preservation of Indian Cultural heritage at IGNCA
- Digitization Process
- Digital Preservation
- Conclusions

Part-I

About IGNCA

IGNCA : AN INTRODUCTION

The Indira Gandhi National Centre for the Arts is visualized as a centre encompassing the study and experience of all the arts – each form with its own integrity, yet within a dimension of mutual interdependence, interrelated with nature, social structure and cosmology. The arts are here understood to comprise the fields of creative and critical literature, written and oral; the visual arts, ranging from architecture, sculpture, painting and graphics to general material culture, photography and film; the performing arts of music, dance and theatre in their broadest connotation; and else in fairs, festivals and lifestyle that has an artistic dimension.

Various divisions in IGNCA

- Kalanidhi
- Kala Kosha
- Janpada Sampada
- Kala Darshan
- Sutradhar
- Regional centres at
  - Bangalore
  - Varanasi
  - Gauhati

Kalanidhi

- **The IGNCA is a National Information System and a Data Bank of the arts, humanities, cultural heritage with a fully supported reference library of multimedia collections. This information System and Data Bank will serve as a major resource centre for research in humanities, in the arts, in the disciplines of Archaeology, Anthropology, History, Philosophy, Literature, Language, Arts, Crafts etc.**

Kala Kosha

- **While the Kala Nidhi collects primary and secondary material, sifts information and evolve databases, the** Kalakosha **investigates the intellectual traditions in their dimensions of multi-layers and multi-disciplines. As a research and publication division it endeavours to place the arts within the integral framework of a cultural system, combining the textual with the oral, the visual with the aural, and theory with practice**

Janpada Sampada

- **Janpada Sampada complements the programmes of Kala Kosha, and aims at understanding the Arts in their eco-cultural and socio-economic contexts. Its emphasis is on the oral tradition that orients the literature tradition in reality. Here theory and practice, textural and oral, verbal, visual and kinetic are seen as a semiotic whole, not as items to be aggregated.**

Kala Darshan

- **The Kala Darshan division of the IGNCA compliments Janapada Sampada and provides the venue and forum for facilitating a creative dialogue amongst cultures, disciplines, levels of society and diverse arts. Through its programmes it has established a unique style of projection and presentation of the arts.**

Sutradhar

- **The Sutradhar serve as the administrative, Managerial and organisational support and makes available services through appropriate inter-linkage amongst the various other component Divisions of the IGNCA. This Division serves as a nodal administrative Division and a central co-ordinator of programmes.**

National Mission for Manuscripts

A Mission to reclaim the invaluable heritage of India preserved in manuscripts

राष्ट्रीय पाण्डुलिपि मिशन
॥ विज्ञानमूलम् ॥
National Mission for Manuscripts

Newsletter

Your Name

Your mail ID

Subscribe

Unsubscribe

Submit

Background

Background: Why a Mission for Manuscripts?

India is the repository of an astounding wealth of ancient knowledge belonging to different periods of history, going back to thousands of years. Most of this knowledge belonging to different areas of intellectual activity such as religion, philosophy, systems of science, arts and literature is preserved in the form of manuscripts. Composed in different Indian languages and scripts, they are preserved in materials such as birch bark, palm leaf, cloth, wood, stone and paper.

India has the largest collection of manuscripts in the world. They are spread all over the country and also abroad in different libraries, academic institutions, museums, temples and monasteries and in private collections. The rich manuscript wealth of India today faces a threat of survival. However, India has possibly lost a vast amount of this wealth. Sufficient information on them is not available today. Among the existing collection, most of them are in a state of decay and damage. Among the extant collection, only a very small portion has been surveyed and documented properly. Experts fear that almost all the palm leaf manuscripts will perish in the near future due to decay, and wear and tear. The invaluable heritage of India in the form of manuscripts has to be documented, preserved and made accessible to us and to succeeding generations.

Digitization of Manuscripts in India

NMM

- Launched in 2003 for 5 years
- 32 MRCs
- 30 MCC
- 20 Lacs Manuscripts catalogued
- www.namami.org
- W.e.f April 2007 functioning as a department of IGNCA

Cultural Informatics Lab

- **The Cultural Informatics Laboratory (CIL) is engaged in Interactive-multimedia-documentation and in-depth analysis of cultural information. This demonstrate how cultural heritage can be recreated virtually, in holistic and integrated perception of culture.**

Part-II

Indian Cultural Heritage Collections at IGNCA

Branches of Kala Nidhi

- Reference Library
- Cultural Archive
- Reprography Unit
- Slide Unit
- Media Production Unit
- Photography Unit
- Conservation Unit

Reference Library

- **The reference library of IGNCA has a collection 1.5 Lacs Books and subscribing over 250 Journals in the broad areas of humanities and the arts such as archaeology, philosophy, religion and ritual studies, history and anthropology, art and literatures as well as folk, pastoral and community studies. The library is enriched by many collections of 1700 Rare Books and 9 personal collections of illustrious scholars who have made path-breaking contributions in the fields of arts.**

Rare Book Collection

Indira Gandhi National Centre for the Arts

http://www.ignca.nic.in/

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Indira Gandhi National Centre for the Arts

Stop Audio

The library concentrates on encyclopaedias, dictionaries, bibliographies, atlases and catalogues of unpublished manuscripts of Indian and Asian origin. Its holdings and expertize are complemented by those of the other divisions of the Centre

- Rare Books
- Personal Collection
- Area Collection
- Series & Catalogue
- Journals

Rare Books

Descriptive Catalogue of the Illustrated Rare Books in the IGNCA

Acquisition of rare books is a special feature of the Library. It has acquired books published in 18th and 19th centuries such as: The Travels of Sir John Charlin (1688); The Ceremonies and Religious Customs of various Nations of the known world together with historical annotations/Bernard Picard (1733-37); The works of Sir William Jones,(1759-1801); Considerations of Indian Affairs/William Botts.(1772); Journal of a route to Nagpore (1790); Narrative of the Compaign in India/Dirom (1793); Oriental Repertory (1793-94);A Journey from Bengal to England through the northern part of India Kashmire, Afghanistan/George Forester (1797);Oriental Memories/James Forbes (1831); A Sketch of the History of the East India Company from its first formation to the passing/Robert Grant, (1813); Letters Written in a Mahratta Camp/Thomas Duer Broughton (1815); Views in the Himalayan Mountains /James Baille Fraser (1820); The History of Jawa/T.S. Raffles (1817); An Account of the fishes found in river Ganges/Francis hamilton (1822); Historical Fragments of the Moghul Empire of the Mora-Hoes and of the English Concerns in Hindustan from the year/Robert Orme (1825); The History of British India/James Mills(1826);

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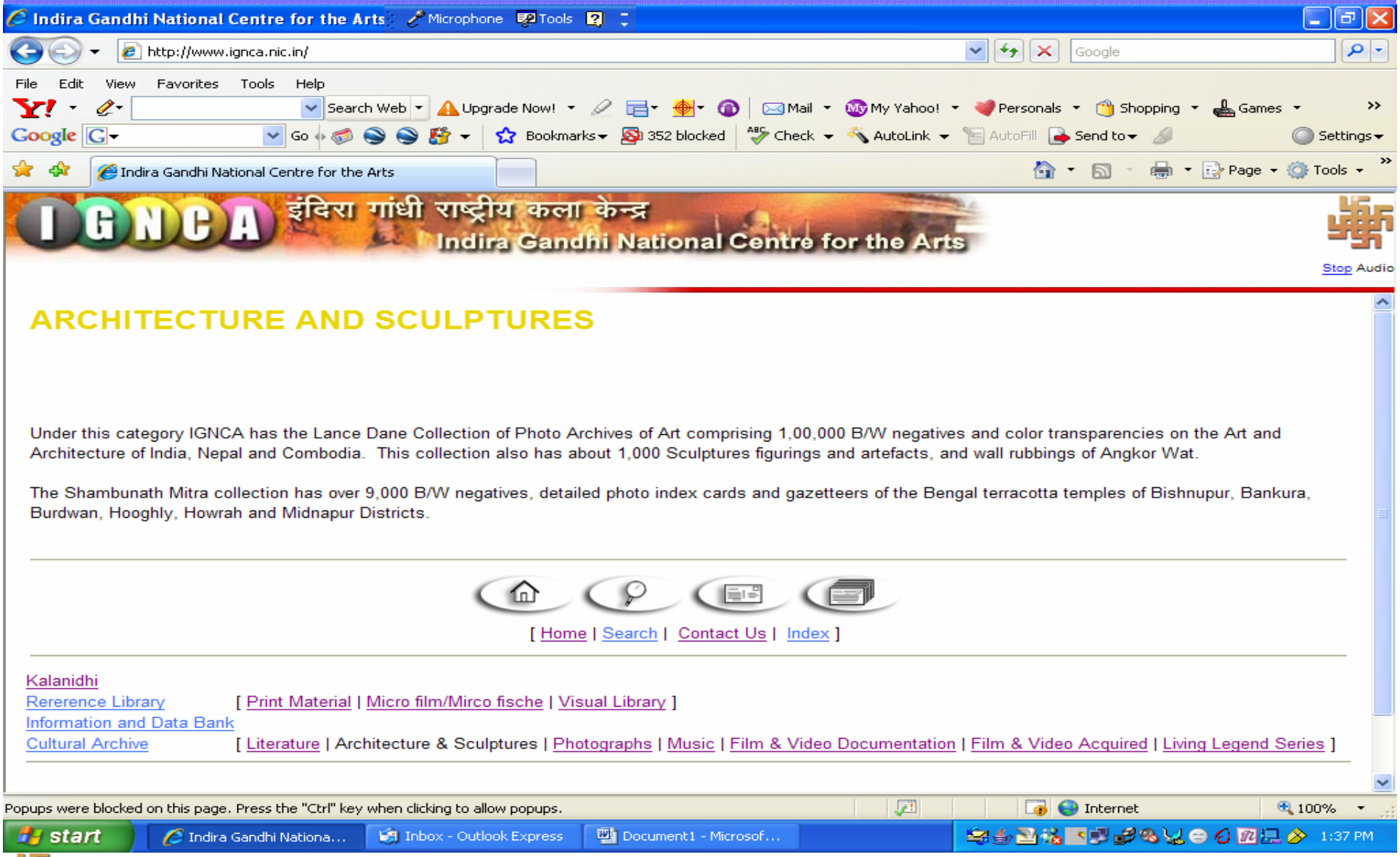
Cultural Archives

- **Material relating to different genres in the original and in the other forms of copies is collected, classified and catalogued in the** Cultural Archives**. The archives are enriched by personal collection, ethnographic collections documentation and cultural exchange. Many scholars, artists and art enthusiasts, over the last decades, have carefully and dedicatedly collected materials of their interest ranging from literature and personal histories, recitation, painting, music to folklore and tribal arts. Some of these rare collections of ethnography and audio/visual documentation of old masters and rare art forms have been acquired by the archives.**
  - **Slides**
  - **Masks**
  - **Artifacts**
  - **Audio cassettes**
  - **Video cassettes**
  - **Spool Tapes (Music Records)**
  - **Paintings**
  - **Photographs**
  - **Costumes & Jewellery**
  - **Sculpture**

CULTURAL ARCHIVES

- **SAHITYA (Literature)**
  R.C. Rangra, Voice of Tagores,
  Akhilesh Mittal, Firaq Gorakhpuri Collection
- **VASTU/SILPA (Visual Arts)**
  Lance Dane, Shambhu Mitra, Benoy Behal Collection
- **CHAYA PATA (Photographs)**
  Raja Lala Deen Dayal, Henri Cariter-Bresson, Sunil Janah,David Ulrich, Shambhu Saha, S.G.Tewari and D.R.D. Wadia Collection
- **SANGITA (Music)**
  S. Natarajan,V.A.K. Ranga Rao,S. Venketesan & Prabhakar Datar Collection
- **NRTYA (Dance)**
  Mohan Khokar Dance Collection
- **NATYA (Theatre)**
  K. T. Deshmukh, Bibhutibhusan Mukhopadhyay

Archival Material: Sculptures



Archival Material: Photos

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PHOTOGRAPHS

In this section, several prestigious collections have been acquired. The most notable of these are the glass-plate negatives and original prints of Raja Deen Dayal, the Grandmaster of Indian Photography. Another prestigious collection is that of Henri Cartier Bresson's photographs of India comprising candid shots of the Indian freedom struggle. D. R. D. Wadia collection and photographs of the noted Photo-historian Sunil Janah, known for his rural life and freedom struggle pictures.

Raja Lala Deen Dayal Collection

Detail of Exhibition

Raja Lala Deen Dayal was the premiere pioneer in Indian photography. He was a great artist and a technician, and hence his legacy of negative plates and original prints are of great importance to the world of photography. His Collection comprises over 2700 glass plate negatives, 200 original prints and other material such as exhibition prints, registers and photographic equipment.

Henri Cariter-Bresson Collection

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Archival Material: Music

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MUSIC

The collection is a rare compilation of reprographs on the musical instruments of India including research notes made over a period of 40 years. The Centre has also acquired Ranganayaki Ayyangar's collection of V.A.K. Ranga Rao's, Natarajan's Carnatic music.

Shri S. Krishnaswami Collection

This Collection is a rare compilation of reprographs on the music instruments of India consisting of over 550 photographs, 1300 black-and-white negatives, 780 slides and 60 sketches. The material illustrates not only the musical instruments that are played in the classical, folk and tribal genres of music in present times, but also archaeological representations in sculptures, of musical instruments of the past. The Collection, compiled over a period of forty years also comprises research notes of Shri Krishnaswami and about 30 hours of music on audio tapes.

V. A. K. Ranga Rao Collection

The 78 rpm music discs of India present rare artistes of the early part of the century, both in the classical and popular music genres. Shri Ranga Rao has in his Collection 25,000 music discs, the earliest of which was released in 1903. The records cover not only the genres of classical music, but also those of drama sets, stage music, non-film light music and film music in all the languages of India.

Shri S. Natarajan Collection

Shri Natarajan has recorded over 740 Carnatic Music concerts from 1955 onwards. The Collection of over 2000 hours of music represents the live performances of every major Carnatic music artists from the early part of the century upto the present times.

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Archival material: Videos

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LIVING LEGEND SERIES

An essential component of the preservation of cultural heritage entails documentation of traditional art forms of legendry cultural figures. IGNCA has initiated several projects for documentation of life-sketches, performances and teaching techniques of eminent artists. Among the documentations completed are those of

Smt. Manikyamma Saride's Adhyatma Ramayana,
Sangita Kala Nidhi T. Brinda,
Smt. Kalamandalam kalyanikuttyamma's Mohiniattam,
Guru Ammanur Madhavachakyar's Kudiyattam,
late Shanta Bardhan's Classic choreography on the Ramayana performed by Ranga Sri in LBT, and
Old Gurus of Natasankirtana of Manipur.

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Kalanidhi

Reprography Unit

- **A unique feature of the Reprography unit of the Kalanidhi is the reprographic compilation of unpublished manuscripts in Indian and foreign collections from private and public libraries. A pioneering attempt has been made to bring under one roof primary sources of the Indian tradition lying scattered, fragmented, inaccessible or worse, in danger of extinction. At present the library contains more than ten millions folios of unpublished Sanskrit, Pali, Persian and Arabic manuscripts. Total 20,000 microfilm rolls (approx.) containing 2.5 lacs mss. have been generated so far.**

Microfilm Infrastructure

- **In-house**
  - **Readers -12**
  - **Processors-3**
  - **Camera-2**
  - **Microfilm Scanner-1**
  - **Other Equipments-20**
- **Outsourcing**
  - **A Panel of Four Agencies**

Reprography Unit

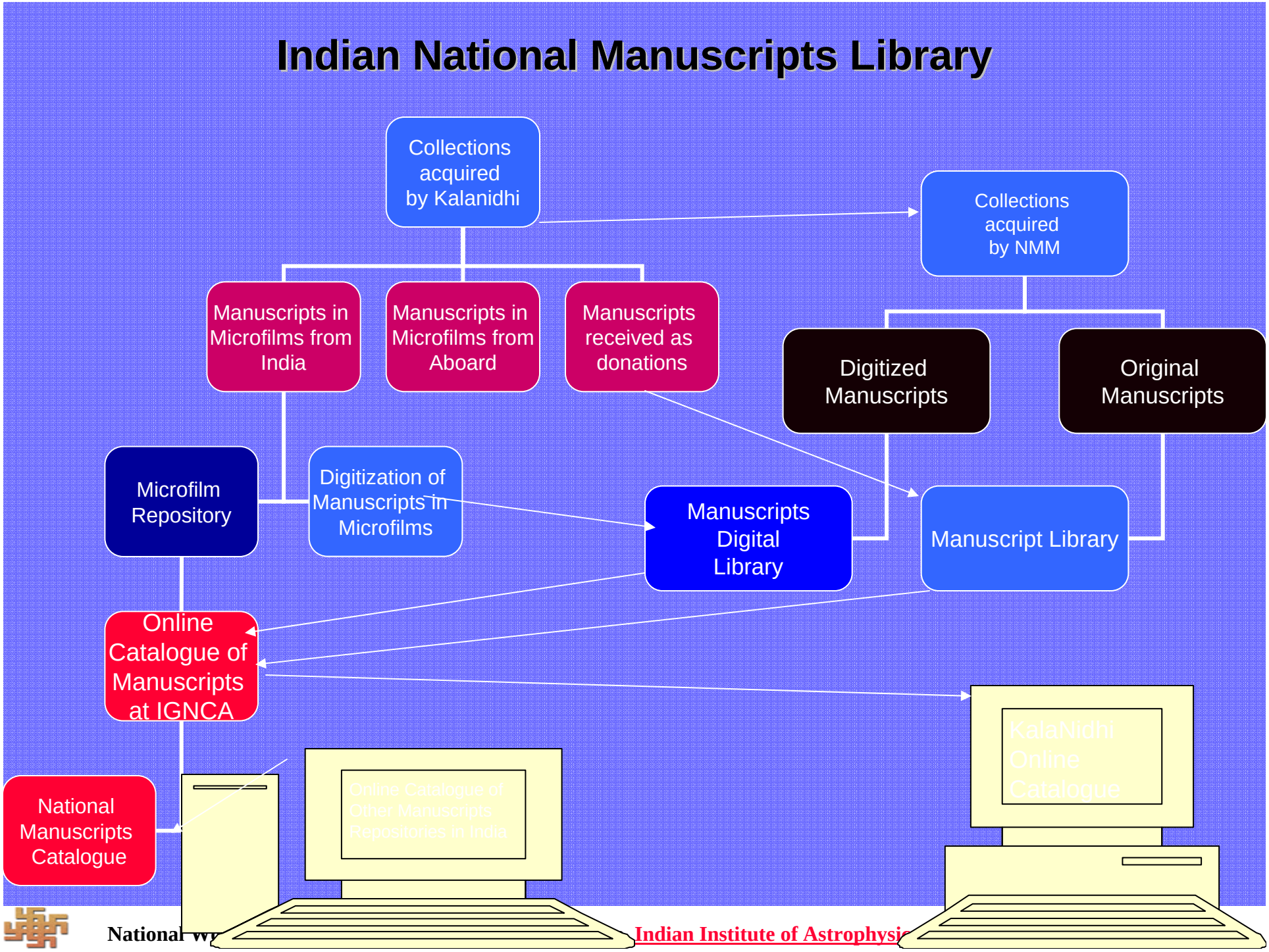
Summary of Total Collection	Mss. Filmed	Folios Covered	Total Collection	Dupli-cated	Digi-tized
Total Collection from East Region of India →	970	237275	373	373	373
Total Collection from West Region of India →	44417	2728489	4436	3937	4180
Total Collection from North Region of India →	117223	4329942	6658	2642	5246
Total Collection from North-East Region of India →	2589	142428	220	202	215
Total Collection from South Region of India →	83068	5085567	8115	4095	1911
Total Collection from Central Region of India →	4190	227356	350	350	350
Total	252457	12751057	20152	11599	12275

Mss. Filmed	Folios Covered	No. of Rolls	Duplicate Rolls	Digitized Rolls
2,50,295	12634237	20,152	11,599	12,275

Direct Digitization of Manuscripts under NMM Project

- **Digitization of Ganjuur and Danjuur manuscripts at the National Library of Mongolia**
- **Digitization of manuscripts at the National Museum, New Delhi**
- **Digitization of manuscripts at the Oriental Research Library, Srinagar**
- **500 Manuscripts each of 32 MCRC under NMM**

Indian National Manuscripts Library



Slide Unit

- **slides (View Digital Images) are collected from the institutions like ACSAA, British Library, Victoria and Albert Museum etc. Slides over 100000 have been digitized**
- **Slides – 100,000**
- **Photographs – 2,000**

Digital Visual Images

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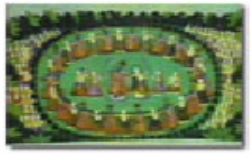
VISUAL LIBRARY

View Digital Images



Total No. of Images available with IGNCA :

A photograph-and-slide collection is being developed. Slide collections of over one lakh art objects and illustrated miniatures in Indian and foreign collections have been compiled and documented. These include slide collections from the victoria and Albert Museum, Chester Beatty Collection through courtesy of Indian National Trust for Art and Culture Heritage (INTACH), American Committee for South Asian Art (ACSAA), British Museum, and Oriental and India Office Collection, British Library.

Catalogue

- Slides with Kalanidhi - A
- Catalogue of Cultural Archive (Kalanidhi - C)
- Digital Images with Cultural Informatics Laboratory

Kalanidhi - A

Total No. of Slides available with Kalanidhi - A : 74547

S.NO.	SLIDES	NO.S	CONTENTS
1	Raja Library, Rampur, U.P.	2483	Mughal and Persian paintings and Illustrated Manuscripts
2	Gita Govinda View Digital Images of Gita Govinda	2090	Gita Govinda

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Media Production Unit

- **Audio cassettes-870 hrs**
- **Beta Cam- 1190 hrs**
- **DV Cam- 30 hrs**
- **Mini DV- 200 hrs**
- **VHS- 300 hrs**

➢ **Data Entered in Microsoft Excel**

➢ **Audio – 510 Titles**
➢ **Videos – 1304 Titles**

Welcome to ABIA.net - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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Address http://www.abia.net Go Links

South and Southeast Asian Art and Archaeology Index

ABIA

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sponsors

IIAS KNAW-GONDA PGIAR IGNCA UNESCO

Search the ABIA database at IIAS

Search the ABIA database at PGIAR

The ABIA Project

The ABIA project is a global network of scholars co-operating on an annotated bibliographic database for publishers covering South and Southeast Asian art and archaeology. The project was launched in 1997 at the initiative of the International Institute for Asian Studies in Leiden, the Netherlands, in colloaboration with international scholars and Asian academic institutes. The project receives scientific support from UNESCO.

The database *ABIA South and Southeast Asian Art and Archaeology Index* is fully searchable and is freely accessible. Extracts from the database are also available in the form of printed bibliographies.

ABIA Index

- Databases
- Image galleries

Publications

- Articles
- Books

Random image

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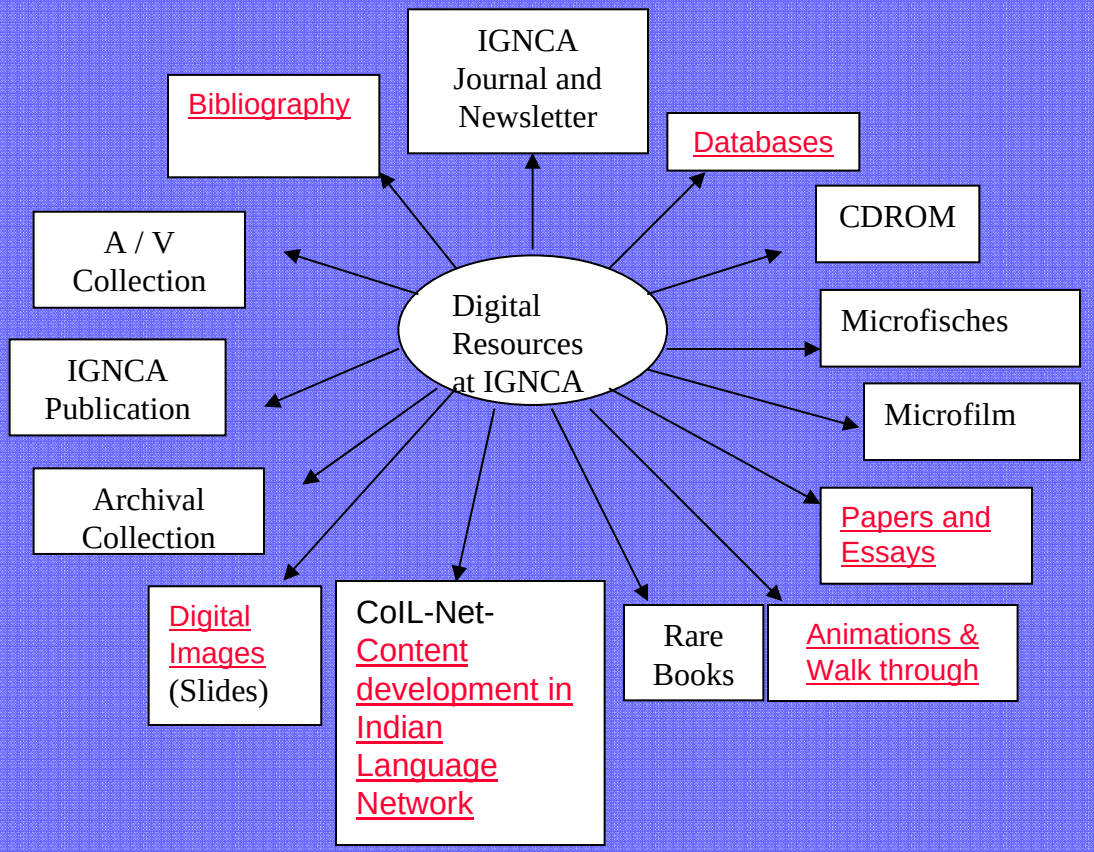
Part-III

Digitization of Indian Cultural Heritage at IGNCA

Digitization at IGNCA

- **The digitization of materials, post digitization editing, high capacity storage & backup system, designing and development of effective retrieval system etc. Technology used for this development is based on Open standards using Unicode, a multilingual standards for fonts, accepted worldwide with open type fonts. Search is available both in English and Hindi (Devanagari). User have the option to select the material of his interest either from a specific type of collection like books, manuscripts, slides, audio, video etc or from the entire collections**

Type of Resources Digitized at IGNCA



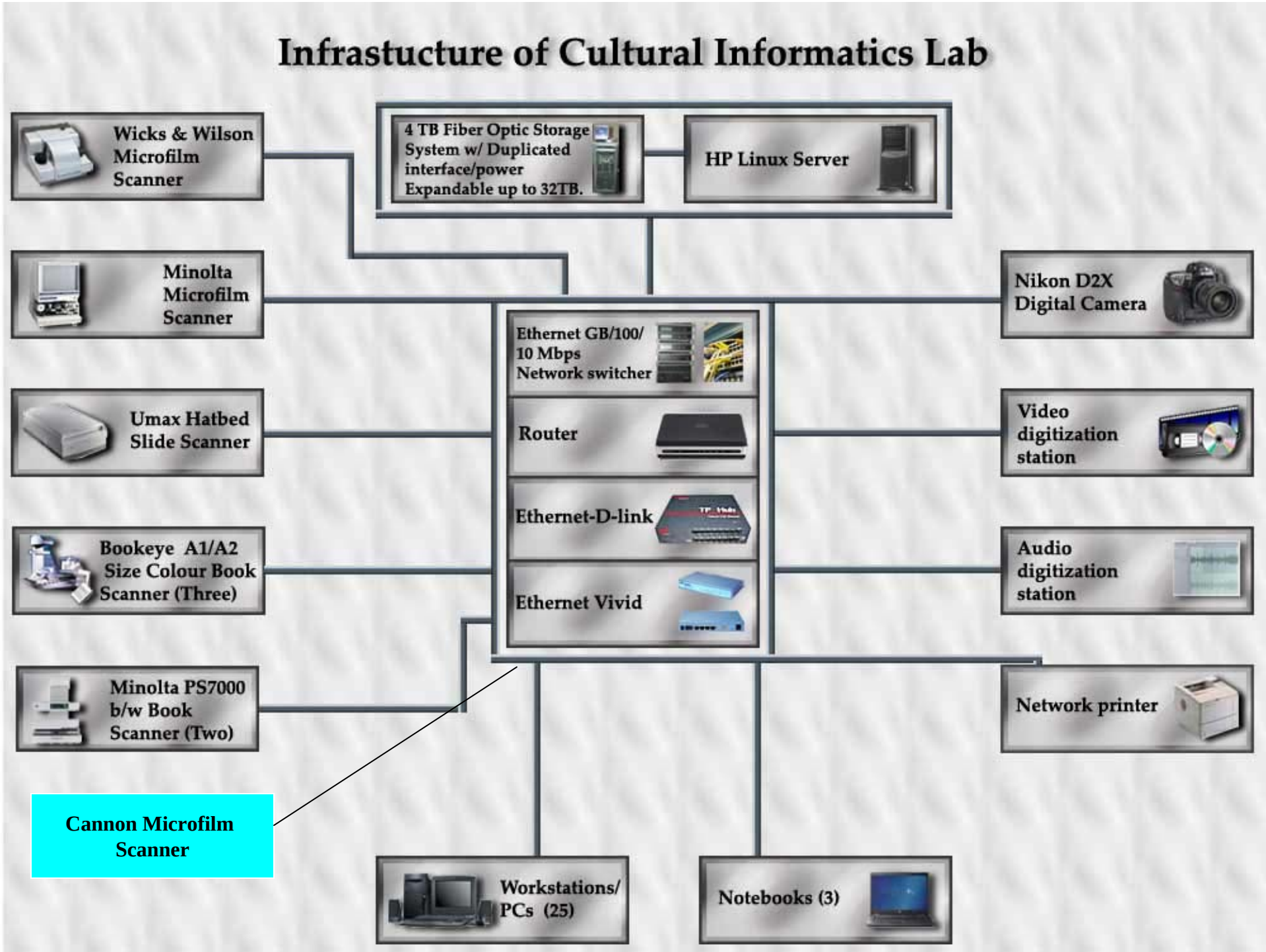
List of Digitized Material

- 13000 Microfilm Rolls containing about 200000 manuscripts
- 1800000 pages of Manuscripts under NMM Project
- 100000 slides
- 3000 paintings
- 5000 photographs
- 1700 rare books (in the process)
- About 150000 manuscripts of 32 MCRCs under NMM is under process
- Some Audio / Video
- Digitization of collections of Some museums have also been undertaken

Digitization Process

- **In-house**
- **Outsourcing**
- **Outside Projects**
- **Collaborations**

Infrastucture of Cultural Informatics Lab



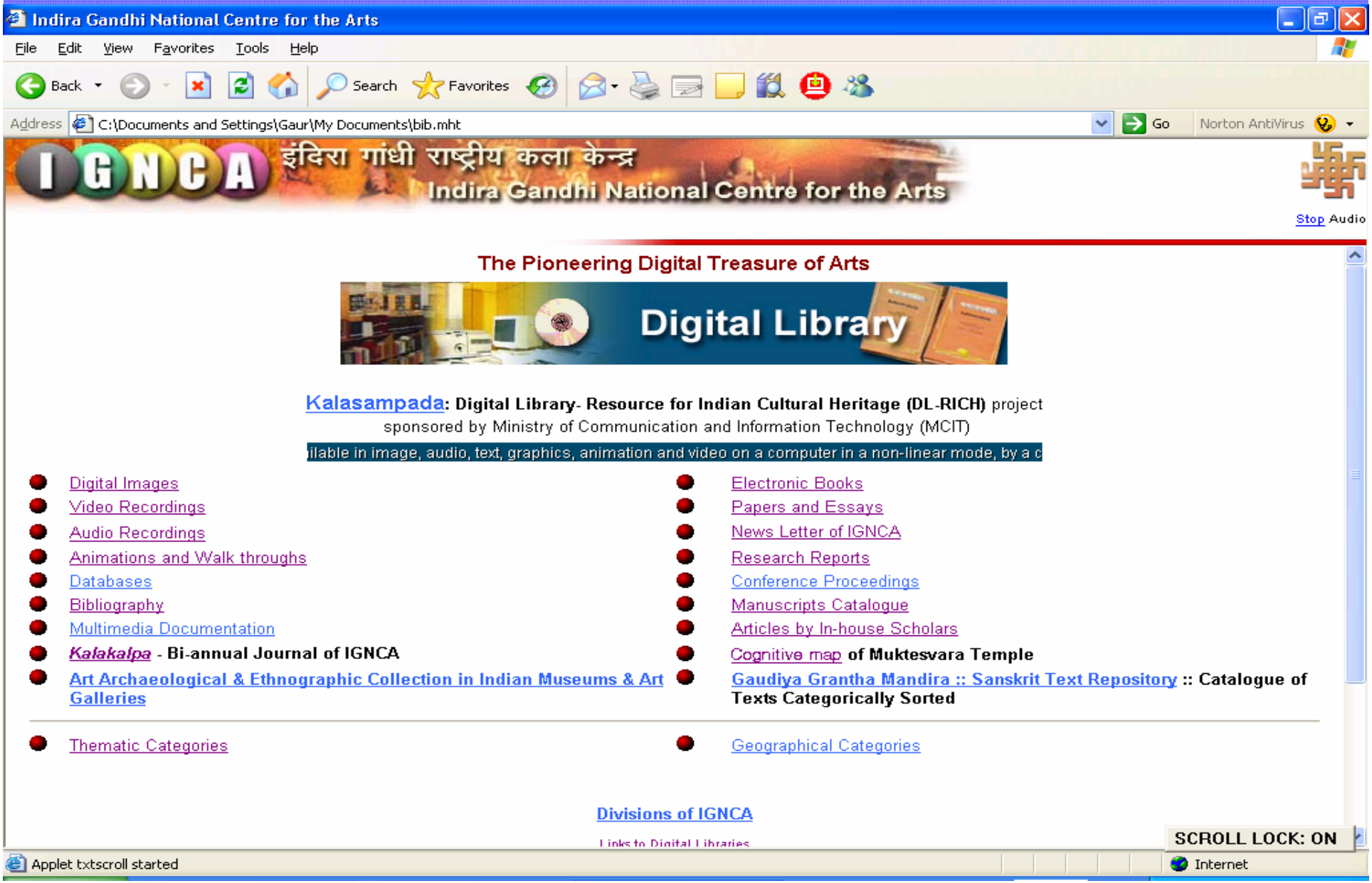
Digitization standards followed at the IGNCA for the digitization

- **Digitization standards followed at the IGNCA for the digitization are as per the UNESCO Guidelines published in 2002.**
  - **Slides :Photo CD format (five resolutions normally and six resolutions in specific cases)·**
  - **Microforms (Microfiche and Microfilms):300 dpi tiff·**
  - **Photographs:300 dpi tiff (600 / 1200 dpi in special cases)·**
  - **Books and printed materials:300 dpi tiff·**
  - **Audio:44 Khz .wav file format·**
  - **Video: MPEG 1/2**
  - **Tiff. Uncompressed Lower quality derivatives are used for the on line access of the materials.**

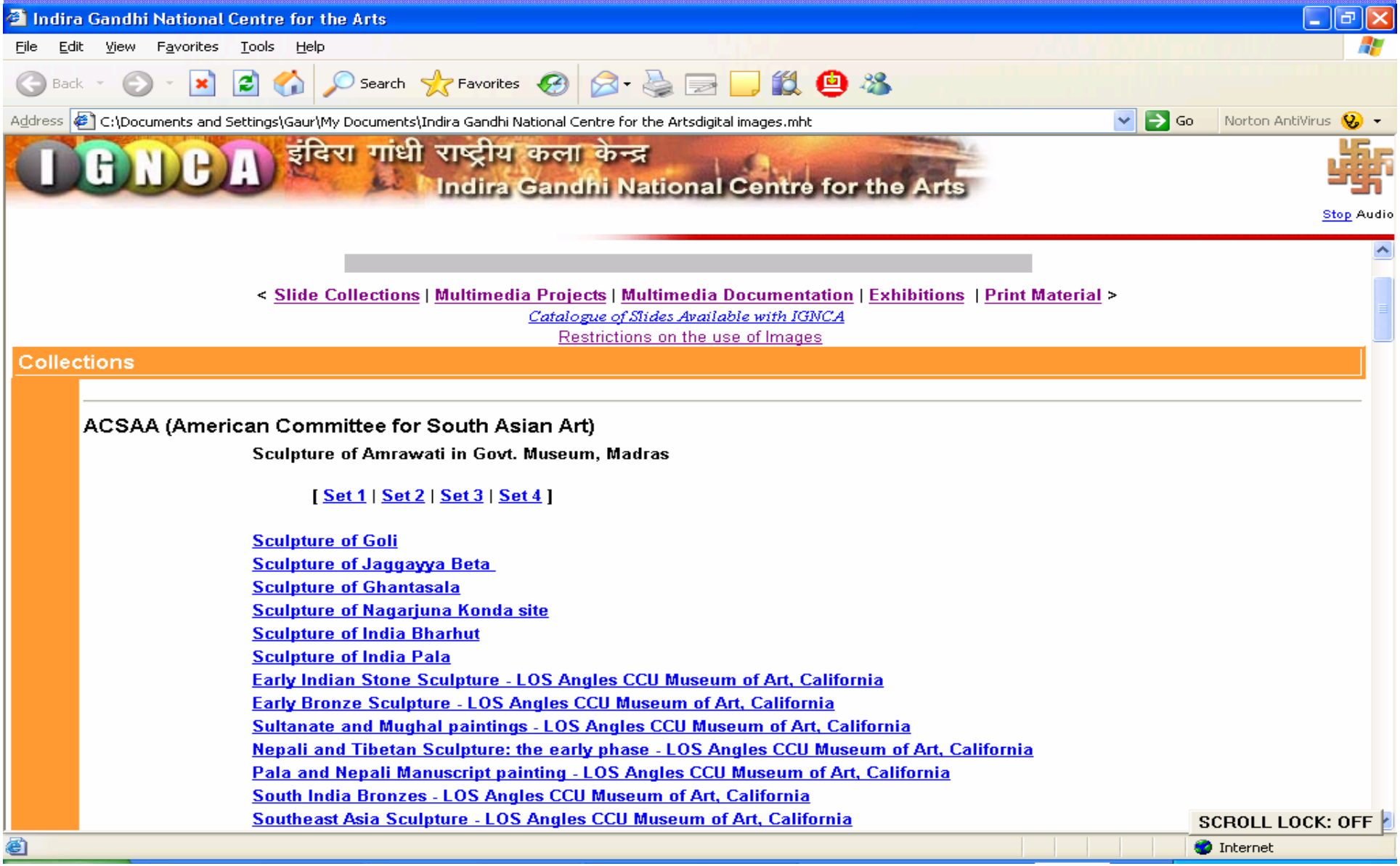
Digital Archiving

- **In-house efforts**
- **D-space**
- **Libsys**

Digital Resources at IGNCA Website



Digital Images



Audio Recordings

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Stop Audio

Audio Recordings

Indian Classical Music (Hindustani)

"Raag Jogwanti" Download **37:20 minute** audio in MP3 format - (2.13MB)
composed by Ustad Yunus Husain Khan Saheb **(Darpan) of Agra Gharana**

Muktesvara Temple CD-Rom : Devotional Music

Vocal

No. 1	03:26
No. 2	02:55
No. 3	02:30

Instrumental

No. 1	07:51
No. 2	04:32
No. 3	10:50
No. 4	05:40

Devnarayan (Forthcoming DVD-Rom)

- Bhunaji and Chochu Bhat Urdu ke Bazaar mein (17:22)
- Devnarayan's Birth (Janam Patri) (03:02)

SCROLL LOCK: ON

Applet txtscroll started

Internet

Video Recordings

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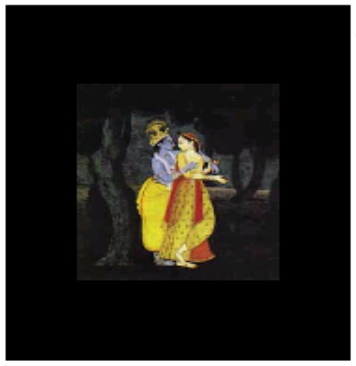
Stop Audio

VIDEO RECORDINGS

To stop and restart the default audio use stop and refresh button of the Browser

Restriction on the use of VIDEO

- **Gita Govinda** - 12th Century Sanskrit Poem on Radha and Krishna: Adopted in Painting, Music and Dance.
- **Brhadisvara Temple** - 11th Century Shiva Temple at Tanjore.
- **Kutiyattam** - Sanskrit Theatre from Kerala: Declared as among the Masterpieces of the oral and Intangible Heritage of Humanity by UNESCO.



Gita Govinda

1. Lalit Lavanga
2. HariRihMugdha
3. Dhire Sameere
4. Pashyati
5. Yahi Madhava
6. Kuru YaduNandan

- Video about **Gita Govinda** 09:33
  - Commentary (Text)
  - About Gita Govinda - **Text**

01 Lalit Lavanga

- Recitation of Poem Lalit Lavanga by Dr. Sampat Narayan

SCROLL LOCK: OFF

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Internet

IGNCA DVD ROMs On Indian Cultural Heritage

IGNCA CD ROMs

- **The CD-ROMs on *Devadasi Murai, Mukteswara Temple, Rock Art and Ajanta*: A world heritage site from the Maharashtra have been published by the IGNCA. The CD-ROMs on *Devanarayana* (an oral tradition from Rajasthan), *Two Pilgrims* (life and work of Hungarian painters Padmashree Elizabeth Brunner and Mrs. Sass Brunner), *Agnichayana, Vishwarupa, Brhadiswara Temple* and *Gitagovinda* are in the different stage of development.**

IGNCA CD on Ajanta

Indira Gandhi National Centre for the Arts

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AJANTA

The present CD-ROMs on Ajanta is an attempt to provide comprehensive knowledge and visual experience on Ajanta, a major heritage site of India, included in the UNESCO's list of World Heritage monument. The CD-ROM includes virtual walkthrough of all the caves, narratives of Jataka and related stories of Buddha, approximately 1 hour of Introductory video, approximately 1500 illustrated images, Articles from eminent authorities, Bibliography, Glossary, etc. Using the benefits of Digital Technology search facility has been incorporated to select the material available in CD irrespective of their format. From view point of technology, the site poses challenges, as the caves are endangered due to ravages of time.

The identification of Jatakas and scenes from the life of the Buddha and other devotional and ornamental depictions are based on the identifications by Dieter Schlingloff and Monika Zin.

Download Brochure

IGNCA CD on Rock Art

Indira Gandhi National Centre for the Arts

http://www.ignca.nic.in/

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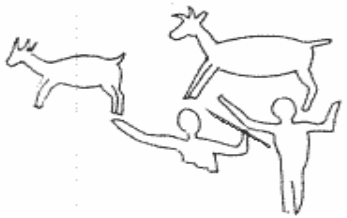
ROCK ART



- Image Collection

  view images By Description

- Publication Series

Man's first awareness of the world around came through his primeval sense of sight and ability to hear. These two senses have stimulated artistic expressions - visual and aural, in the pre-historic past as also contemporary cultures. The twin programmes of *Adi Drsya* (primeval sight) and *Adi Sravya* (primeval sound) have been initiated by the Centre to trace the long continuities in the Indian arts. Rock art forms the crucial programme of the *Adi Drsya* programme. It might in all probability be the oldest legacy of mankind.

Based on documentation, research and, to an extent, recreation of this ancient creative urge of man, this project will be a user friendly Computer Aided learning (CAL) application for children to access digital collection of slides, photographs and paintings with the help of quiz, slide show and modules on theme, dating, colour etc.

B.M. PANDE was in the Archaeological Survey of India for more than 36 years, from where he retired as Director. He has been associated with several major archaeological excavations in India. He directed the excavations at Thanesar, district Kurukshetra, Haryana, while he was the Director of the Institute of Archaeology. He is associated with

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IGNCA CD on Temple of Muktesvara

Indira Gandhi National Centre for the Arts

http://www.ignca.nic.in/

IGNCA इंदिरा गांधी राष्ट्रीय कला केन्द्र
Indira Gandhi National Centre for the Arts

Stop Audio

THE TEMPLE OF MUKTESVARA AT CAUÚADËNAPURA

See Also Brhadisvara Temple

- Image Collection
  - By Description
- Devotional Music

Preface from the Book published by IGNCA

Selective Content of the CD-ROM

Cognitive map

A Glimpse of Kar¸taka

- Configuration
- History
- Religion

The Temple of Mukt®¿vara

- Cau·ad¡napura
- History
- Architecture
- Decorative Motifs
- Iconography
- Epigraphy

IGNCA CD on Devadasi

Indira Gandhi National Centre for the Arts

http://www.ignca.nic.in/

Indira Gandhi National Centre for the Arts

IGNCA इंदिरा गांधी राष्ट्रीय कला केन्द्र Indira Gandhi National Centre for the Arts

Stop Audio

DEVADASI MURAI "Remembering Devadasis"

- Image Collection
- This Cd Offers
- Other Multimedia Projects

The term "Devadasi" refers to a female ritual specialist; good luck and well being are in her hands. Flickering lamps, cooling water, music and dance are her instruments. A formal ceremony solemnised her dedication to the God of the temple. In Tamil Nadu this millennia old tradition has seen great hey days.

This CD-ROM has been published in December 1997. This CD-ROM is part of IGNCA's endeavour to digitise the multidimensional performative rituals within the architectural space of Brhadisvara temple. The CD-ROM facilitates virtual experience of the spatial and temporal context of south Indian music and dance.

SASKIA KERSENBOOM, Ph.d. in Indology and Theatre Science (State University of Utrecht, Holland), is presently Associate Professor of Linguistics at Amsterdam, Holland. She has specialised in south Indian languages, literature and performing arts and has training in Indian classical dance, vocal and instrumental music. One of her major publications is *Nityasumangali, Devadasi Tradition in south India*.

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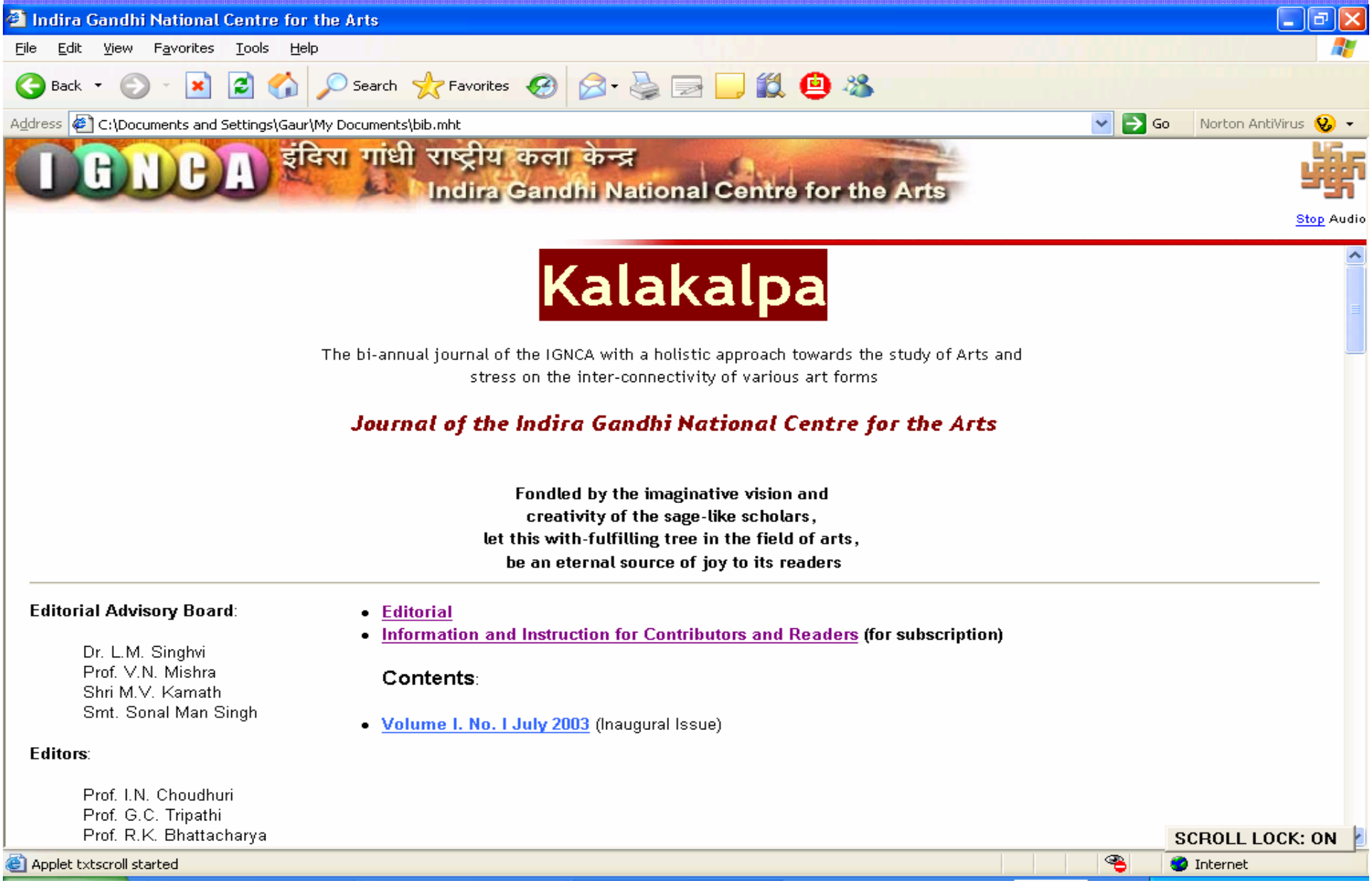
IGNCA's Publications

Kalakalpa-Journal of IGNCA



Vihangama- IGNCA's Newsletter

Indira Gandhi National Centre for the Arts

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IGNCA इंदिरा गांधी राष्ट्रीय कला केन्द्र Indira Gandhi National Centre for the Arts

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Vihangama

THE IGNCA NEWSLETTER

34  Vol. V & VI 2004

33  Vol. III & IV 2004

32  Vol. II (March - April 2004)

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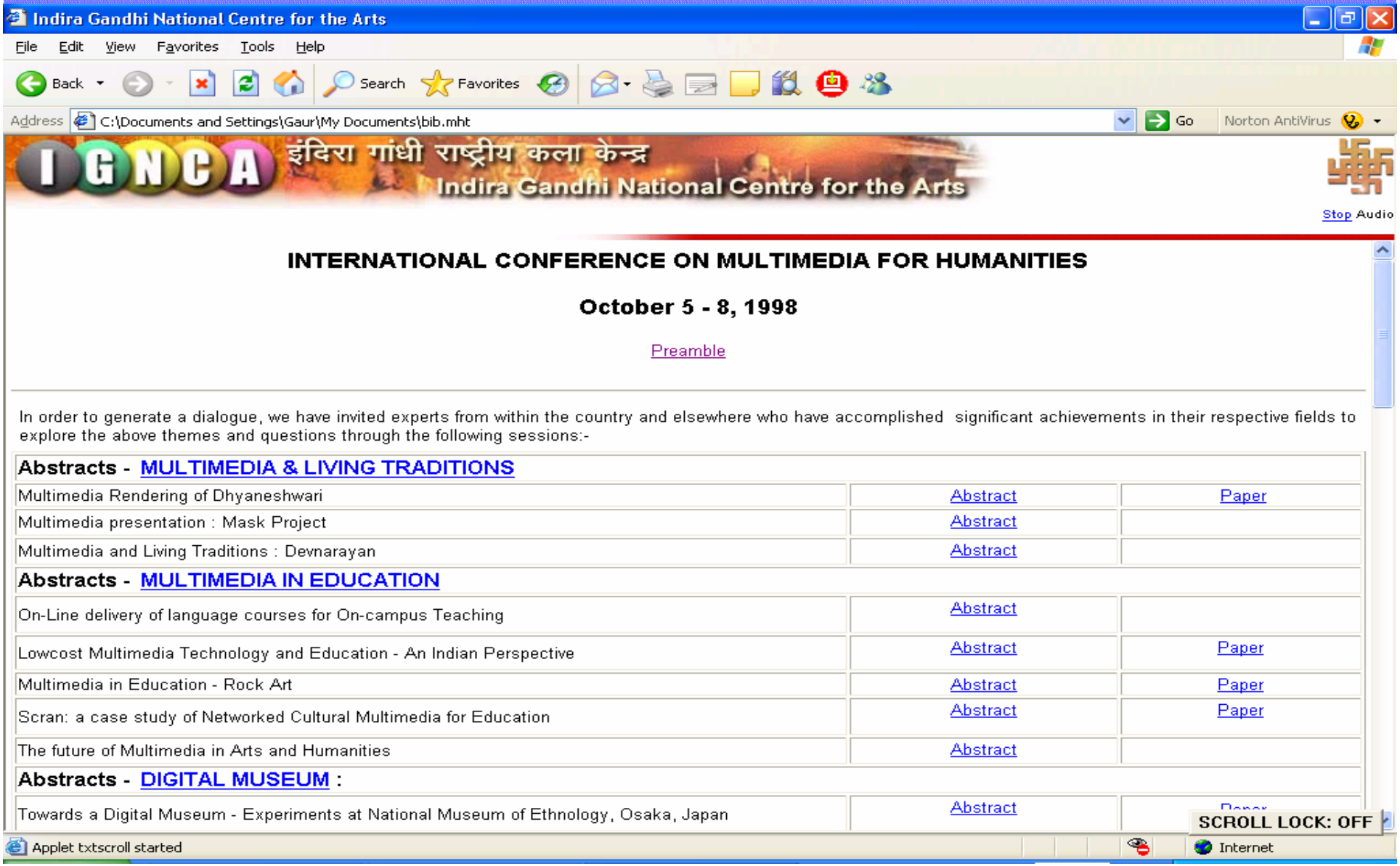
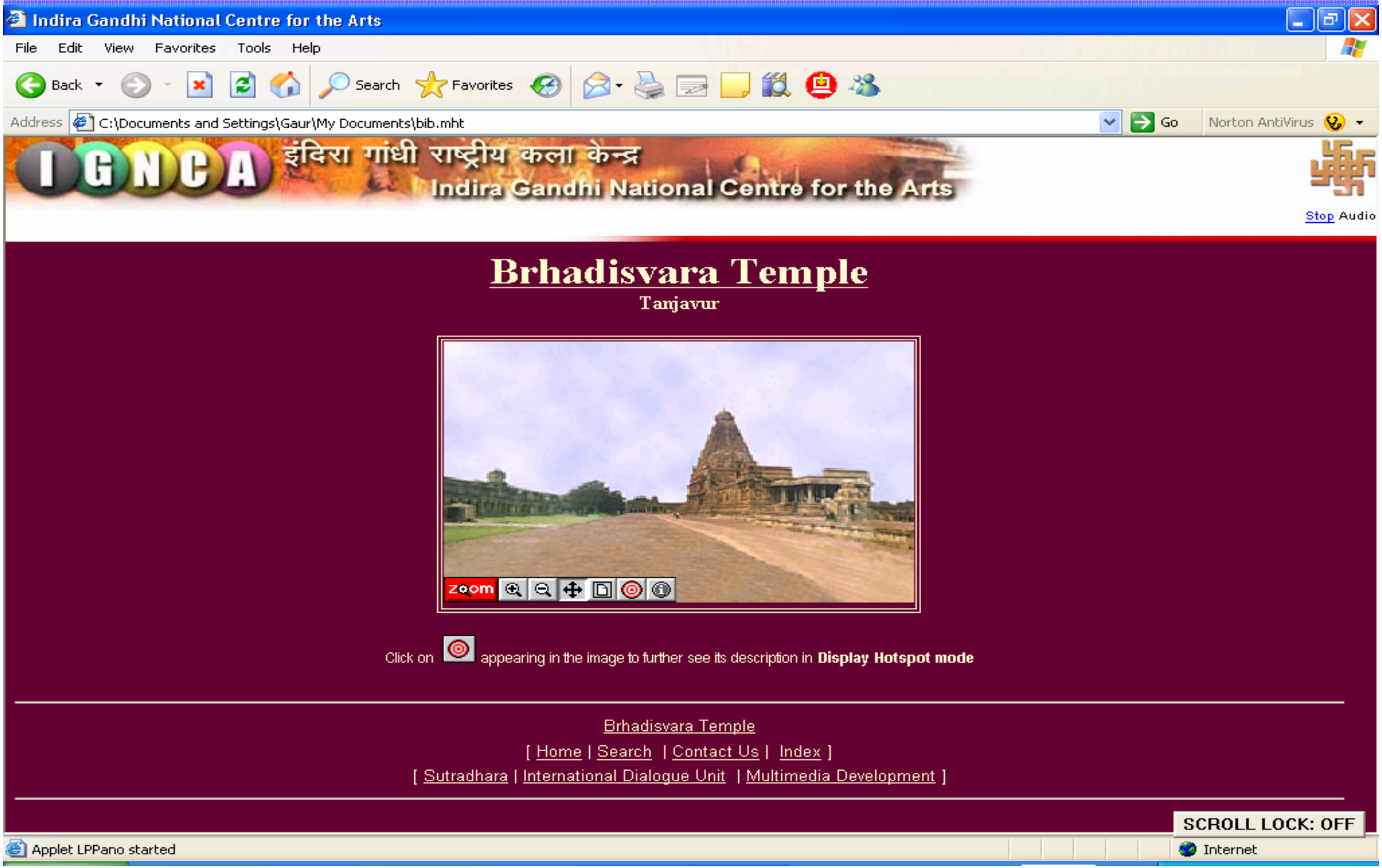
Conference Proceedings



Walkthrough



Cognitive Map

IGNCA - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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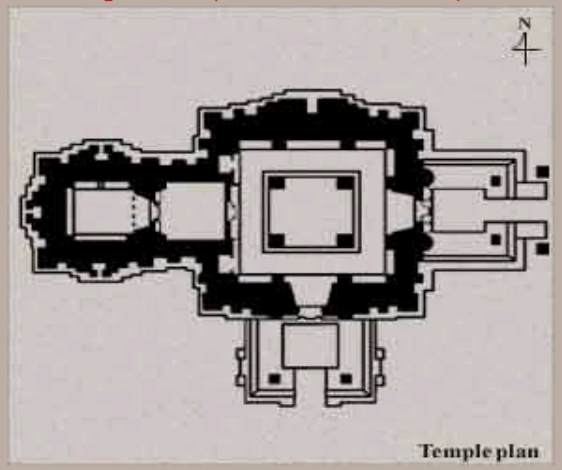
Address http://www.ignca.nic.in/asp/cog_map.asp?id1=0;T;0 Go Links

INDIRA GANDHI NATIONAL CENTRE FOR THE ARTS

Cognitive Map Of Muktēśvara Temple



Iconography

- Mukteśvara-Liṅga
- Sapta-Mātṛkās
- Sūrya
- Nandin
- Vīrabhadra/Śrīkaṇṭha
- Gaṇeśa
- Maheśvara
- Kubera (Yakṣa)
- Śivadeva
- Laguḍīśvara
- Sitting Maheśvara
- Dancing Goddess
- Kṛṣṇa
- Liṅga worship

Decorative Motifs

- Creeper
- Flower chain
- Haṃsa
- Lion
- Makara
- Doorjamb motifs

Architecture

- Kallinātha Shrine
- Shrine 3
- Shrine 4
- Shrine 6-9
- Mast
- Main monument
- Vimāna
- Upapīṭha
- Adhiṣṭhāna
- Wall
- Entablature and eave
- Superstructure
- Śikhara
- Antechamber
- Raṅgamaṇḍapa
- Porches
- Miniature structures
- Inscriptions

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Bibliography

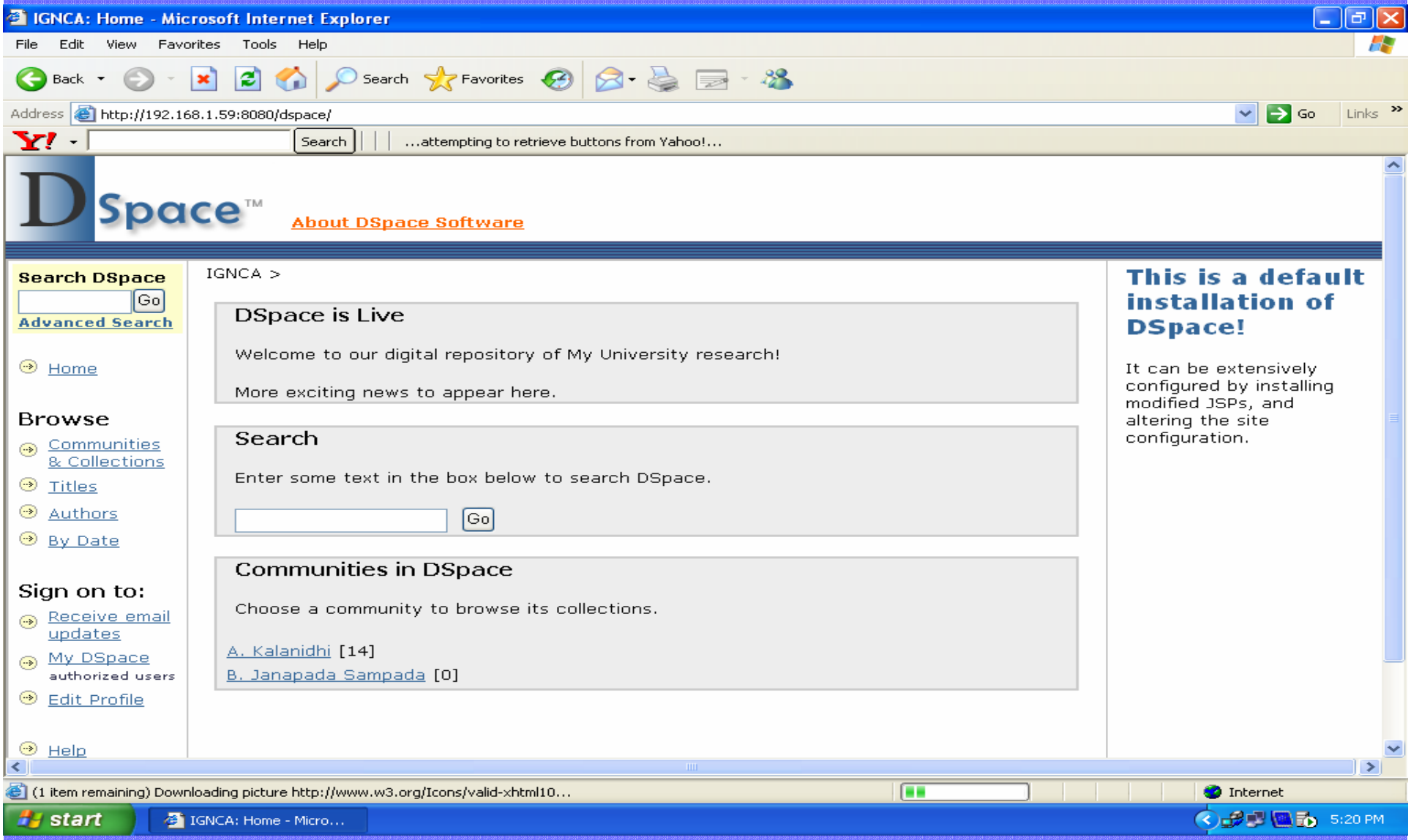
Kalasampada:Digital Library Resources of Indian Cultural Heritage (DL-RICH

- ***Recognizing the need to encompass and preserve the distributed fragments of Indian art and culture, and to serve as a major resource centre for the arts, the Indira Gandhi National Centre for the Arts (IGNCA) in collaboration with Ministry of Communication and Information Technology, initiated a project, KALASAMPDA (Digital Library: Resources of Indian Cultural Heritage) , for the development of databank of cultural heritage. Kalasampada facilitating the scholars (users) to access and view the materials including over couple of lakhs of manuscripts, over a lakhs of slides, thousands of rare books, rare photographs, audio and video along with highly researched publications of the IGNCA, from a single window. Multimedia computer technology has been used for the development of a software package that integrates variety of cultural information accessible at one place. This will provide a new dimension in the study of the Indian Art and Culture, in an integrated way, while giving due importance to each medium. The system aims at being a digital repository of content and information with a user-friendly interface.***

Installation of D-Space

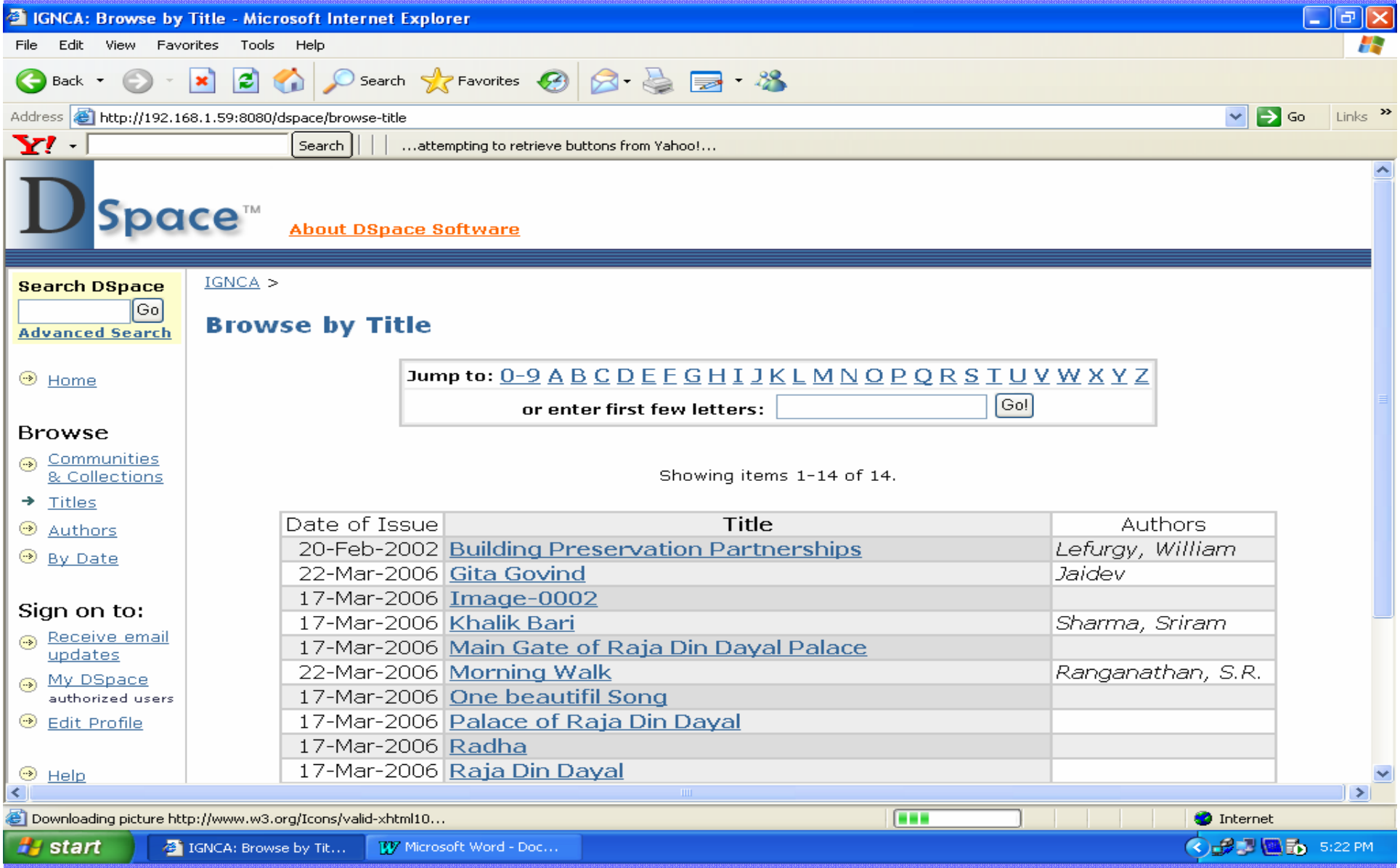
- **D-Space –Open source digital library software has been installed at Kalanidhi Reference Library. It is proposed to upload the entire digital collection of Kalanidhi in D-space**

Dspace at IGNCA...1

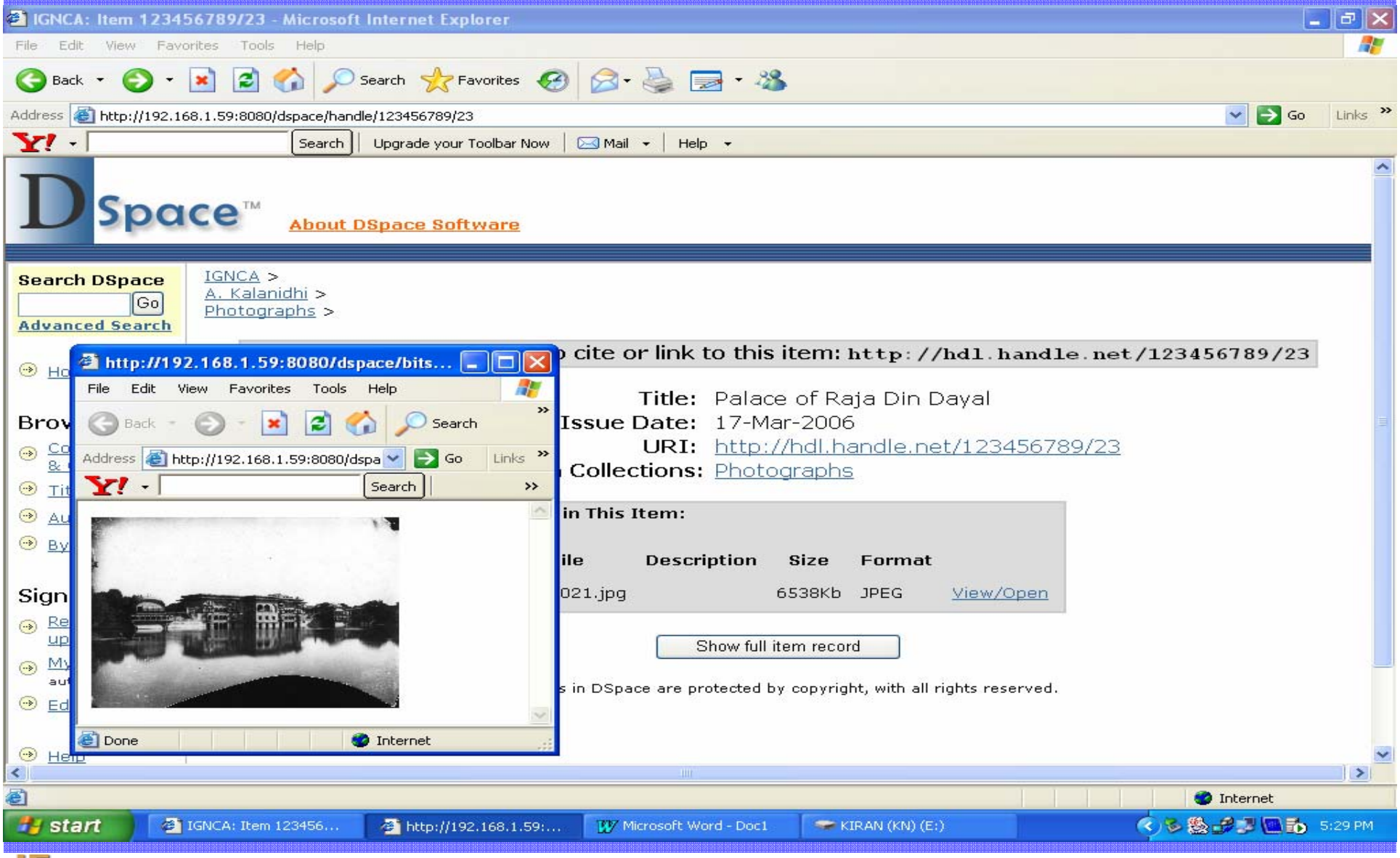


Dspace at IGNCA...2

Dspace at IGNCA...3



Dspace at IGNCA...4



Linking of Electronic Resources through LIBSYS OPAC

- **It is also proposed to link the digital images of all Kalanidhi Division collections to their respective catalogue entries. This is under testing.**

Metadata

- Books- MARC21
- Manuscripts- IGNCA Metadata containing about 30 fields
- Slides / Photographs- IGNCA Own data Sheet
- Audio- Video and other form of archival material- To be finalized

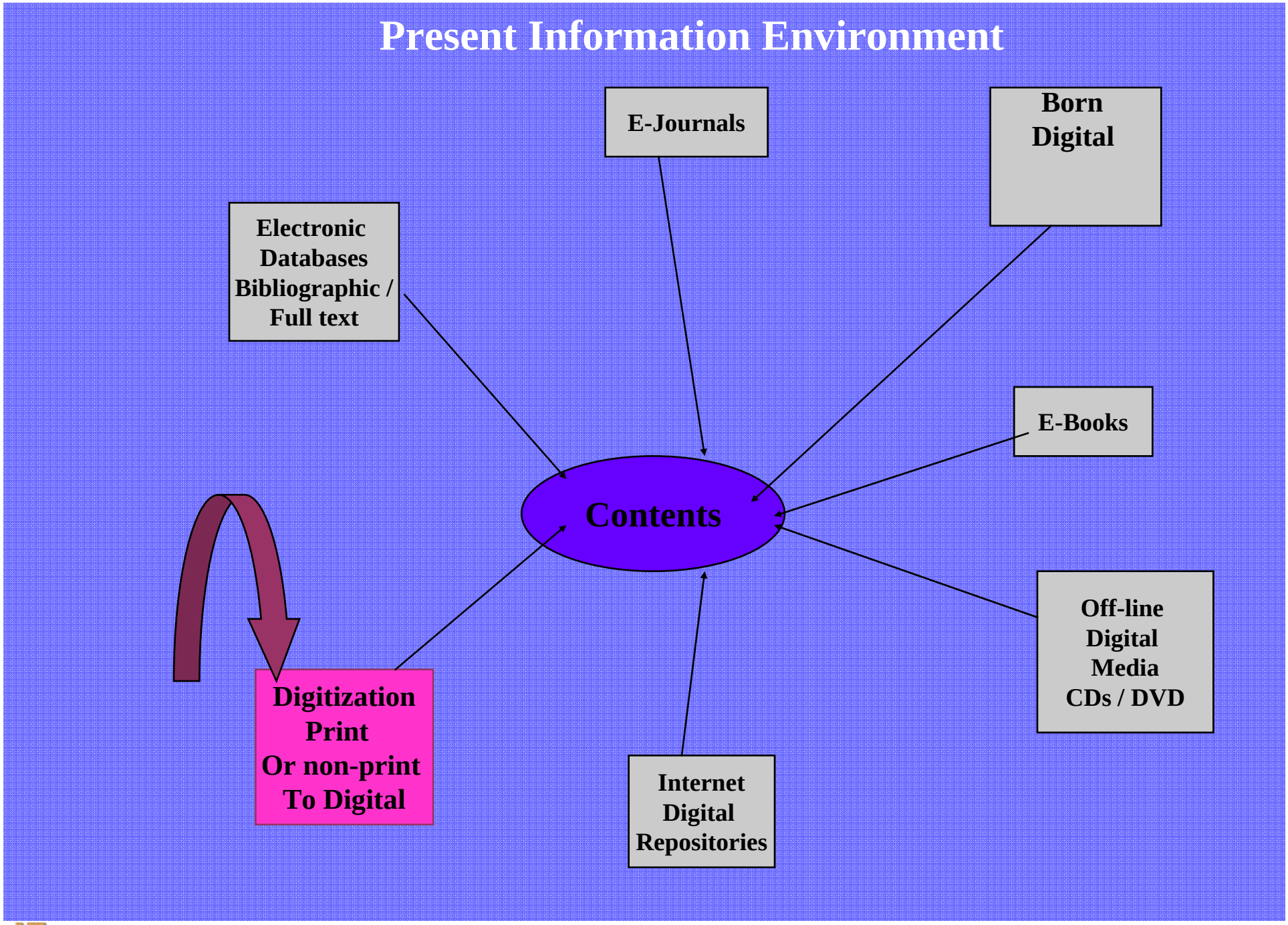
Digital Preservation at IGNCA

- CD /DVDs
- Mirror Server
- File Server
- Need to Draft a Digital Preservation Policy
- DP Policy for National Manuscript Digital Library

Part-IV

Digitization Process- some thoughts

Present Information Environment



Why to digitize?

- **Faster Access**
- **To Improve services**
- **Archiving**
- **To protect the originality of the object/ document etc-Reduce the handling and use of fragile or heavily used original material and create a ”back up” copy for endangered material such as brittle books or documents**
- **Resource Sharing**
- **Preservation**

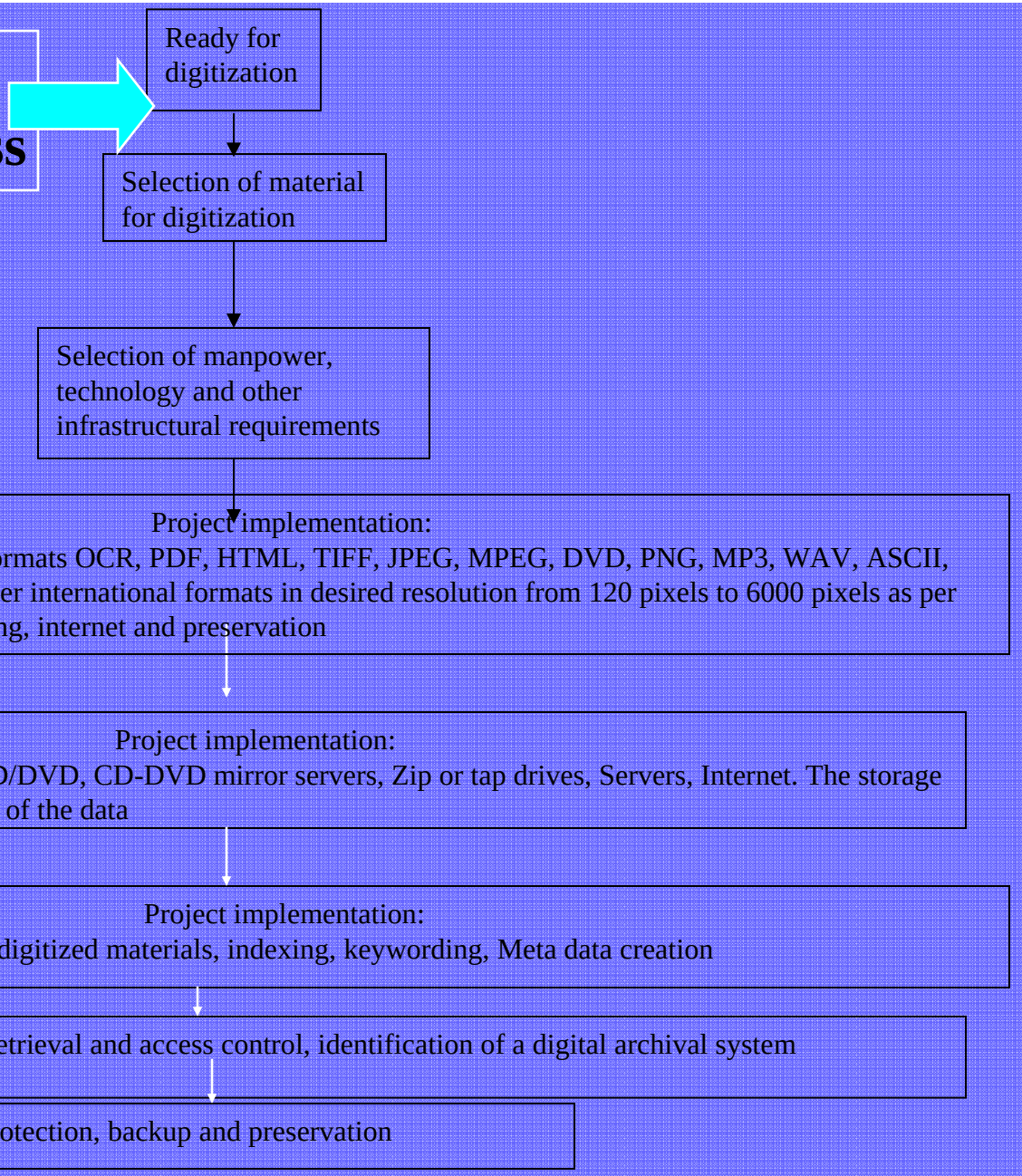
Digitization Process…1

- Purpose of Digitization
- Need for Digitization
- Materials to be Digitized
  - Selection
- Hardware requirements
- Software requirements
- Other technological requirements
- Conversion
  - Image quality and formats
  - Resolution
  - Compression

Digitization Process…2

- Quality Control
- Options for storage both short term and long term
- Collection Management
  - Organization of images
  - Naming of images
  - Description of Images
  - Use of metadata
  - Data Management
  - Document encoding
- Born Digital
- Legal Deposits
- Identification of Digital Archiving System
- Backup, Protection and Preservation

The Workflow for digitization process



UNESCO Guidelines

Other Guidelines for Digitization

- IFLA
- UNC
- List of Other Guidelines

Part-V

Digital Preservation

What is not “Digital Preservation”?

- **Digitization**
- **Copying**
- **Born digital collections**
- **Websites**
- **Online Resources provided by commercial publishers**
- **Digital Library Services**
- **Microform i.e. Microfilm, Microfiche, Audio Video etc.**
- **Library Automation**
- **E-commerce**

May be or may not “Digital Preservation”

- Digital Archiving
- Institutional Repositories
- Learning Management Systems
- E-learning
- E-Publishing
- Replication
- Mirroring
- Backup
- Digital Archeology

What is digital preservation?

- Generally speaking the digital preservation is about safeguarding and maintaining a digital collection for long term i.e. into the foreseeable and distant future
- The sustainability and accessibility the digital collection is the main objective of scheme of digital preservation
- The preservation of digital collection is must as without appropriate digital preservation method a digital collection may become useless
- The main goal of a digital preservation process is to keep digital information in readable and usable condition

Digital Archiving

- **The process of capturing, organization, preservation and dissemination of digital collections is known as digital archiving**

Backup vs. Digital Archiving vs. Digital Preservation

- Purpose
- Risk Management
- Storage Architecture
- Access
- Security
- Indexing
- Retention

Digital Preservation Methods

- **Digital Preservation-Contents**
  - **Refreshing**
  - **Migration**
  - **Emulation**
  - **Creation of interoperable archive**
  - **Persistent Digital Identifiers**
  - **Replication**
  - **Mirroring**
  - **Preservation Metadata**
- **Digital Preservation- Media**
  - Care and handling
  - Storage

Digital Preservation Policy and Strategy

- Resources- Manpower, Technology, Funding, Collaborative Partnerships
- Collections
  - Document types and formats
  - Digitization Strategies
- Requirements
  - Collection Development
  - Digital Archiving
  - Web Archiving
  - Content Management Systems / Data Asset management Systems
- Standards
- Copyright and other legal issues
- Training and work flow
- Preservation Metadata
- Preservation and metadata

Digital Preservation Challenges

- Technology
  - Hardware obsolescence
  - Software obsolescence
- Fragility
- Migration
- Physical deterioration
- User needs

Digital Preservation-Media

- Storage – Short and Long Term
- Preservation- both media and contents
- Storage- Media
  - Portable Media- CD/DVD, DAT and DLT Tapes, Zip and Jaz Drives etc
  - Non-portable Media- PC Hard Drives, Network Severs etc.
  - Labeling, Organization
  - Care and Handling
  - Storage- Climatic conditions

Storage- care and handling

- Media should be stored in the correct cases and or cabinets designed as per its storage requirements. It should not be left inside the machine.
- Media should be stored as per guidelines provided under various national and international standards for storage and exhibition of archival documents.
- Following preventive measures should be taken to ensure the safety of the media:
  - Drives should be regularly cleaned.
  - Media should be kept away from agents of fire and sources of magnetic fields etc.
  - Media should be regularly checked on periodic basis.
  - The data storage surface of the media should not be touched.
  - Labels should be fixed in the designated area on the media
- The media-specific guidelines should be followed in accordance with various national and international standards.

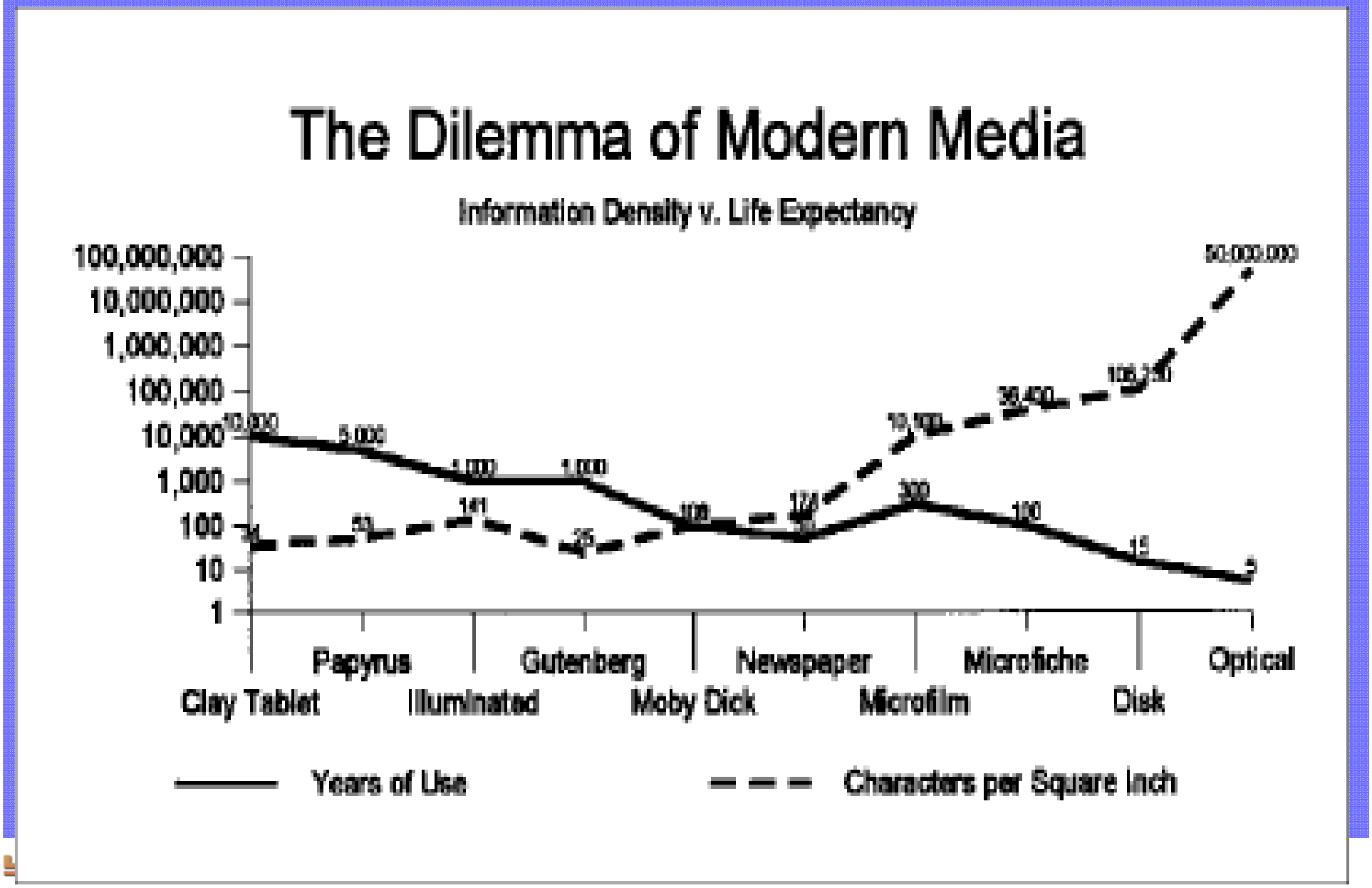
Storage- Climatic conditions

S.No.	Media	Short Term Preservation		Long Term Preservation	
		Temperature	RH	Temperature	RH
1	Flexible magnetic disks, CD, DVDs, Magnetic tapes, Solid state media etc	10-51^0 C	10-80%	18-22 ^{0}C	35-45%
2	Optical disks, Mixed collections, DAT, DLT tapes	16-32^0 C	20-80%	16-32 ^{0}C	35-60%

Principles of Preservation as Applied to Digital Preservation

- **The basic principles of preservation that are being practiced for preservation of analogue media are also applicable to preservation in the digital world:**
  - **Longitivity**
  - **Selection**
  - **Quality**
  - **Integrity**
  - **Access**

Information Density V/s Life Expectancy of Storage Media



Digital Preservation Strategies

- **Multiple strategy, however no single strategy is appropriate for all data types, situations, or institutions. These strategies are:**
- **Bit-stream Copying**
  - **Known as "backing up data"; making an exact duplicate of a digital object.**
  - **Remote storage guard against disastrous event.**
  - **Minimum maintenance strategy for even the most lightly valued, ephemeral data.**
  - **Not a long-term preservation strategy.**

Refreshing

- copying digital information from one long-term storage medium to another with no change in the bit-stream
- Addresses both decay and obsolescence issues related to the storage media.
- Does not address the issue of obsolescence of encoding and formatting schemes.
- Longitivity of media does not guarantee availability of hardware / software required to read the stored format.
- Backward compatibility and interoperability are serious threat to longevity of digital information.

Technology Preservation

- Also called the “computer museum” solution.
- Rely on preserving the computer, operating systems, original application software, media drives, etc.
- Applicable for neglected digital objects.
- Assumes that media has not decayed beyond readability.
- Limitation: No obsolete technology can be kept functional indefinitely.
- Requires a considerable investment in equipment and personnel.

Digital Archaeology

- **Rescue content from damaged media or from damaged hardware and software**
- **An emergency recovery strategy involves specialized techniques to recover data from unreadable media, either due to physical damage or hardware failure.**
- **Carried out by data recovery companies**
- **Given enough resources, readable bit-streams can often be recovered even from heavily damaged media (especially magnetic media)**

Analogue Backups

- **Combines the conversion of digital objects into analogue form, e.g., taking high-quality printouts or the creation of microfilm.**
- **An analogue copy of a digital object can, in some respects, preserve its content and protect it from obsolescence.**
- **Technique makes sense for documents whose contents merit the highest level of redundancy and protection from loss.**

Migration

- **Periodic transfer of digital materials from one hardware / software configuration to another, or from one generation of computer technology to a subsequent generations.**
- **Migration may include conversion of data to avoid obsolescence not only of the physical storage medium, but of the encoding and format of the data.**
- **Digital objects will have to be constantly migrated and converted to new formats, computing devices, storage media and software to ensure they are not left behind on obsolete system.**

Replication

- **Replication is used to represent multiple digital preservation strategies.**
- **Bit-stream copying is a form of replication.**
- **LOCKSS (Lots of Copies Keeps Stuff Safe) is a consortial form of replication, while peer-to-peer data trading is an open, free-market form of replication.**
- **Objective is to enhance the longevity of digital documents while maintaining their authenticity and integrity through copying and the use of multiple storage locations.**

Reliance on Standards

- Advocates use of well-recognized standards and discarding proprietary or less-supported standards.
- Backward compatibility for older formats would maintained if it is widely used as a standard.
- For example, if JPEG2000 becomes a widely adopted standard, the sheer volume of users will guarantee that software to encode, decode, and render JPEG2000 images will be upgraded to meet the demands of new operating systems, CPUs, etc.

Emulation

- **Emulation uses a special type of software, called an emulator, to translate instructions from original software to execute on new platforms.**
- **Eliminate the need to keep old hardware working.**
- **Emulation requires the creation of emulator programs that translate code and instructions from one computing environment so it can be properly executed in another.**

Encapsulation

- **Technique of grouping together digital objects and metadata necessary to provide access to that object.**
- **The grouping process lessens the possibility that any critical component necessary to decode and render a digital object will be lost.**
- **Appropriate types of metadata to encapsulate with a digital object include reference, representation, provenance, fixity and context information. Encapsulation is considered a key element of emulation.**

Digital Preservation Metadata

- **A subset of metadata that describes attributes of digital resources essential for its long-term accessibility.**
- **Describe and record information needed to manage the preservation of digital resources.**
- **A subset of administrative metadata design to assist in the management of technical metadata for continuing access to the digital content.**
- **Stores technical details on the format, structure and use of the digital content.**

- **Administrative or technical Metadata: is needed to manage a digital object throughout its lifecycle and is required for long-term collection management.**
  - **Original source**
  - **Date of capture / creation**
  - **Scanning resolution**
  - **Initial Capture Settings**
  - **Version of digital object**
  - **File format(s)**
  - **Compression technology used**
  - **Object relationship, etc.**

Administrative or technical Metadata

- **Most of the administrative / technical metadata can be generated automatically by the hardware and software used for capturing contents.**
- **The administrative metadata also records legal and financial aspects of access to the object such as: Rights management; Costs; authorization; Authentication; etc.**

Preservation Standards

- Open Archival Information System Reference Model (OAIS RM)
- PREMIS (Preservation Metadata: Implementation Strategies)- a joint collaborative project of OCLC and Research Library Group
- XML and Schema
- Persistent Identifiers

ISO Standards for Digital Archiving: ISO 14721: 2003- Open Archival Information System (OAIS) Reference Model (RM)

In June 2002, the OAIS RM was officially published as ISO Standard 1472. The OAIS RM defines terms and lays out the concepts for an archive, either digital or analog. The Consultative Committee on Space Data Systems (CCSDS) originally developed the OAIS RM for the space data community. However, it was soon acknowledged as a generalized reference model. Now, terms such as "ingest" (meaning taking material into an archive) and acronyms such as "SIP" (submission information package) are commonly used in the community. The language indicates the degree to which the OAIS RM has been accepted.

Many systems have OAIS as the basis, including DIAS, OCLC's Digital Archive, and D-Space. JSTOR has found it to be a valuable framework for the discussion and development of its e-journal pilot. The DiVA Project for the preservation of Swedish theses and dissertations used OAIS as a checklist when it developed archiving project. Now that DiVA is moving toward the long term preservation portion of its project, the OAIS is being examined in more detail. One of the common complaints about the OAIS is that it is a reference model and not an implementation. Therefore, the Research libraries Group has a web site on which it tracks OAIS-based systems, and provides links to schema(RGL 2002b). Included on this list are mappings and schema developed for projects such as D-Space, the e-journal project at the Harvard University library, and the NEDLIB and Cedars projects. In addition, CCSDS and others have several follow-on activities underway, which provide more detail underneath and OAIS RM, including the development of a checklist for trusted archives and the specifications of XML Formatted Data Units (XFDU) for XML packaging of archive contents.

PREMIS (Preservation Metadata: Implementation Strategies)- a joint collaborative project of OCLC and Research Library Group

- **To define a implementable set of core preservation metadata elements with broad applicability with digital preservation community**
- **Draft a data dictionary to support the core preservation metadata element set.**
- **Examine and evaluate alternative strategies for encoding, storage and management of preservation metadata within a digital preservation system, as well as exchange of preservation metadata among systems.**
- **Conduct the pilot program to testing the group's recommendations and best practices in a variety of system settings**
- **Explore the opportunities for cooperative creation and sharing of preservation metadata.**

Some Worldwide Digital Archiving Initiatives

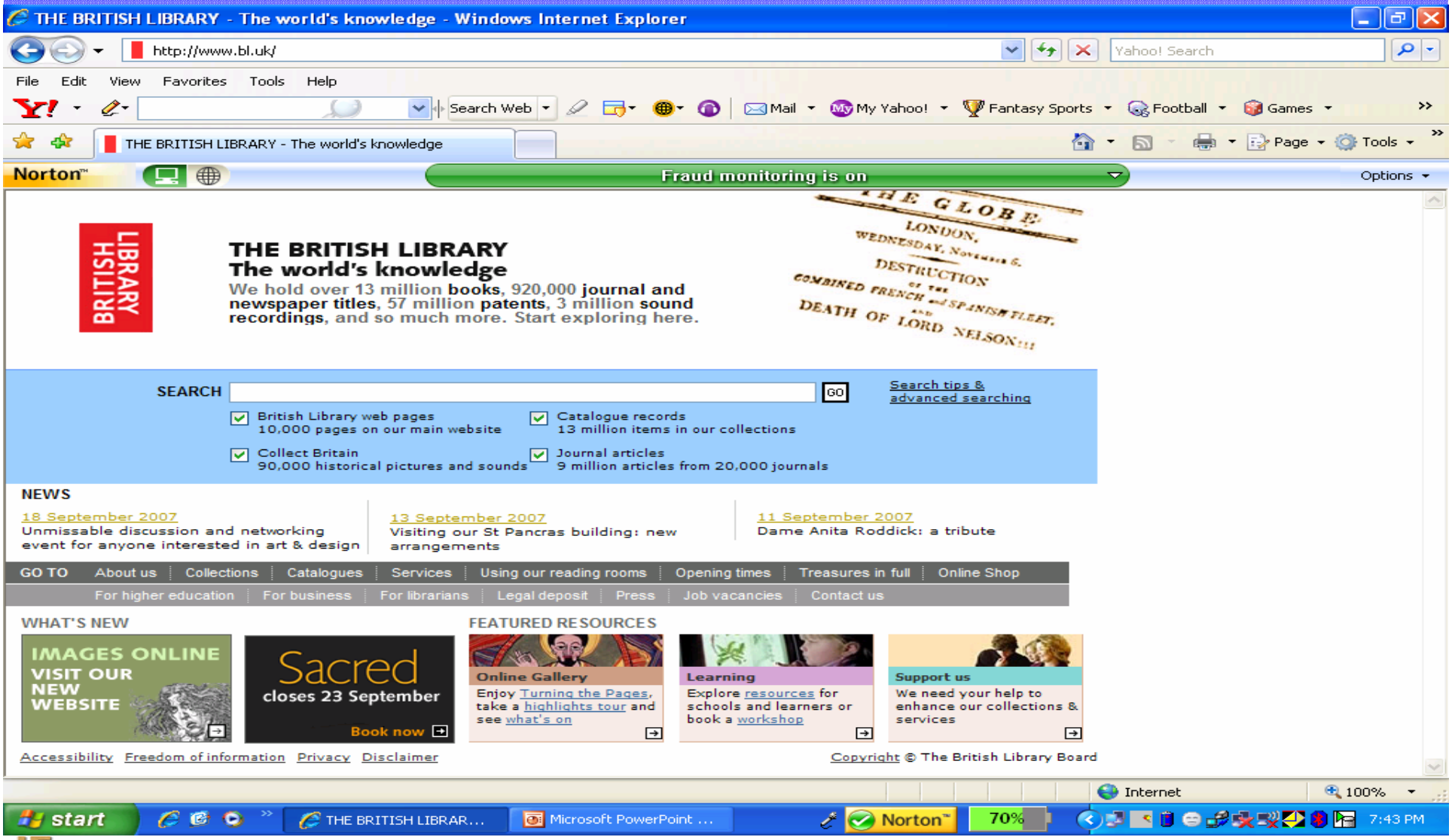
- DIAS, The Netherlands
- PANDORA, Australia
- Kulturaw3 Royal Library, National Library of Sweden
- National datasets, UK
- Electronic Publications Project(EPPP), Canada
- The Acquisition and archiving of electronic network publications(EVA), Finland
- Jstor, International
- Kopal, Germany
- Nestor, Germany
- Reuse-Europe
- Digital Preservation, OCLC, USA
- Universal digital library, India, China and USA
- National Mission For Manuscripts, India
- IGNCA, India
- There are many other initiatives in USA- AIP, AIS, NASA,LOCKSS

Guidelines for Digital Preservation

- UNESCO
- Australia
- Other Guidelines

Some more examples of Multimedia Digital Libraries

The British Library



V & A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Collections
Research & Conservation
Activities & Events
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V&A Museum of Childhood
V&A Theatre Collections Online
More about the V&A Museums
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Competition
Exhibitions
New York Fashion Now
Also on:
Campana Brothers in the Garden
Coming soon:
The Art of Lee Miller
The Golden Age of Couture: Paris and London 1947 -
What's On
Details of events on this date:
18
Sep 2007
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Activities & Events
Memory Maps
Families
Courses, Conferences & Talks
Collections
Explore the riches of the V&A collections:
Search the Collections
Architecture
Asia
British Galleries
Ceramics
Childhood
Contemporary
V&A e-newsletter
For news and offers enter your email:
join now
Sample e-newsletter
Shop Online
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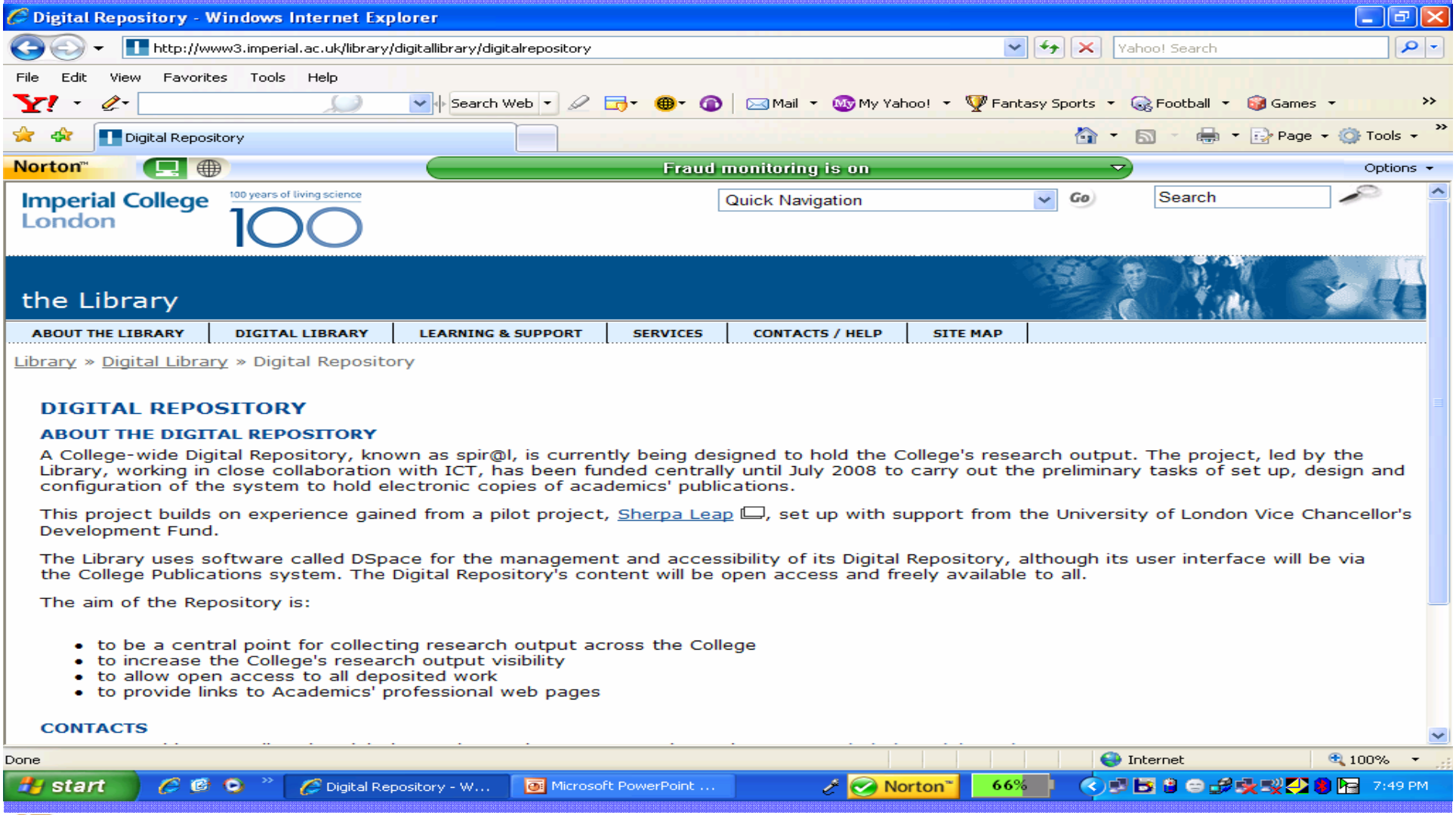
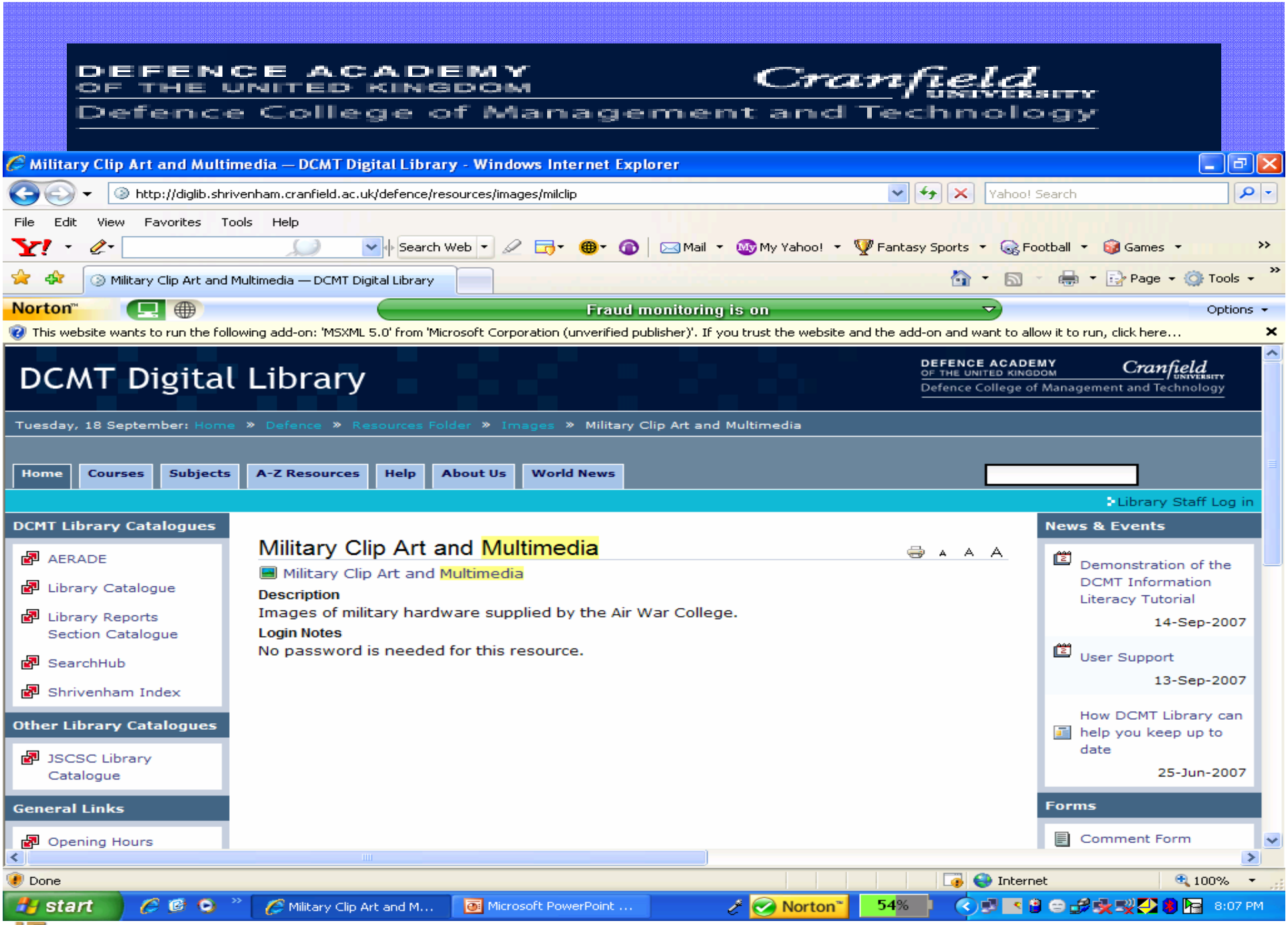
The University Waikato

Imperial College London

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OF THE UNITED KINGDOM
Defence College of Management and Technology
Cranfield UNIVERSITY
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Yahoo! Search
File Edit View Favorites Tools Help
Search Web Mail My Yahoo! Fantasy Sports Football Games
Military Clip Art and Multimedia — DCMT Digital Library
Page Tools
Norton
Fraud monitoring is on
Options
This website wants to run the following add-on: 'MSXML 5.0' from 'Microsoft Corporation (unverified publisher)'. If you trust the website and the add-on and want to allow it to run, click here...
DCMT Digital Library
DEFENCE ACADEMY OF THE UNITED KINGDOM
Defence College of Management and Technology
Cranfield UNIVERSITY
Tuesday, 18 September: Home » Defence » Resources Folder » Images » Military Clip Art and Multimedia
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Images of military hardware supplied by the Air War College.
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No password is needed for this resource.
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Demonstration of the DCMT Information Literacy Tutorial
14-Sep-2007
User Support
13-Sep-2007
How DCMT Library can help you keep up to date
25-Jun-2007
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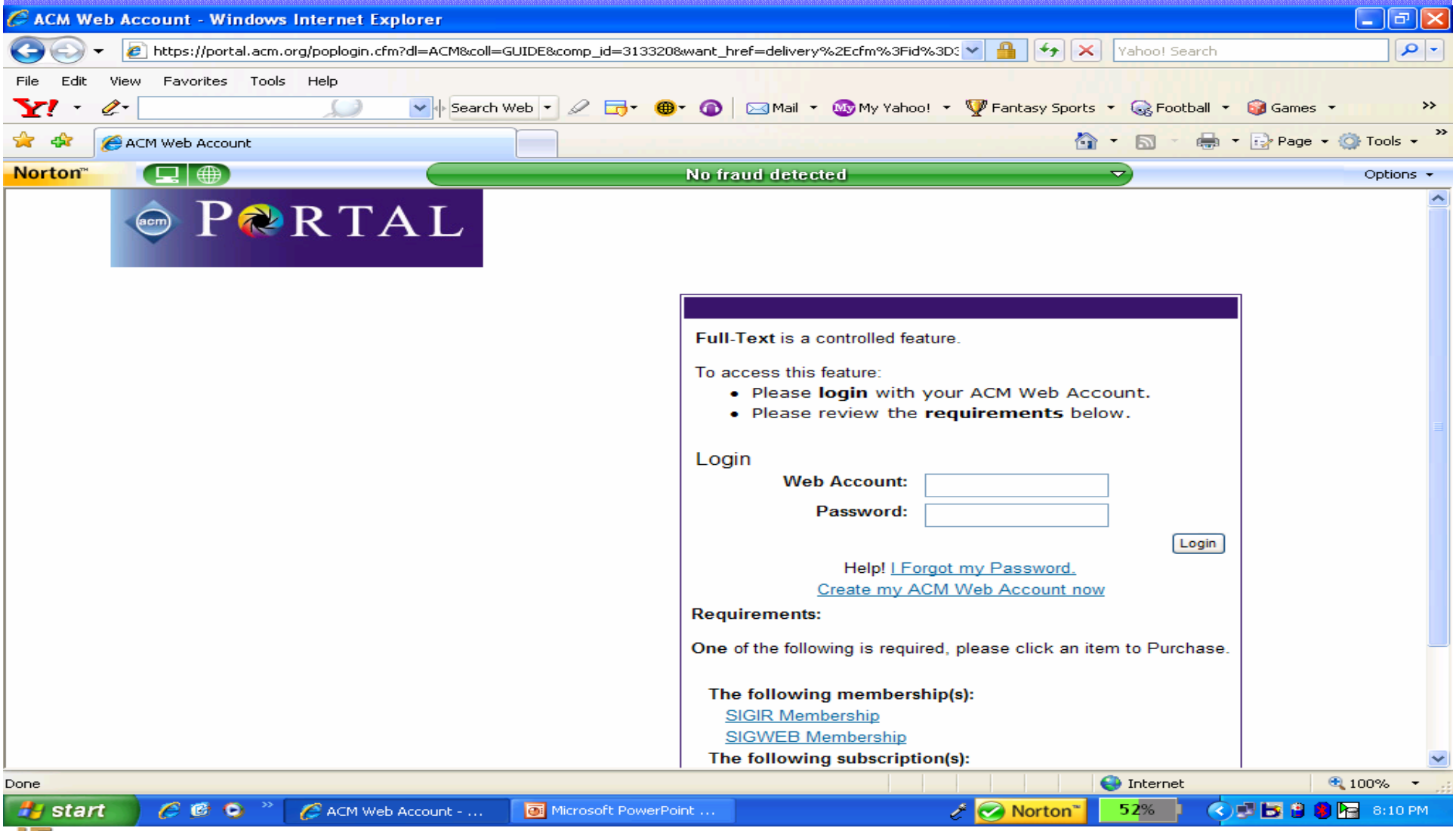
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Conclusions ..1

- **About 40 % non-print material such as manuscripts in microfilm and microfiche formats, slides, photographs, rare books, and paintings, etc. have already been digitized.**
- **We are in process of digitization of entire non-print material. About 2 lacs cultural archival material, 1700 rare books, 2.5 lacs manuscript in microfilming format, 1 lac visuals more than 1000 hours of Audio Video recordings, 9 personal collections of eminent scholars and artists, photographic collection of eminent photographers such as Lala Deen Dayal, 1000 Paintings are some of the unique collections at Kalanidhi Division.**

Conclusions…2

- **A digital library of manuscripts is another important plan of Kalanidhi Division of IGNCA.**
- **Online catalogue of about 8 lacs cultural resources in MARC 21 format, Installation of CD mirror server, networking of various Divisions of IGNCA and finalization of various metadata formats for collection such as photographs, manuscripts, slides and audio-video material are some of the plans under implementation.**
- **Moreover, masks collected from various parts of the India, textiles and other tangible and intangible heritage material have thrown new challenges for digital library experts to preserve them in digital images**


Thank You