

# Digitization and Digital Preservation of Archival Materials

Experiences at IGNCA, New Delhi

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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.**



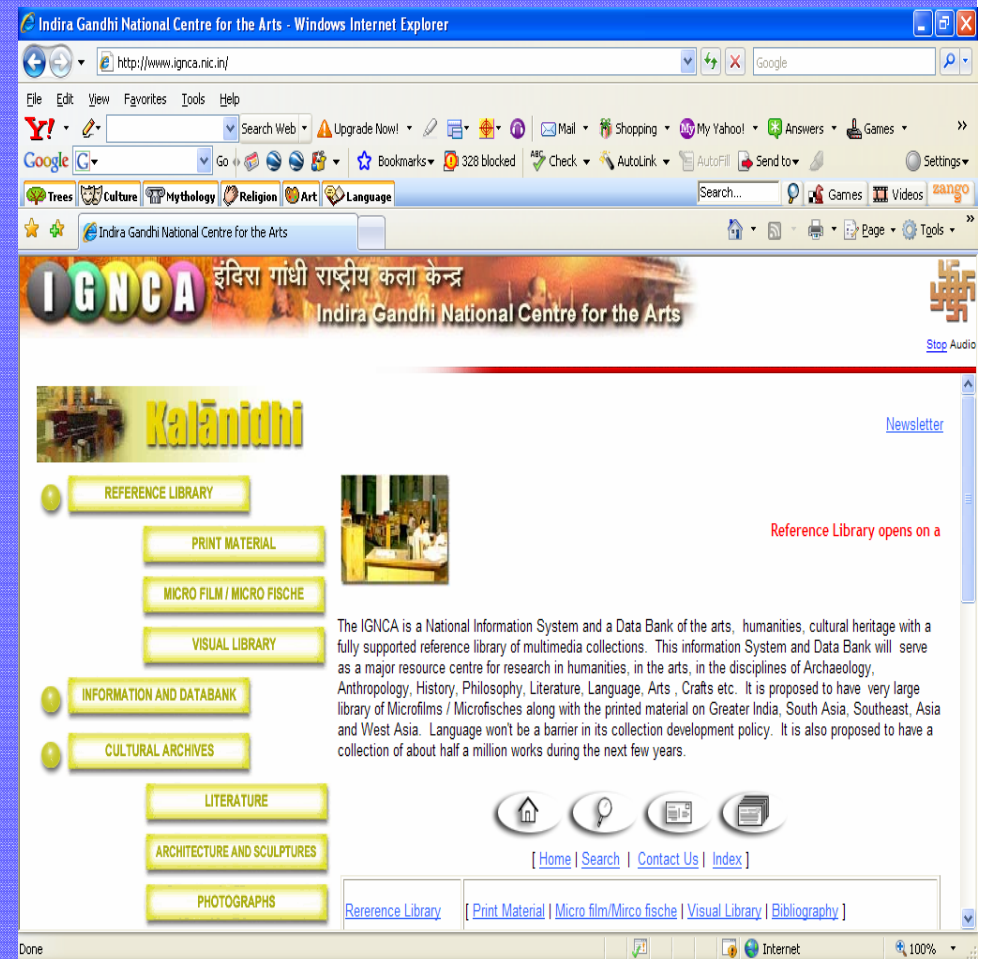
# Various divisions in IGNCA

- **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



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[National Electronic Register](#)

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[Mission Structure](#)

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## 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**



National Workshop on Preserving our Scientific Heritage, [Indian Institute of Astrophysics, Bangalore](#) January 21 - 22, 2008

# NMM

- Launched in 2003 for 5 years
- 32 MRCs
- 30 MCC
- 20 Lacs Manuscripts catalogued
- [www.namami.org](http://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 Microphone Tools

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

File Edit View Favorites Tools Help  
Y! Search Web Upgrade Now! Mail My Yahoo! Personals Shopping Games  
Google G Go Bookmarks 344 blocked Check AutoLink AutoFill Send to Settings  
Indira Gandhi National Centre for the Arts



The library concentrates on encyclopaedias, dictionaries, bibliographies, atlases and catalogues of unpublished manuscripts of Indian and Asian origin. Its holdings and expertise 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 IGNC](#)

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 Campaign 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);

# 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

The screenshot shows a web browser window displaying the website of the Indira Gandhi National Centre for the Arts (IGNCA). The browser's address bar shows the URL <http://www.ignca.nic.in/>. The website header features the IGNC A logo and the text "इंदिरा गांधी राष्ट्रीय कला केन्द्र" and "Indira Gandhi National Centre for the Arts".

## ARCHITECTURE AND SCULPTURES

Under this category IGNC A has the Lance Dane Collection of Photo Archives of Art comprising 1,00,000 B/W negatives and color transparencies on the Art and Architecture of India, Nepal and Cambodia. This collection also has about 1,000 Sculptures figurings and artefacts, and wall rubbings of Angkor Wat.

The Shambunath Mitra collection has over 9,000 B/W negatives, detailed photo index cards and gazetteers of the Bengal terracotta temples of Bishnupur, Bankura, Burdwan, Hooghly, Howrah and Midnapur Districts.

Navigation icons for Home, Search, Contact Us, and Index are provided below the text.

Additional links include: [Kalanidhi](#), [Reference Library](#), [Information and Data Bank](#), [Cultural Archive](#), [Print Material](#), [Micro film/Mirco fische](#), [Visual Library](#), [Literature](#), [Architecture & Sculptures](#), [Photographs](#), [Music](#), [Film & Video Documentation](#), [Film & Video Acquired](#), and [Living Legend Series](#).

The browser's taskbar at the bottom shows the Windows Start button, the current website, Outlook Express, and Microsoft Word. The system tray includes the Internet Explorer icon, a volume icon, and the time 1:37 PM.



# Archival Material: Photos

Indira Gandhi National Centre for the Arts

Microphone Tools

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

File Edit View Favorites Tools Help

Search Web Upgrade Now! Mail My Yahoo! Personals Shopping Games

Google Go Bookmarks 351 blocked Check AutoLink AutoFill Send to Settings

Indira Gandhi National Centre for the Arts

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

Stop Audio

## 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

start Indira Gandhi Nationa... Inbox - Outlook Express Document1 - Microsof... Internet 100% 1:36 PM



# Archival Material: Music



The screenshot shows a web browser window displaying the website of the Indira Gandhi National Centre for the Arts (IGNCA). The browser's address bar shows the URL <http://www.ignca.nic.in/>. The website header features the IGNCA logo and the text "इंदिरा गांधी राष्ट्रीय कला केन्द्र" and "Indira Gandhi National Centre for the Arts". A "Stop Audio" button is visible in the top right corner of the page.

## 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

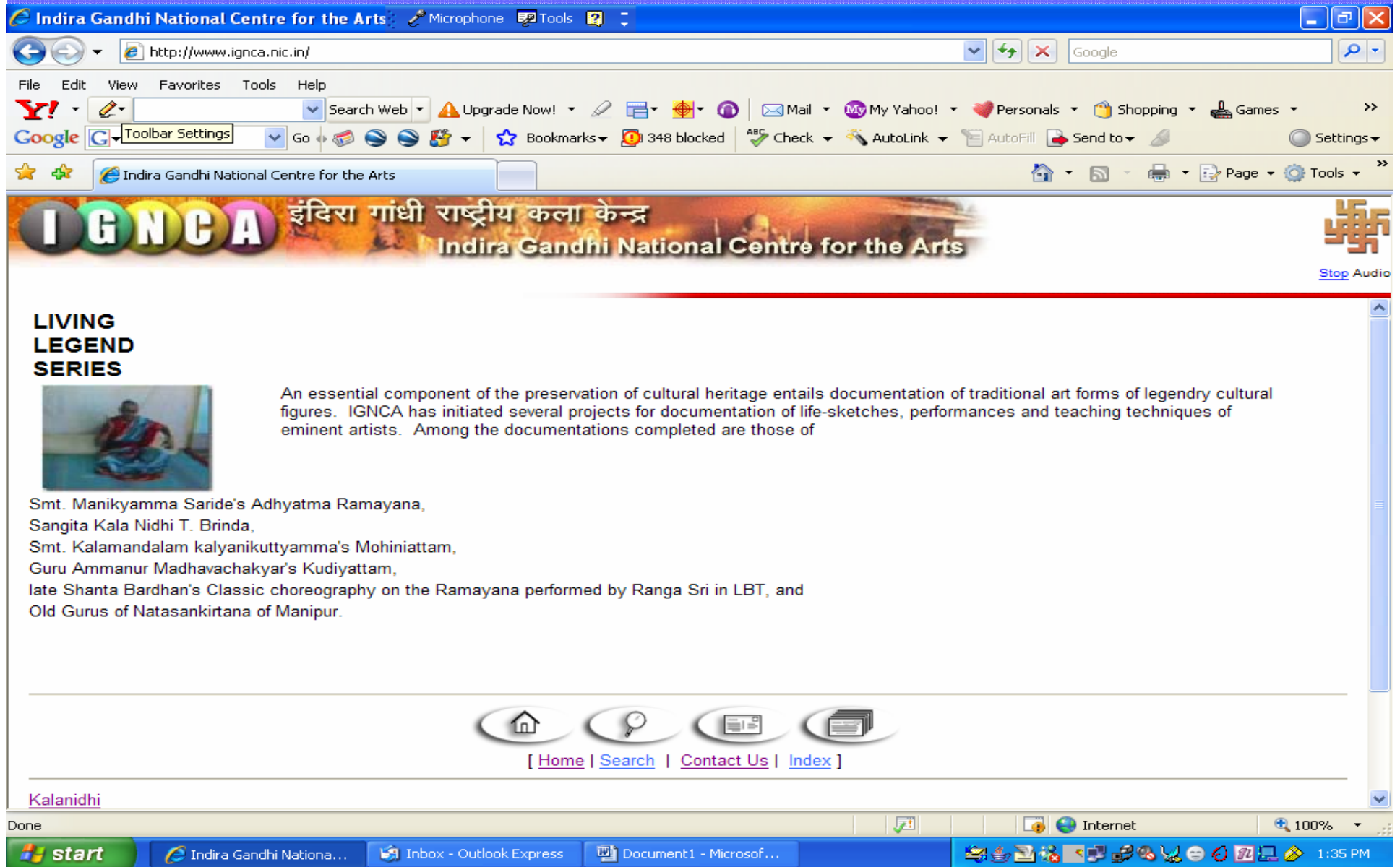
The 78 rpm music discs of India present rare artistes of the early part of the century, both in the classical and popular music genres. Shri Ranga Rao has in his Collection 25,000 music discs, the earliest of which was released in 1903. The records cover not only the genres of classical music, but also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




# Archival material: Videos



The screenshot shows a web browser window displaying the homepage of the Indira Gandhi National Centre for the Arts (IGNCA). The browser's address bar shows the URL <http://www.ignca.nic.in/>. The page header features the IGNCNA logo and the text "इन्दिरा गांधी राष्ट्रीय कला केन्द्र" and "Indira Gandhi National Centre for the Arts". A "Stop Audio" button is visible in the top right corner.

**LIVING LEGEND SERIES**



An essential component of the preservation of cultural heritage entails documentation of traditional art forms of legendary cultural figures. IGNCNA 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 Kudiyyattam,  
late Shanta Bardhan's Classic choreography on the Ramayana performed by Ranga Sri in LBT, and  
Old Gurus of Natasankirtana of Manipur.

[ [Home](#) | [Search](#) | [Contact Us](#) | [Index](#) ]

Kalanidhi

The browser's taskbar at the bottom shows the Windows Start button, several open applications including "Indira Gandhi Nationa...", "Inbox - Outlook Express", and "Document1 - Microsof...", and the system tray with the time "1:35 PM".



# 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	Duplicated	Digitized
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
<b>Total</b>		<b>252457</b>	<b>12751057</b>	<b>20152</b>	<b>11599</b>	<b>12275</b>

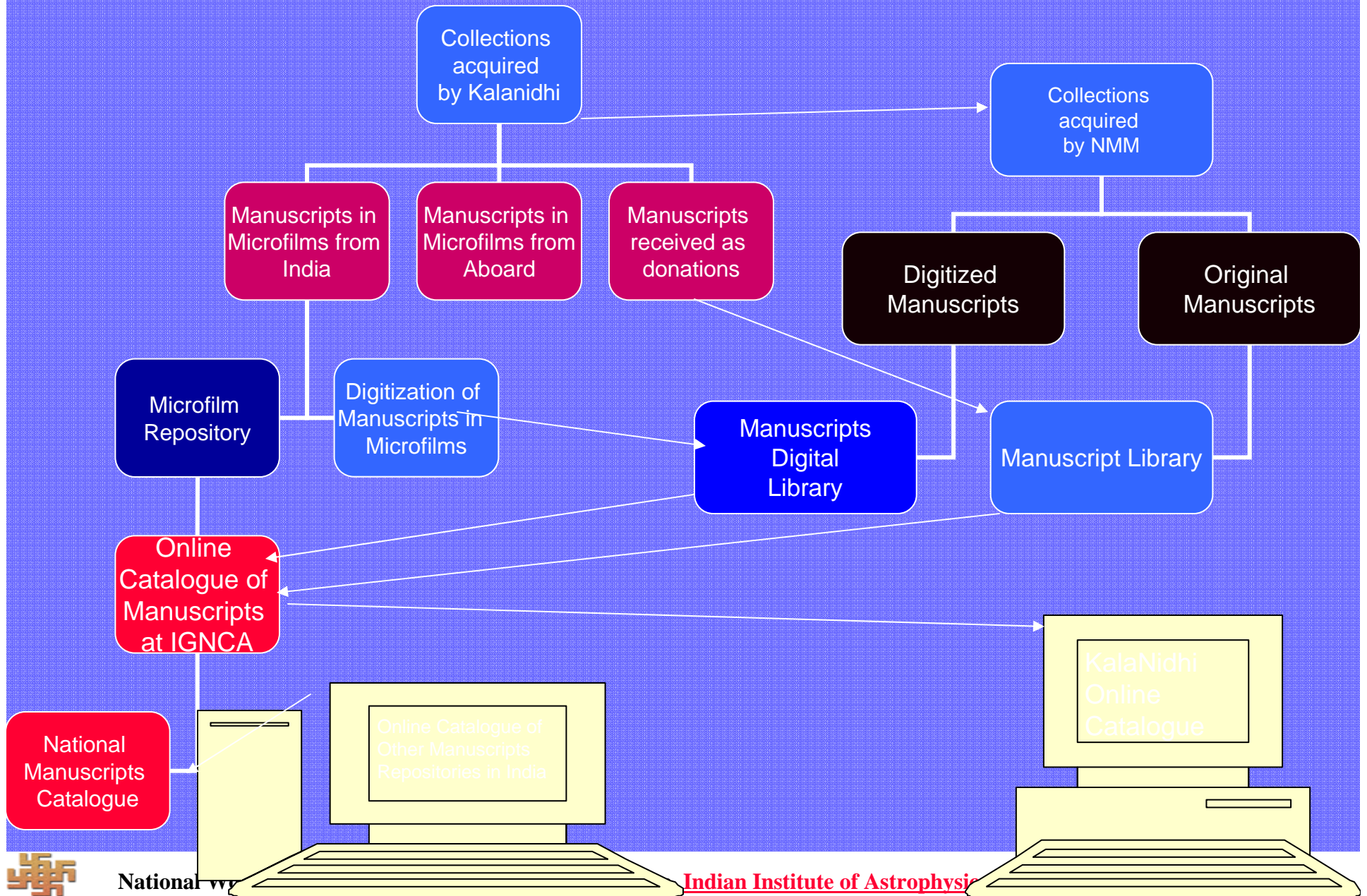
Mss. Filmed	Folios Covered	No. of Rolls	Duplicate Rolls	Digitized Rolls
2,50,295	12634237	20,152	11,599	12,275

# **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



National Archives

Indian Institute of Astrophysics

# 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

The screenshot shows a web browser window displaying the website of the Indira Gandhi National Centre for the Arts (IGNCA). The browser's address bar shows the URL <http://www.ignca.nic.in/>. The website header features the IGNCNA logo and the text "इंदिरा गांधी राष्ट्रीय कला केन्द्र" and "Indira Gandhi National Centre for the Arts".

The main content area is titled "VISUAL LIBRARY" and includes a "View Digital Images" link. Below this, there is a section for "Kalanidhi - A" with a "Catalogue" link and a list of digital images. A table provides details for the first two items:

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

Below the table, there is a link to "View Digital Images of Gita Govinda".



# 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**



www.abia.net



## South and Southeast Asian Art and Archaeology Index



[home](#)
[about](#)
[offices](#)
[contact](#)
[links](#)

sponsors







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 collaboration 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





# Part-III

## Digitization of Indian Cultural Heritage at IGNCA

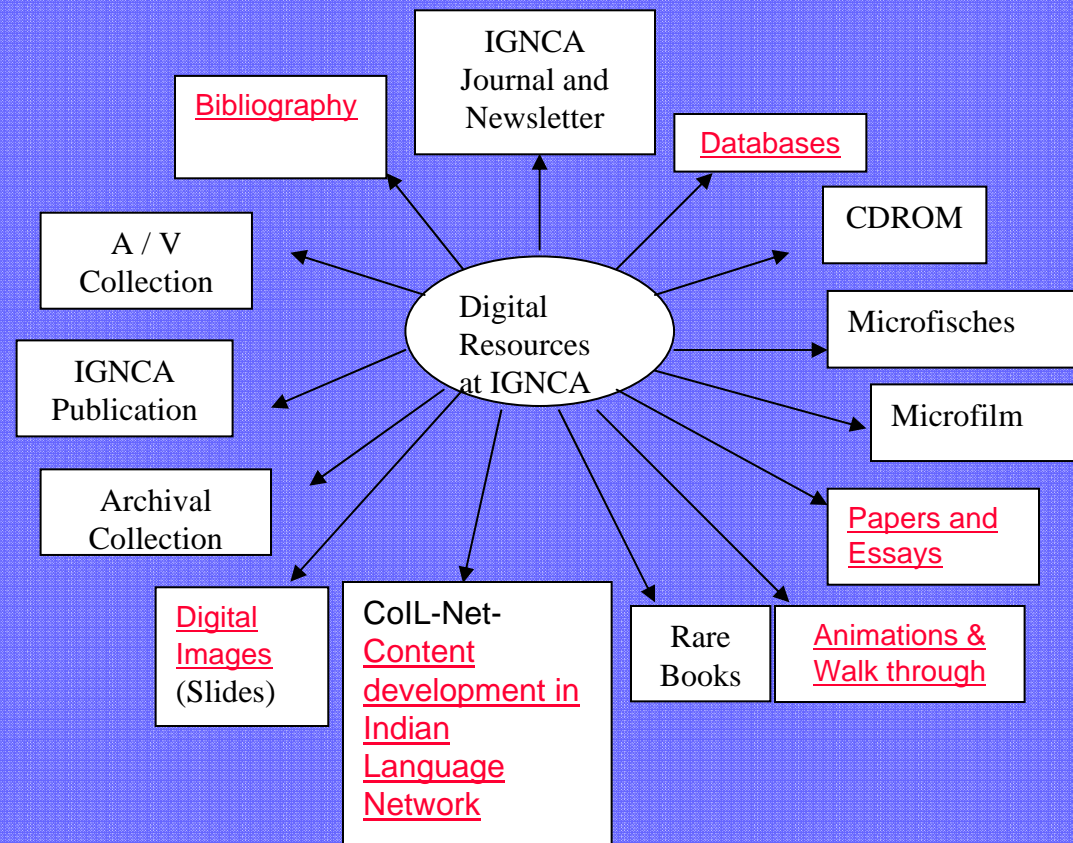


# Digitization at IGNCA

- **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**

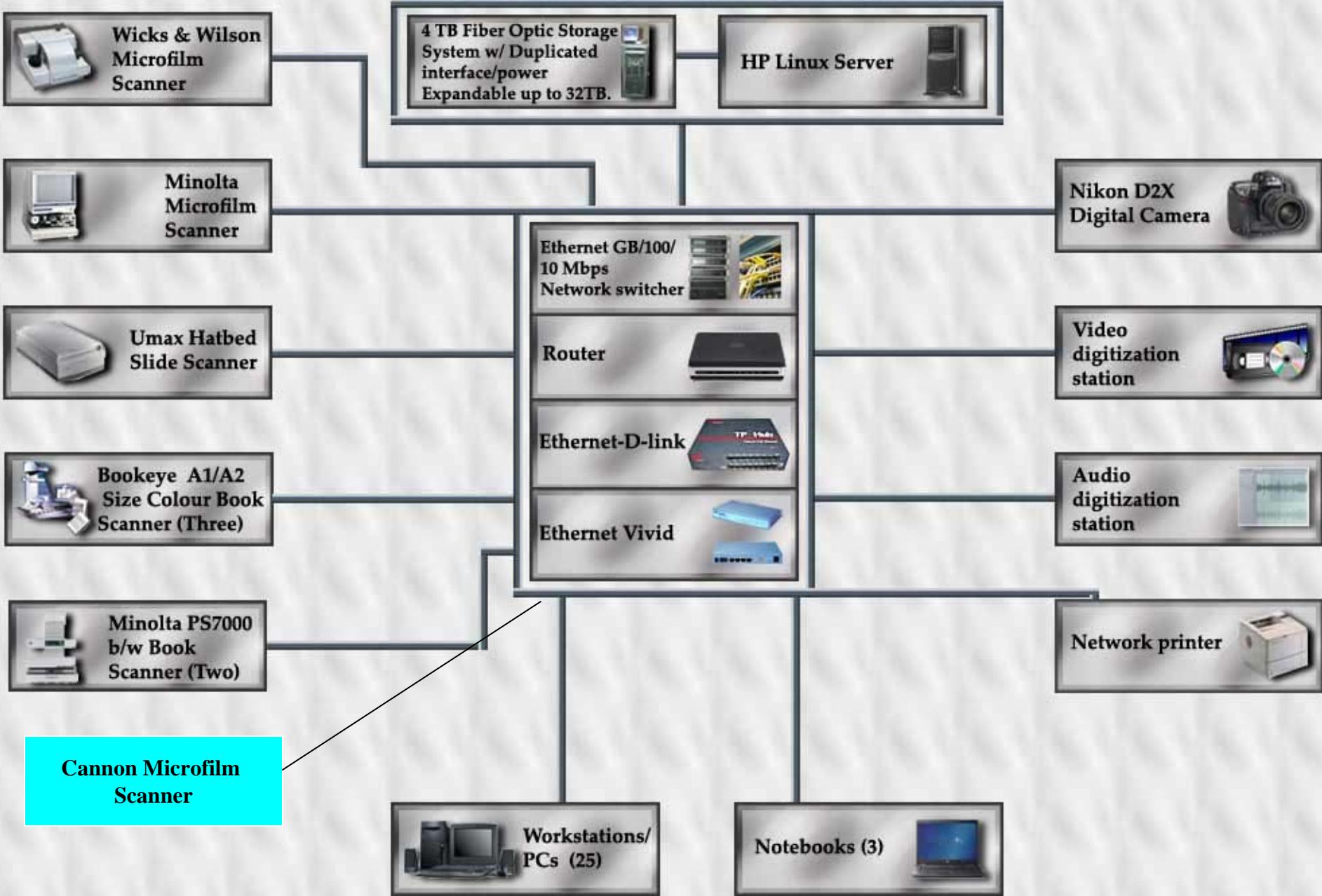


# Digitization Process

- In-house
- Outsourcing
- Outside Projects
- Collaborations



# Infrastructure 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

Indira Gandhi National Centre for the Arts

File Edit View Favorites Tools Help


Back Forward Stop Home Search Favorites Refresh Print Mail New Folder Favorites

Address C:\Documents and Settings\Gaur\My Documents\bib.mht Go Norton AntiVirus

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

Stop Audio

**The Pioneering Digital Treasure of Arts**

 **Digital Library**

**Kalasampada: Digital Library- Resource for Indian Cultural Heritage (DL-RICH)** project  
sponsored by Ministry of Communication and Information Technology (MCIT)

Available in image, audio, text, graphics, animation and video on a computer in a non-linear mode, by a c

- [Digital Images](#)
- [Video Recordings](#)
- [Audio Recordings](#)
- [Animations and Walk throughs](#)
- [Databases](#)
- [Bibliography](#)
- [Multimedia Documentation](#)
- [Kalakalpa - Bi-annual Journal of IGNCA](#)
- [Art Archaeological & Ethnographic Collection in Indian Museums & Art Galleries](#)
- [Thematic Categories](#)

- [Electronic Books](#)
- [Papers and Essays](#)
- [News Letter of IGNCA](#)
- [Research Reports](#)
- [Conference Proceedings](#)
- [Manuscripts Catalogue](#)
- [Articles by In-house Scholars](#)
- [Cognitive map of Muktesvara Temple](#)
- [Gaudiya Grantha Mandira :: Sanskrit Text Repository :: Catalogue of Texts Categorically Sorted](#)
- [Geographical Categories](#)

[Divisions of IGNCA](#)

Links to Digital Libraries

Applet txtscroll started

SCROLL LOCK: ON

Internet

# Digital Images

Indira Gandhi National Centre for the Arts

File Edit View Favorites Tools Help



Address C:\Documents and Settings\Gaur\My Documents\Indira Gandhi National Centre for the Arts\digital images.mht

Go Norton AntiVirus



Stop Audio

< [Slide Collections](#) | [Multimedia Projects](#) | [Multimedia Documentation](#) | [Exhibitions](#) | [Print Material](#) >

*Catalogue of Slides Available with IGNCA*  
[Restrictions on the use of Images](#)

## Collections

### ACSAA (American Committee for South Asian Art)

Sculpture of Amrawati in Govt. Museum, Madras

[ [Set 1](#) | [Set 2](#) | [Set 3](#) | [Set 4](#) ]

- [Sculpture of Goli](#)
- [Sculpture of Jaggayya Beta](#)
- [Sculpture of Ghantasala](#)
- [Sculpture of Nagarjuna Konda site](#)
- [Sculpture of India Bharhut](#)
- [Sculpture of India Pala](#)
- [Early Indian Stone Sculpture - LOS Angles CCU Museum of Art, California](#)
- [Early Bronze Sculpture - LOS Angles CCU Museum of Art, California](#)
- [Sultanate and Mughal paintings - LOS Angles CCU Museum of Art, California](#)
- [Nepali and Tibetan Sculpture: the early phase - LOS Angles CCU Museum of Art, California](#)
- [Pala and Nepali Manuscript painting - LOS Angles CCU Museum of Art, California](#)
- [South India Bronzes - LOS Angles CCU Museum of Art, California](#)
- [Southeast Asia Sculpture - LOS Angles CCU Museum of Art, California](#)

SCROLL LOCK: OFF

# Audio Recordings

Indira Gandhi National Centre for the Arts

File Edit View Favorites Tools Help



Address C:\Documents and Settings\Gaur\My Documents\bib.mht

Go Norton AntiVirus



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

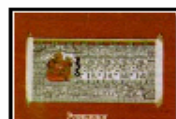
#### Instrumental

- [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)



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Internet

# Video Recordings

Indira Gandhi National Centre for the Arts

File Edit View Favorites Tools Help



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Stop Audio

## VIDEO RECORDINGS



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

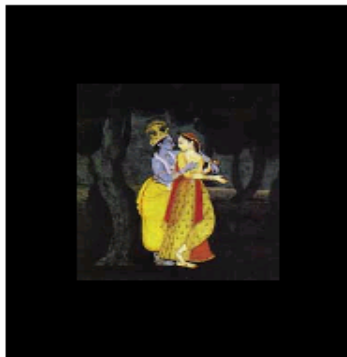
[Restriction on the use of VIDEO](#)

- [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

The screenshot shows a web browser window displaying the IGNCA website. The browser's address bar shows the URL <http://www.ignca.nic.in/>. The website header features the IGNCA logo and the text "इंदिरा गांधी राष्ट्रीय कला केन्द्र" and "Indira Gandhi National Centre for the Arts". Below the header, a section titled "DVD Roms Available for Sale" lists 16 different DVD ROMs, each with a small thumbnail image and a title link. The titles are: "Aihole - Cradle of Indian Architecture", "The Talking Rocks of Badami", "Behind the Mask", "Shravana Belagola - The Jain Heritage Site", "Echoes of the Past - Bijapur", "Sacred Dances at the Hemis Festival", "Temple Instruments of Kerala", "Lai - Haraoba", "Mahakumbha - In Search of the Nector", "Dakshina Kannada - land of the Mother Goddess", "RamLila - The Traditional performance of Ramayana", "Saat - Sur", "Legacy of Tana Bhagat", "Bhradisvara Temple Thanjavur - Mahakumbha Abhisekham", and "Thang-Ta - Martial Art of Manipur". The browser's taskbar at the bottom shows the Windows Start button, several open applications, and the system clock showing 1:27 PM.

**DVD Roms Available for Sale**

- [Aihole - Cradle of Indian Architecture](#)
- [The Talking Rocks of Badami](#)
- [Behind the Mask](#)
- [Shravana Belagola - The Jain Heritage Site](#)
- [Echoes of the Past - Bijapur](#)
- [Sacred Dances at the Hemis Festival](#)
- [Temple Instruments of Kerala](#)
- [Lai - Haraoba](#)
- [Mahakumbha - In Search of the Nector](#)
- [Dakshina Kannada - land of the Mother Goddess](#)
- [RamLila - The Traditional performance of Ramayana](#)
- [Saat - Sur](#)
- [Legacy of Tana Bhagat](#)
- [Bhradisvara Temple Thanjavur - Mahakumbha Abhisekham](#)
- [Thang-Ta - Martial Art of Manipur](#)



# 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*, *Brhahliswara Temple* and *Gitugovinda* are in the different stage of development.

01/01/2002



# IGNCA CD on Ajanta

Indira Gandhi National Centre for the Arts Microphone Tools

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

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Y! Search Web Upgrade Now! Mail My Yahoo! Personals Shopping Games

Google G Go Bookmarks 361 blocked Check AutoLink AutoFill Send to Settings

Indira Gandhi National Centre for the Arts

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Stop Audio

## 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](#)

Done Internet 100%

start Indira Gandhi Nationa... Inbox - Outlook Express icpd - Microsoft Word 1:48 PM

# IGNCA CD on Rock Art

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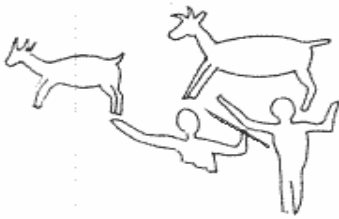
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## ROCK ART



### ● [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 Drsyā* (primeval sight) and *Adi Sravyā* (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 Drsyā* 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, Harvana, while he was the Director of the Institute of Archaeology. He is associated with

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# IGNCA CD on Temple of Muktesvara

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## THE TEMPLE OF MUKTESVARA AT CAUÁADĒNAPURA

See Also [Bhradisvara 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 Karjatka](#)

- [Configuration](#)
- [History](#)
- [Religion](#)

[The Temple of Muktesvara](#)

- [Cau-adjuaapura](#)
- [History](#)
- [Architecture](#)
- [Decorative Motifs](#)
- [Iconography](#)
- [Epigraphy](#)



start Indira Gandhi Nationa... Inbox - Outlook Express icisd - Microsoft Word Internet 100% 1:47 PM

# IGNCA CD on Devadasi

Indira Gandhi National Centre for the Arts

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

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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 Bhradisvara 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*.

Done

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# IGNCA's Publications

Indira Gandhi National Centre for the Arts

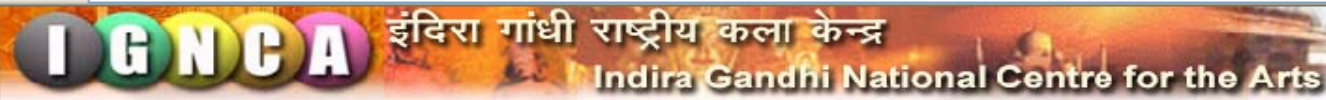
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## IGNCA's Publications

### 1 CULTURE AND DEVELOPMENT SERIES

#### [About Series](#)

1. [Interface of Cultural Identity Development](#) (Culture and Development No. 1)
2. [Integration of Endogenous Cultural Dimension into Development](#) (Cultural and Development No 2)
3. [The Cultural Dimension of Education](#) (Cultural and Development No. 3)
4. [The Cultural Dimension of Ecology](#) (Cultural and Development No. 4)
5. [Lifestyle and Ecology](#) (Cultural and Development No. 5)
6. [Culture of Peace](#) (Cultural and Development No. 6)

### 2 PRAKRTI SERIES

#### [About Series - THE INTEGRAL VISION](#)

1. [Primal Elements : The Oral Tradition](#) Vol. 1
2. [Vedic, Buddhist and Jain Traditions](#) Vol. 2
3. [The Agamic Tradition and the Arts](#) Vol 3
4. [The Nature of Matter](#) Vol.4
5. [Man in Nature](#) Vol. 5

### 3 KALASAMALOCANA SERIES

#### [About Series](#)

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Internet

# Kalakalpa-Journal of IGNCA

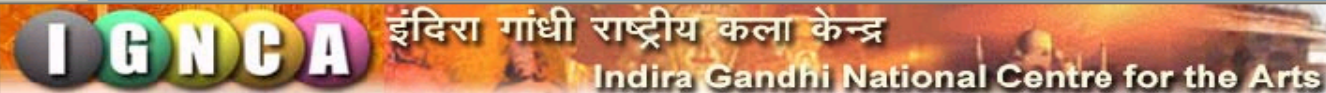
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## Kalakalpa

The bi-annual journal of the IGNCA with a holistic approach towards the study of Arts and stress on the inter-connectivity of various art forms

*Journal of the Indira Gandhi National Centre for the Arts*

Fondled by the imaginative vision and  
creativity of the sage-like scholars,  
let this with-fulfilling tree in the field of arts,  
be an eternal source of joy to its readers

### Editorial Advisory Board:

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Prof. G.C. Tripathi  
Prof. R.K. Bhattacharya

- [Editorial](#)
- [Information and Instruction for Contributors and Readers](#) (for subscription)

### Contents:

- [Volume I. No. 1 July 2003](#) (Inaugural Issue)

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# Vihangama- IGNCA's Newsletter

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

Indira Gandhi National Centre for the Arts

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## INTERNATIONAL CONFERENCE ON MULTIMEDIA FOR HUMANITIES

October 5 - 8, 1998

[Preamble](#)

In order to generate a dialogue, we have invited experts from within the country and elsewhere who have accomplished significant achievements in their respective fields to explore the above themes and questions through the following sessions:-

<b>Abstracts - <a href="#">MULTIMEDIA &amp; LIVING TRADITIONS</a></b>		
Multimedia Rendering of Dhyaneshwari	<a href="#">Abstract</a>	<a href="#">Paper</a>
Multimedia presentation : Mask Project	<a href="#">Abstract</a>	
Multimedia and Living Traditions : Devnarayan	<a href="#">Abstract</a>	
<b>Abstracts - <a href="#">MULTIMEDIA IN EDUCATION</a></b>		
On-Line delivery of language courses for On-campus Teaching	<a href="#">Abstract</a>	
Lowcost Multimedia Technology and Education - An Indian Perspective	<a href="#">Abstract</a>	<a href="#">Paper</a>
Multimedia in Education - Rock Art	<a href="#">Abstract</a>	<a href="#">Paper</a>
Scran: a case study of Networked Cultural Multimedia for Education	<a href="#">Abstract</a>	<a href="#">Paper</a>
The future of Multimedia in Arts and Humanities	<a href="#">Abstract</a>	
<b>Abstracts - <a href="#">DIGITAL MUSEUM</a> :</b>		
Towards a Digital Museum - Experiments at National Museum of Ethnology, Osaka, Japan	<a href="#">Abstract</a>	<a href="#">Paper</a>

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# Walkthrough

Indira Gandhi National Centre for the Arts

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## Bhradisvara Temple Tanjavur



Click on  appearing in the image to further see its description in **Display Hotspot mode**

[Bhradisvara Temple](#)

[ [Home](#) | [Search](#) | [Contact Us](#) | [Index](#) ]

[ [Sutradhara](#) | [International Dialogue Unit](#) | [Multimedia Development](#) ]

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# Bibliography

Indira Gandhi National Centre for the Arts

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## Bibliography

The Indira Gandhi National Centre for the Arts has a unique Library which houses the personal collections of doyens of scholarship, such as, Suniti Kumar Chatterjee, Hazari Prasad Dwivedi, Thakur Jaidev Singh, Kaviraj Gopinath, Krishna Kriplani and others. These personal collections are an invaluable treasure for any scholar who wishes to meander through the primary and secondary sources which these scholars used.

A complementary programme of the Indira Gandhi National Centre for the Arts is to compile Bibliographies of particular scholars, specially those whose work was multi-disciplinary and multi-lingual. Also, the endeavour is to make Bibliographies of particular subject areas and special subjects.

1. [An Annotated Bibliography on Zoroastrian Studies](#)
2. [A Select Bibliography on Shadow Puppetry](#)
3. [Prof. Vasudeva Saran Agrawala - A Bibliographic Survey of his Published works](#)
4. [Calligraphy - a Literature Search](#)
5. [Bibliography on Hampi - World Heritage Site](#)

[ [Digital Library](#) ]



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Internet

# 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

IGNCA: Home - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop

Address <http://192.168.1.59:8080/dspace/> Go Links >>

Y! Search ...attempting to retrieve buttons from Yahoo!...

## DSpace™

[About DSpace Software](#)

IGNCA >

### Search DSpace

  
[Advanced Search](#)

Home

### Browse

- Communities & Collections
- Titles
- Authors
- By Date

### Sign on to:

- Receive email updates
- My DSpace authorized users
- Edit Profile
- Help

### DSpace is Live

Welcome to our digital repository of My University research!

More exciting news to appear here.

### Search

Enter some text in the box below to search DSpace.

### Communities in DSpace

Choose a community to browse its collections.

- [A. Kalanidhi](#) [14]
- [B. Janapada Sampada](#) [0]

### This is a default installation of DSpace!

It can be extensively configured by installing modified JSPs, and altering the site configuration.

(1 item remaining) Downloading picture <http://www.w3.org/Icons/valid-xhtml10...> Internet

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# Dspace at IGNCA...2

IGNCA: Communities and Collections - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Home Mail Print Mail New People

Address <http://192.168.1.59:8080/dspace/community-list> Go Links >>

Y! Search ...attempting to retrieve buttons from Yahoo!...

## DSpace™

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**Search DSpace**

[Advanced Search](#)

[Home](#)

**Browse**

- [Communities & Collections](#)
- [Titles](#)
- [Authors](#)
- [By Date](#)

**Sign on to:**

- [Receive email updates](#)
- [My DSpace](#)  
authorized users
- [Edit Profile](#)
- [Help](#)

[IGNCA >](#)

## Communities and Collections

Shown below is a list of communities and the collections and sub-communities within them. Click on a name to view that community or collection home page.

- **[A. Kalanidhi](#)**
  - [Audio](#) [2]
  - [Newsletters](#) [3]
  - [Photographs](#) [4]
  - [Rare Books](#) [2]
  - [Video](#) [1]
  - **[Slide Unit](#)**
    - [Slides](#) [1]
    - **[Manuscripts Unit](#)**
      - [MSS](#) [1]
- **[B. Janapada Sampada](#)**
  - [Masks](#) [0]

Done Internet

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# Dspace at IGNCA...3

IGNCA: Browse by Title - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Refresh Print Mail Stop

Address <http://192.168.1.59:8080/dspace/browse-title> Go Links

Y! Search ...attempting to retrieve buttons from Yahoo!...

## DSpace™

[About DSpace Software](#)

IGNCA >

### Browse by Title

Jump to: [0-9](#) [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)

or enter first few letters:

Showing items 1-14 of 14.

Date of Issue	Title	Authors
20-Feb-2002	<a href="#">Building Preservation Partnerships</a>	<i>Lefurgy, William</i>
22-Mar-2006	<a href="#">Gita Govind</a>	<i>Jaidev</i>
17-Mar-2006	<a href="#">Image-0002</a>	
17-Mar-2006	<a href="#">Khalik Bari</a>	<i>Sharma, Sriram</i>
17-Mar-2006	<a href="#">Main Gate of Raja Din Dayal Palace</a>	
22-Mar-2006	<a href="#">Morning Walk</a>	<i>Ranganathan, S.R.</i>
17-Mar-2006	<a href="#">One beautiful Song</a>	
17-Mar-2006	<a href="#">Palace of Raja Din Dayal</a>	
17-Mar-2006	<a href="#">Radha</a>	
17-Mar-2006	<a href="#">Raja Din Dayal</a>	

start | IGNCA: Browse by Tit... | Microsoft Word - Doc... | Internet | 5:22 PM



# Dspace at IGNCA...4

IGNCA: Item 123456789/23 - Microsoft Internet Explorer

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Y! Search Upgrade your Toolbar Now Mail Help

# DSpace™

About DSpace Software

**Search DSpace**  
   
**Advanced Search**

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A. Kalanidhi >  
Photographs >

Home Browse Collections Title Author By Subject Sign up My account Edit Help

Copy or cite or link to this item: <http://hdl.handle.net/123456789/23>

**Title:** Palace of Raja Din Dayal  
**Issue Date:** 17-Mar-2006  
**URI:** <http://hdl.handle.net/123456789/23>  
**Collections:** [Photographs](#)

**in This Item:**

File	Description	Size	Format	
021.jpg		6538Kb	JPEG	<a href="#">View/Open</a>

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Done Internet

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# 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**

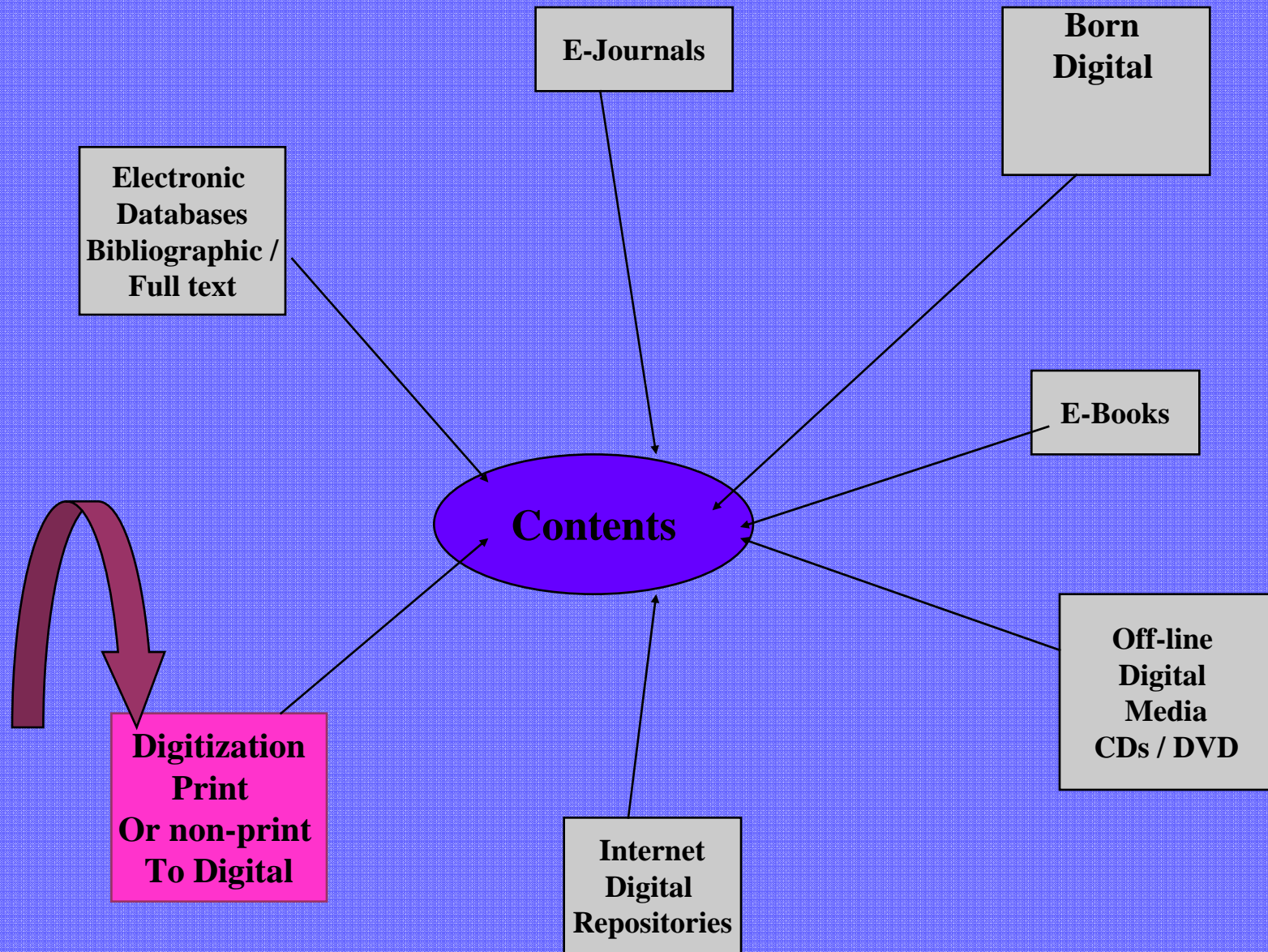


# Part-IV

## 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**

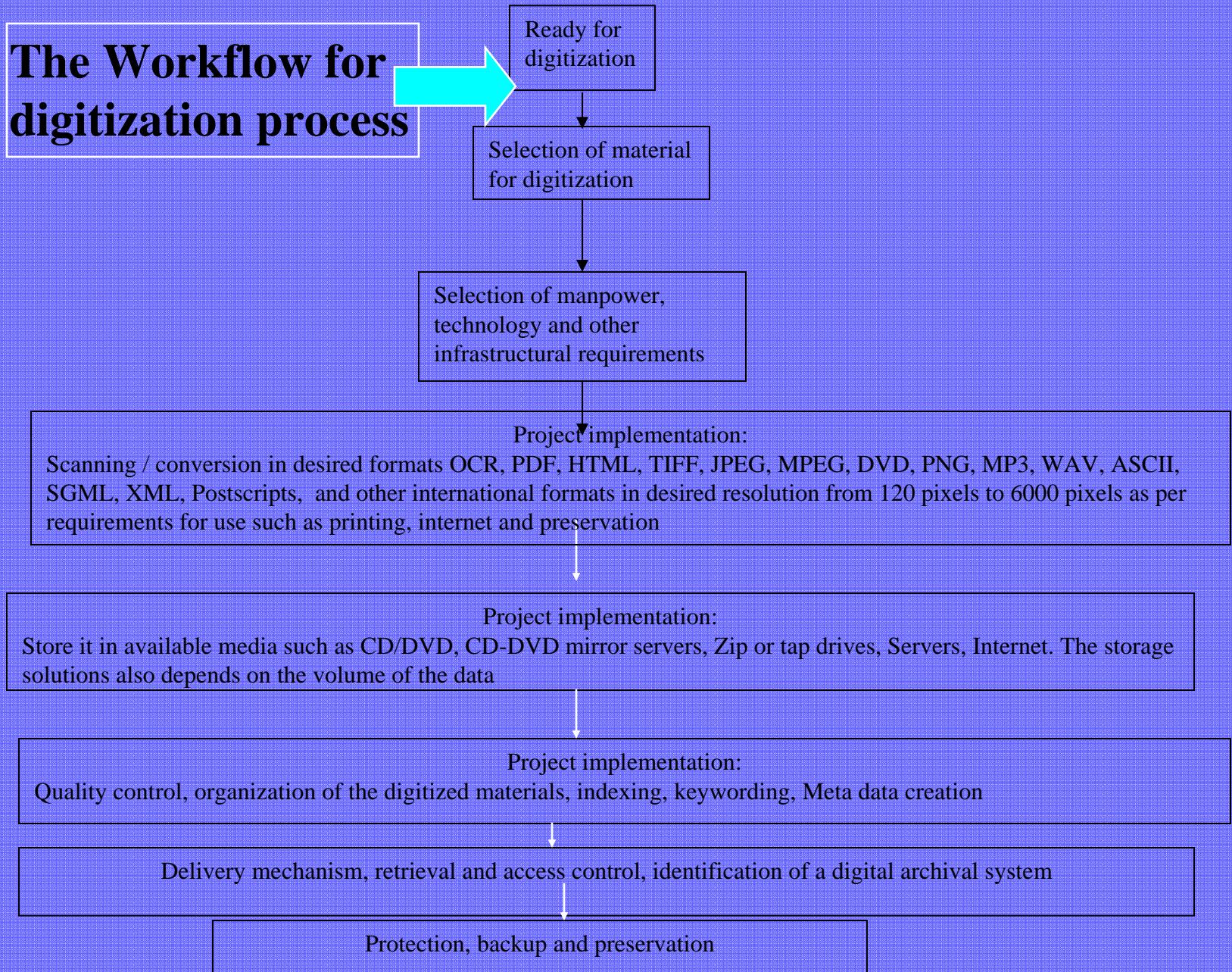


# Digitization Process...2

- **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

Guidelines for Digitization Projects: for cc Microphone Tools public domain, partic - Windows Internet Explorer

http://portal.unesco.org/en/ev.php-URL\_ID=7315&URL\_DO=DO\_TOPIC&URL\_SECTION=201.html

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Guidelines for Digitization Projects: for collections and ...



## Bureau of Strategic Planning

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UNESCO Action Areas

### > Guidelines for Digitization Projects: for collections and holdings in the public domain, particularly those held in libraries and archives

01-01-1970 12:00 am These Guidelines have been produced by a working group representing IFLA and the ICA that was commissioned by UNESCO to establish guidelines for digitization programmes for collections and holdings in the public domain. The contract specified that the guidelines should so far as possible be particularly applicable to institutions in countries of the developing world. Members of the group were nominated by IFLA and ICA and their activities were coordinated by Sjoerd Koopman, Coordinator of Professional Activities for IFLA.

Document Type	Draft Guidelines
Click to Download File	<a href="#">digitizationDraftMarch2002revNovember.doc</a> 559104 bytes ( <a href="#">Download Help</a> )
Author(s)	UNESCO, IFLA, ICA
Publication Year	01-01-1970 12:00 am
Number of Pages	60

# 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 Servers 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 <sup>0</sup> C	10-80%	18-22 <sup>0</sup> C	35-45%
2	Optical disks, Mixed collections, DAT, DLT tapes	16-32 <sup>0</sup> C	20-80%	16-32 <sup>0</sup> C	35-60%



# Principles of Preservation as Applied to Digital Preservation

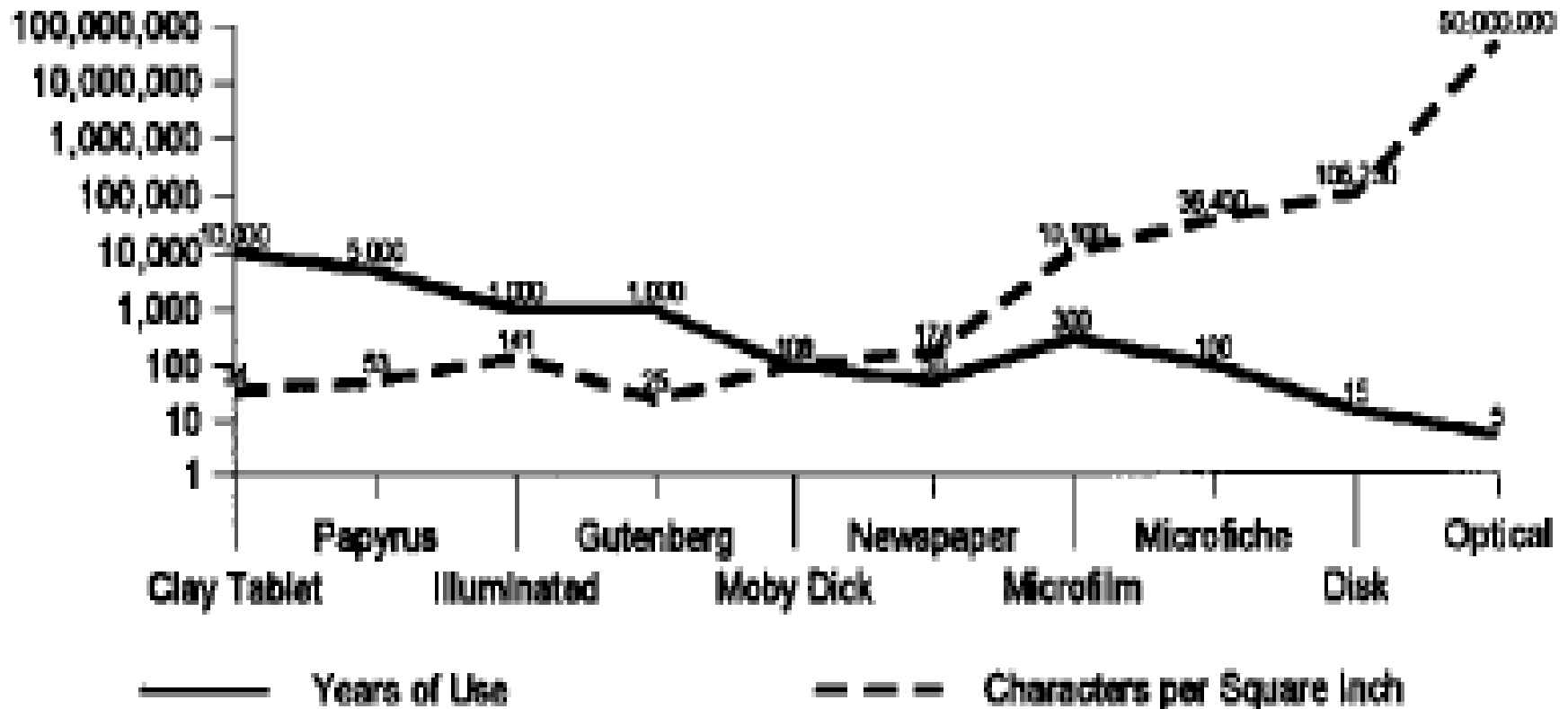
- **The basic principles of preservation that are being practiced for preservation of analogue media are also applicable to preservation in the digital world:**
  - **Longevity**
  - **Selection**
  - **Quality**
  - **Integrity**
  - **Access**



# Information Density V/s Life Expectancy of Storage Media

## The Dilemma of Modern Media

Information Density v. Life Expectancy





# 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.**
- **Longevity 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 14721. 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

THE BRITISH LIBRARY - The world's knowledge - Windows Internet Explorer

http://www.bl.uk/ Yahoo! Search

File Edit View Favorites Tools Help

Y! Search Web Mail My Yahoo! Fantasy Sports Football Games

THE BRITISH LIBRARY - The world's knowledge

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COMBINED FRENCH AND SPANISH FLEET,  
AND  
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National Workshop on Preserving our Scientific Heritage, [Indian Institute of Astrophysics, Bangalore](#) January 21 - 22, 2008

# V & A

The screenshot shows a Windows Internet Explorer browser window displaying the Victoria and Albert Museum website. The browser's address bar shows the URL <http://www.vam.ac.uk/>. The website's header includes the V&A logo, navigation links (Home, Your Visit, Exhibitions, Collections, Research & Conservation, Activities & Events, Schools & Students, Support Us, Shop Online), and a search bar. The main content area features a featured exhibition titled "The Art of Lee Miller" with a large red V&A logo and a black and white photograph of Lee Miller. Below the featured exhibition are four columns of content: Exhibitions (New York Fashion Now, Campana Brothers in the Garden), What's On (Details of events on this date: 18 Sep 2007), Collections (Explore the riches of the V&A collections: Search the Collections, Architecture, Asia, British Galleries, Ceramics, Childhood, Contemporary Fashion, Jewellery), and V&A e-newsletter (For news and offers enter your email: join now). The browser's taskbar at the bottom shows the Start button, open applications (Victoria and Albert M..., Microsoft PowerPoint...), and system tray icons (Norton, 69%, Internet, 100%, 7:44 PM).



# The University Waikato

Library Collections: In-house and Online: The University of Waikato Library - Windows Internet Explorer

http://www.waikato.ac.nz/library/resources/library\_collections.shtml

File Edit View Favorites Tools Help

Y! Search Web Mail My Yahoo! Fantasy Sports Football Games

Library Collections: In-house and Online: The Universi...

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Te Whare Wānanga o Waikato

The Library - Te Whare Pukapuka

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Waikato Home > Library Home > Resources

Advanced Searching | Site Index | Text Only

**Navigate to:**

- Library Home
- Resources
- Guides
- Services
- Education Library
- Law Library
- New Zealand Collection

Section Contents

Library Site Index

Suggestions

**Library Collections: In-house and Online**

**Page Contents:**

- **Formats Collected**
- **Central Library Main Collection**
- **Central Library Special Collections**
- **Education Library Collections**
- **Education Library Shelving Locations**

**See Also:**

- **Dictionaries and Encyclopedias**
- **Subject Portals**
- **University of Waikato at Tauranga Collection**
- **Language Institute Resource Centre**

**Formats Collected**

- **Abstracts and Indexes**
- **Annual Reports**
- **Archives and Manuscripts**
- **Audiovisual Collections**
- **Bibliographies**
- **Books**
- **Databases (LibraryLink)**
- **Course Reserve Collections**
- **Examination Papers**
- **Maps**

- **Microforms**
- **Newspapers**
- **Official Publications**
- **Online Resources Collections**
- **Pictures**
- **Journals**
- **Theses**
- **Vertical File Material**
- **WWW sites (Subject Portals)**

start Library Collections: In... Microsoft PowerPoint ... Norton™ 68% Internet 100% 7:47 PM



# Imperial College London

**DIGITAL REPOSITORY**

**ABOUT THE DIGITAL REPOSITORY**

A College-wide Digital Repository, known as spir@l, is currently being designed to hold the College's research output. The project, led by the Library, working in close collaboration with ICT, has been funded centrally until July 2008 to carry out the preliminary tasks of set up, design and configuration of the system to hold electronic copies of academics' publications.

This project builds on experience gained from a pilot project, [Sherpa Leap](#), set up with support from the University of London Vice Chancellor's Development Fund.

The Library uses software called DSpace for the management and accessibility of its Digital Repository, although its user interface will be via the College Publications system. The Digital Repository's content will be open access and freely available to all.

The aim of the Repository is:

- to be a central point for collecting research output across the College
- to increase the College's research output visibility
- to allow open access to all deposited work
- to provide links to Academics' professional web pages

**CONTACTS**





# DCMT Digital Library

Tuesday, 18 September: Home » Defence » Resources Folder » Images » Military Clip Art and Multimedia

Home Courses Subjects A-Z Resources Help About Us World News

Library Staff Log in

## DCMT Library Catalogues

- AERADE
- Library Catalogue
- Library Reports Section Catalogue
- SearchHub
- Shrivenham Index

## Other Library Catalogues

- JSCSC Library Catalogue

## General Links

- Opening Hours

## Military Clip Art and Multimedia

Military Clip Art and Multimedia

### Description

Images of military hardware supplied by the Air War College.

### Login Notes

No password is needed for this resource.

## News & Events

- 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

## Forms

- Comment Form



# ACM

ACM Web Account - Windows Internet Explorer

https://portal.acm.org/poplogin.cfm?dl=ACM&coll=GUIDE&comp\_id=313320&want\_href=delivery%2Ecfm%3Fid%3D: Yahoo! Search

File Edit View Favorites Tools Help

Search Web

ACM Web Account

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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

