Chapter-IV

Management of Information Service
4.1. Policies required for Information Management (169)

4.1.1. Collection Management Policy (170)
- Information required during new acquisition (170)
- Record keeping (171)
- Insurance of objects (171)
- Procedure for Loan (172)

4.1.2. Research Policy (173)
4.1.3. Dissemination Policy (173)
4.1.4. Exhibition Policy (174)
4.1.5. Education Policy (174)
4.1.6. Volunteer Policy (174)
4.1.7. Professional Development Policy (175)

4.2. Development of Strategies (176)

4.3. Management of Information (179)

4.3.1. Classification of Information Management Sectors (179)
- Information for Curatorial Purposes and Internal Management (179)
- Information regarding objects present in museum’s collection (179)
- Information regarding activities and services of museum (181)
  - Previous Activities (181)
  - Running Activities (181)
  - Forthcoming Activities (181)
- Information related to publication (182)
- Information related to resource persons of the museum (182)
- Information regarding services of museum (182)
  - Information related to Exhibition (182)
- Visitors' Information (183)
  - Feedback and Assessment (183)
  - Security Assessment (183)
- Information about Scientific and Technological Support (183)
- Information regarding Visitors and Users (184)
  - Information about Visitors/ Users (184)
  - Information required for Publicity Division (184)
  - Visitors’ Query Record (185)
  - Query and Comment Analysis (185)

4.3.2. Information Audit (188)
- After Accessioning of Objects (188)
- After Determination of Policies (188)
- After Estimation of Information Demand (188)

4.3.3. Database Management (189)
- Data Entry and Recording (189)
- Data Verification (190)
- Data Processing (190)
- Output (190)

4.3.4. Storage of Information as Record and Access to Information (191)
4.4. Human Resource Management (194)

4.4.1. Knowledge Audit (195)
4.4.2. Human Resource Audit (196)

Expertise Present (196) Expertise Required (196)

4.5. Information Service Management (197)

4.5.1. Information Service for General People including target visitors outside the museum (197)
4.5.2. Information Service for Target Institutions (198)
4.5.3. Information Service for Visitors (199)
4.5.4. Information Service for Users (200)

Access Right (200) Access Area (200)
Access Restriction (200) Access Charge (200)

4.5.5. Information Service for the Internal Management (201)

Information Pyramid (202)

4.6. Information Security (204)

4.6.1. Requirement of Information Security (205)

Security of Manually Stored Information (206) Threat of Information (206) Measures Required in Information Security (207)
Security of Information Stored in Computer and in Computerized storage devices (208) Security Status of Personal Computer (208) The Need for Backup and Recovery (209)
Steps taken for Information Security (210) Guidelines for dealing with computer maintenance (210)

Physical Security (210) Software Security (211)
Network Security (212) Password Security (213)
Protection against Misuse of Information (213) Copyright Reserve System (213) Licensing (213)
Protection against Computer-Virus (214) Classification of Virus (214) Types of Virus (215)
Prevention (216) The Cure (217)
Protection against Hacking (218)
Protection of information in museum Website and WebPages (219) Data Security and Protection against Fraudulence (219)

Case Study: 10. Anthropological Museum of the Tribal Research Institute, Pune (222)
Case Study: 11. Manipur State Museum, Imphal, Manipur (224)
Case Study: 12. North East Zone Cultural Centre, Dimapur, Nagaland (226)
4. Management of Information Service

Museums are the powerhouse of information and an institution that informs about our several thousand years old history, science, technology, arts and culture as well as its continuation till today. These information are the chief resource of any museums to work efficiently, serving in the way a museum is defined. Without information a museum is an empty vessel of junks only. Thus, a museum needs to maintain records of information regarding every objects in its collection, storage of objects, conservation measures, security required, determination of insurance value, managing human resource and finance, quality management, feedback, development of policies and implementation of strategies to fulfil museum's mission. Proper record keeping regarding museum's activities and various services for visitors and users, their responses and demands, nature of target people and institutions, relationship with different museums and media etc. are very much essential to maintain correlation in between museum's objects, activities and present demands. All such information are essential for displaying objects, using display aids, selecting theme of exhibition, preparation of labels, writing publications, arranging adequate security, developing programmes on exhibits, providing educational assistance, disseminating information to researchers and other interested people as well as for the publicity of museum and its activities. All these need proper management of information regarding every aspects of a museum for easy access and retrieval of information whenever necessary.

In this chapter, an attempt has been made to highlight information management required in Indian museums today, in dealing with information regarding objects and activities concern with curatorial purposes as well as for serving visitors or users, aiming at better museum functioning and successful survivability among competitors. Detailed discussion is also made on the security of information, which is the prime necessity toady, in every Indian museum.
4.1. Policies required for Information Management

To manage information systematically, collecting and storing all essential information, various policies are required to develop. Policies afford museums an opportunity not only to review its activities, but also to re-define museum’s purposes and directions. It is the basis for radically rethinking for putting together and conveying museum’s mandates, strategies and directions. Thus, following policies are require to undertake by museums today, in addition to administrative and other service policies:

4.1.1. Collection Management Policy

A collection management policy is a detailed, written statement that sets the purpose of a museum and its goals. It defines the necessity of acquisition of objects, scope related to five Ws and one-H factors18, record keeping, inventories and insurance factors etc. Thus, regarding information management following basic statutes need to develop in 'Collection Management Policy':

Information required during new acquisition:

i) New acquisition must be in accordance with the mission of the museum.

ii) Whether such type of objects already present in the permanent collection or not?

iii) Immediate planning of museum, related to collection

iv) The object (s) must have intrinsic value and consistent with stated purposes, scopes and activities of the museum.

v) The object must have historical / cultural / artistic / scientific / technological / and educational values as well as antique importance.

vi) Whether the museum has the ability to provide proper care and storage?

vii) The object must have a verifiable record of authenticity and provenance.

viii) The object must have detail information with clear title.

ix) All acquisition must be outright and unconditional.

x) It must be verified that objects are not stolen and wrongly converted.

---

18 What, why, where, who, When and How related to an object that is selected for acquisition.
Chapter: 4 Management of Information Service

Information about objects

i) Scope and use of the present collection

ii) Documentation of every object present in museum's custody.

iii) Proper record of objects given for loan or taken as loan

iv) Record of periodic inspection

v) Record of museum's publications and other references

vi) Record keeping of CDs including text data and video CDs

vii) Record of most precious objects including its security details

viii) Record of frequent referring objects by users and their query sectors.

Record Keeping

Museum should have two categories of established system for preservation of information about its collection:

i) Record associated with registration including descriptive cataloguing, legal status of an object and its care.

ii) Records associated with curatorial functions, information about an object.

Information about conservation of objects

i) Date wise detailed record keeping of the periodic conservation measures required to objects, for reminding concern staff and section.

ii) Record of the pre and post conservation measures taken to recover objects.

iii) Record of strength and precautions required for storage and packaging.

Insurance of objects

i) Insurance value of each museum object, fixed by the concern panel / board.

ii) Insurance value of the objects settled for conservation, packing, and transport requirements while sending objects to other places for travelling exhibition or loan, fixed with the receiving and concerned authorities.

iii) Records of the insurance authority and institutions that is going to take the objects as loan.
Chapter 4 Management of Information Service

© Inventories
i) Uniform method of maintaining inventory records
ii) Periodic comprehensive inventories
iii) Spot-check inventories
iv) Inventories on missing objects.

© Procedure for Loan
Information keeping about the terms and conditions of the agreement between
the lender and borrower for incoming or outgoing loans, specifying its purpose,
time period and name and address of the concern person for emergency contact.
Record of information must be kept regarding following items:

Incoming loan
Detail information regarding objects, owner and conditions for security,
transport, conservation, maintenance, display measures etc.

Outgoing loan
a) To whom the loan is given and all requests must be clearly stated.
b) Who will take the responsibility of security, conservation, maintenance etc.
c) The borrower must complete and return a 'Facility report' noting security,
   lighting, temperature, and humidity control.

© Procedure for De-accessioning
Museums should reserve the right for de-accessioning of any object under the
following criteria and should keep record of this information that may require
for justification to concern persons and for keeping office record:

i) If the object is not relevant and useful to the purpose and activities of museum
ii) To exchange, donate or sale to another museums / institutions.
iii) If the object deteriorated beyond usefulness
iv) In case of acquisition of any stolen objects from any other places, museums
   of India or abroad and claiming by its owner.
4.1.2. Research Policy

Museums deal with lots of objects and its various information. To collect all the necessary information about its objects and develop various visitors and user friendly activities, museums need to run various research works. Following policies need to take in this purpose:

i) Research on existing objects and its scope in serving society.

ii) Research on objects to overcome deficit of information that is assessed through information audit.

iii) Developing policies regarding invitation of external researchers for exploring information or deputing existing / retired staff in this purpose.

iv) Research on market conditions, what the present visitors want to see and know and through what media?

v) Research on visitors' responds in museums to overcome drawbacks.

vi) Research for finding new modes of information dissemination.

vii) Researching new target visitors, users and institutions.

viii) Research on theme of new exhibition.

ix) Research on the ability of existing staff in performing pre-defined objective of museum, their training requirement and requirement of more staff.

x) Research on physical security of objects as well as information security.

4.1.3. Dissemination Policy

Following considerations are required to undertake regarding dissemination of information:

i) What information will be provided through labels and line of information.

ii) What access should be given to general visitors, students, researchers and special visitors.

iii) What secrecy of information required in dissemination of information?

iv) What information should be placed in the museum's website and what flexibility will be given to virtual visitors in accessing information through the website?
4.1.4. Exhibition Policy

i) Theme of exhibition in a proposed year and a proposed period of time

ii) Exhibition action plan and strategies for its implementation

iii) The policy for permanent, temporary, travelling and mobile exhibitions

iv) It should address target audience, resources, provisions, roles of temporary exhibitions and permanent displays, society, research and evaluation.

v) It should constitute its most immediate, varied and energetic interface with the community.

vi) It should involve direct engagement of public.

vii) It must acknowledge the guidelines on customer care and disability.

viii) It must specify developments within a time frame and at defined cost.

ix) It must communicate messages, knowledge and entertainment.

x) Determine evaluation scheme to avoid repeat of drawbacks

4.1.5. Education Policy

1. An educational policy should discuss the role of education in the museum, and outlines the current and planned future provision. The document should include the education mission statement, the education policy, the education strategy, and education action plan.

2. It should discuss audience, budget and resources, type of educational provision, roles and functions within the museum, networks outside the museum, training, marketing and evaluation. (Hooper-Greenhill, 1991).

4.1.6. Volunteer Policy

Museum should make a policy to engage more and more volunteers in the different activities of the museum to improve its quality of service. For example, retired teachers and officials, qualified housewives, artists, research scholars etc. who can give their intellectual support to the museum. But museum should train them to perform the museum's functioning methodically and encourage to develop new skills to explore new ideas to disseminate information successfully.
4.1.7. Professional Development Policy

It should be emphasized on required training programmes and activities to encourage museum staff, maintaining good employee relations to pursue professional development opportunities, career advancement and to enhance their effectiveness and professionalism.

Outline sketch of policies required for the management of information in a museum and to run information service for visitors, users, target institutions, other museums and for internal management is shown below:

Chart 4.1: Representing the different policies required for management of information and information service.
4.2. Development of strategies

Development of strategies is required to support determined policies to fulfil museum's 'Mission Statements and Objectives'. Users have different levels of requirement and also require verifiable access. This can be done through five stages and shown in following charts:

Stage-I

Management should frame their present situation to assess strength and weakness in the field of available and required finance, manpower, market trends and museum's capability, threat from competitors, visitors' needs, source of information and administrative strength. This can be framed as the following chart:

Chart 4.2: Representing the different strategies, which a museum management should take to know their present position for doing 'Front-end evaluation', prior to launch the Information Service.
Chapter: 4  Management of Information Service

Stage-II

After determining the present strength and the capability of the museum, the management should take the next strategy to make a mission that what they can do to manage the proper functioning of information service as follows:

Chart 4.3. Representing the strategies required making an infrastructure to manage an information service.

Stage-III

Management should decide the strategies that it should take to run an information service.

Chart 4.4. Representing the strategies required for running an information service.
Chapter: 4  
Management of Information Service

Stage-IV

Following areas need to evaluate to choose the correct one.

![Chart 4.5. Representing the different criteria required fulfilling the mission of information service.]

Stage-V

**Public Service Strategy:** The main purpose of this strategy is to develop new and creative ways of serving public. All museums must be more market-sensitive, with the task of producing new and creative exhibitions, programmes and services. Staff should dedicated to audience, research and evaluation. A public advisory group is needed, consisting of people who do not visit or use the museum, so that it can discover why they are not coming.

**Streamlining business process:** The purpose is to examine continually to find ways for improving museum's work in order to reduce operating costs, bureaucracy without decreasing revenue and the weight of tradition.

**Current realities:** Staff must have the feeling that what they do to ensure the survival, growth and prosperity of their museum, are never enough. It is worthwhile to explore some of these current realities, which if understood and embraced, might contribute to sustained organizational renewal, and also help to strengthen both individual responsibility and creativity.
4.3. Management of Information

Huge number of data and information are associated with objects that require for both internal and external purposes. All these need to manage systematically, using proper categorization of information sectors, so that desired information can be accessed and served whenever necessary. A basic guideline for managing information is given as below:

4.3.1. Classification of Information Management Sectors

Museums need to manage information for two major purposes—Information required for the curatorial purposes and information that required for serving target people, institutions, visitors and users about the objects and services. This can be done as follows:

A. Information for Curatorial Purposes and Internal Management

This includes details information about objects, its display, conservation and security measures, writing labels and publications, development of programmes, giving training to guides, administrative requirements like human resource management, financial requirements, feedback and evaluation etc. These can be categorised as follows:

- Information regarding objects present in the museum’s collection
  1. Documentation records of objects following any standard method or as per CIDOC’s rule given in the Chapter-2, page no. 100.
  2. Present location within and outside museum (in case of loan or travelling exhibition).
  3. Utilization of objects for the purposes of exhibition, research or in any other purposes after its entry into the museum’s collection.
  4. List of publications on objects by the museum.
  5. List of research work, done on museum's objects and its outputs.
  6. List of activities like training, workshops and seminars organized regarding museum's objects. For example workshop on conservation measure.
7. Interest shown by users or visitors on any specific object
8. Cultural programmes arranged in relation to the non-material culture and intangible aspects associated with the group of objects.
10. Security required and provided to objects on display and in store.

It is important for every museum to explore all probable sectors concern with an object present in museum's collection or newly acquired. Research can be done on the following 5Ws and 1H factors concerned with an object:

<table>
<thead>
<tr>
<th>Where?</th>
<th>Why in the museum?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place of Origin</td>
<td>Antique Value</td>
</tr>
<tr>
<td>Material Composition</td>
<td>Historical Values</td>
</tr>
<tr>
<td>Geographical Location</td>
<td>Artistic Value</td>
</tr>
<tr>
<td>Relation with Present Days</td>
<td>Technological Value</td>
</tr>
</tbody>
</table>

How?

Story behind the object Cultural Value

Whom?

Provenance Scientific Value

Present Condition Religious Values

*Chart: 4.6. Different information sectors concern with an object in a museum that need to research for collection of information and its proper management for the purpose of museum, visitors and users.*
Information related to activities and services of museum

It is also essential to record different activities of a museum and its various associated information that require to make the activities effective for users and visitors. This can be categorised as follows:

A. Previous Activities
1. Record of the list of the events held in yearly/monthly or weekly basis,
2. Details record of the exhibitions that already held, including its theme, total objects displayed, display technique, documentation, publication, number of visitors visited, their response, total budget, its exceeding or unused amount, security, insurance value, chief guest, etc.,
3. Records of training programmes offered, seminar and workshops organized, list of invitees, number of participants, subject, evaluation result, total budget, its exceeding or unused amount, etc.,
4. Records of educational assistance, service to other museums and institutions, response of visitors and other museums in availing services, reasons behind the success and failure of the programmes etc.,
5. Revenue earning from the entry fee, training and workshop fees,
6. List of publications on the organized events.

B. Running Activities
1. Daily events and all running exhibitions within and outside the museum,
2. Time and venue of shows, training programme or any other running events,
3. Entry fee or admission fee,
4. Publication available and source.
Above information need to highlight at the entrance of the museum and in the museum's website. Regular announcement is also required to remind visitors.

C. Forthcoming Activities
Museums need to plan what it will do at least in next three months for visitors and users. Proper record regarding this should be maintained for advertisement and arrangement of infrastructure as well as for other associated requirements.
Chapter 4: Management of Information Service

Information related to publication
1. Total available publication,
2. Publication on respective museum objects and forthcoming publications,
4. Publication that need on certain objects present in the museum’s collection,
5. Publication required on the basis of the demand of visitors,
6. Adequacy of freely circulated publication and publication on sale.

Information related to resource persons of the museum
1. Staff having knowledge of the objects present in the museum’s collection.
2. Resource persons required, having knowledge of the subject of objects present in the museum’s collection,
3. Research need to undertake on the specific museum objects and requirement of the researchers.
4. Information collected from the resource persons associated with other museums having similar objects.
5. Experts’ list regarding various aspects of museum, like conservation, security, event organisation, media people etc. who can be consulted whenever needed.

Information regarding museum services
1. Undertaken services
2. Services offered to other museums
3. Service taken from the other museums
4. Service that urgently required to offer as per visitors and users’ demand
5. Requirements for new services

Information related to Exhibition
1. Running exhibition within the museum or anywhere else.
2. Forthcoming exhibition
3. Exhibition need to arrange as per present requirement
4. Preparation of exhibition publications
5. Advertisement campaign, list of persons for sending direct mail and Invitation Card.
Visitors' Information
1. Number of visitors in the last year and their average.
2. Information regarding number of visitors on hour/day/month basis.
3. Information about the categories of visitors—number of students, researchers, tourists, professionals, family groups etc.
4. Response of visitors regarding specific exhibits, galleries, activities etc.
5. Response of visitors after advertisement campaign, direct mail and sending Invitation Card—rate of increase in number of visitors.

Feedback and Assessment
1. Evaluation of services through the number of visitors and their comments
2. Evaluation of galleries through the number of visitors and their comments
3. Evaluation of temporary exhibitions and seminars through the number of visitors and their comments
4. Nature of visitors
5. Absence of target visitors

Security Assessment
1. Regular inspection report of objects in its present location
2. Number of guides in the respective galleries and near the precious objects
3. Visitors gathering points and security measures there
4. Verification of the provided information in terms of security
5. Video camera monitoring

Information regarding Finance
1. Availability of fund in museum
2. Flow of fund
3. Investment and output ratio

Information about Scientific and Technological Support
1. Areas where technology need to implement for serving visitors.
2. Ability to access information from the provided technology.
Chapter 4

Management of Information Service

B. Information regarding Visitors and Users

Information about visitors/users

1. Who are the target visitors?  
2. General queries of visitors and demands of researchers.  
3. Details information about visitors/users like their educational background,  
   purposes of visit, working/studying area, demand etc.  
4. Category of target visitors, institutions and museums in respect of museum's  
   exhibits and service planned for them.  
5. Number of visitors in specific gallery, show, training programmes,  
   workshops, competitions etc. held in different times in the museum.  
6. Requirement of information on the basis of frequency of asked question and  
   new field of query

Information required for Publicity Division

1. Modes of information dissemination to reach and convince people.  
2. List of names, addresses, telephone numbers, e-mail addresses of media  
   personnel, persons to be invited, Directors and Curators of different  
   museums, Head Master/Mistress of different schools of the city, Head of  
   other target institutions, reporters, editors, Advertising Agency etc. required  
   for sending mails and invitation cards.  
3. List of forthcoming events, date, time, venue, chief guest and other delegates  
   and other important facts required for writing letters, cards, posters and  
   banners.  
4. List of the rates of space booking for outdoor advertisement, in newspapers,  
   and time slot-booking rate in audio-visual media.  
5. Up-to date list of the market rates of paper quality, colour charge and printing  
   charge for publishing folders, brochures, picture post-cards and other  
   publishing items.  
6. Records of photographs of objects or any activities with negative numbers  
   required for publishing folder, invitation cards, and other publications as well  
   as for giving press release.
Chapter 4: Management of Information Service

Visitors’ Query Record
1. Information query of visitors, recorded in Information Kiosks / Reception Counter or by the demonstrators and guides.
2. Record of supplied information and deficit of information.
3. Record of new field of query that could not be answered.

Query and Comment Analysis
1. Record of analysis on query of visitors, their area of interests and demands.
2. Record of comments written by visitors in the Visitors’ Book (general, gallery wise and temporary exhibitions) and in the complain book.
3. Analysis on given answers

All these are required for the following management purposes:

- Evaluation of undertaken services in terms of the followings:

  1. Number of Visitors—increasing or decreasing ratio
  2. Number of participant in training and workshops—increasing or decreasing ratio
  3. Number of targeted people as visitors and invitees—increasing or decreasing ratio
  4. Visitors’ response—positive or negative
  5. Demand of visitors—that can be served at present / need to wait till arrangement of finance and other requirements / not possible for the museum stating appropriate reasons.
  6. Revenue Earning—increasing or decreasing ratio or static condition
  7. Increase in the popularity of museum—result of the market survey at least at the interval of two years.
  8. Accessibility to information—accepted by users and visitors or not
  9. Reach of Information—to common people, tourists and among the target institutions like schools, non-government social organisations dealing with children etc.
✓ Overcome the drawbacks by taking following steps

1. Removing the limiting factors
2. Exploring new opportunity and scope for serving well, being different to competitors
3. Minimizing the weaknesses of museum
4. Giving more emphasis on the strength areas of the museum and exploring new opportunities to serve people better and better.
5. Strengthening museum's management
6. Accepting and using new technologies for improving functioning and serving visitors

✓ Improve the quality of service by taking following steps:

1. By renovating the gallery by rearranging exhibits
2. Improving labels with more interesting and important information
3. Introducing Gallery Service
4. Introducing electronic implements for entertainment and practical demonstration
5. Taking visitors' care
6. Providing more information materials.

✓ Assessment of success in term of the following

1. Increase in number of visitors / users / participants
2. Proper attention to visitors
3. Satisfaction of visitors
4. Earning more revenue
5. Increase in repeated visit
6. Increase in the number of local people
7. Availing educational services more and more by school students
### Aims

**Required Knowledge and information to support**

**How people need to act to use knowledge and information**

<table>
<thead>
<tr>
<th>Exhibits</th>
<th>Detail information about objects and display technology</th>
<th>Maintain awareness of current development by reading, and interaction. Apply knowledge in developing display and learning visitors' response.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Information</td>
<td>Source of acquisition, market price etc.</td>
<td>Information about acquisition</td>
</tr>
<tr>
<td>Documentation, Research and Publication</td>
<td>Of collection and subject background, modern documentation practice, technological support, publication</td>
<td>Generate interest among visitors regarding latest development and use of technology</td>
</tr>
<tr>
<td>Conservation measures</td>
<td>Modern conservation technique, environmental requirements</td>
<td>Apply knowledge in planning/maintaining conservation schedules</td>
</tr>
<tr>
<td>Complementing the collection by loan</td>
<td>Similar objects in other museums in India and abroad</td>
<td>Taking decision about loan of objects, negotiate with agreements of lending museums / institutions, cataloguing and publication</td>
</tr>
<tr>
<td>Interpreting collection</td>
<td>Visitors' profile and method of interpretation, educational assistance</td>
<td>Interaction /information sharing between curators, education officer, publicity department, information service cell</td>
</tr>
<tr>
<td>Museum to a range of visitors</td>
<td>Ways in which interest of visitors can be generated</td>
<td>Information sharing with visitors, users, target institutions.</td>
</tr>
<tr>
<td>Securing resources</td>
<td>Museum's financial and other resources, relevant legislation</td>
<td>Keep managers informed about financial situations</td>
</tr>
<tr>
<td>Observing and contributing to the development of standards</td>
<td>Existing standards, requirements, regulations, legislative bodies concerned with developing and maintaining standards</td>
<td>Interaction between people responsible for applying and development of standards</td>
</tr>
</tbody>
</table>

**Table 4.1. Assessment of Information. Conceptualized from the "Information Management in Museums" by Elizabeth Orna, and Charles Pettit.**
4.3.2. Information Audit

Information audit is the process of assessment of information regarding objects present in the museum's account and how much information is required to collect through various sources and research. It also audits the stock of information as per visitors' demand, present trend and expected queries. This information audit need in museum at regular interval of time and in case of the following events:

**After Accessioning of objects**

First stage of information audit is required just after the accession of an object in the accession register as a permanent collection. Here assessment should be made on the basis of available information and required information, to fulfill curatorial requirements. After assessment, list of queries need to send to the research division to explore the required information.

**After Determination of Policies**

The second stage of the Information Audit should be started after determining the policies regarding information dissemination, education, exhibition policy etc. that are concern with the information of objects that is going to display. Any shortage of information can be detected here before its public exposure.

**After Estimations of Information Demand**

This is the third stage of information audit. This audit is required to take on the available demand of the visitors, so that shortage of information can be overcome as well as more information can be explored about the frequent enquiring areas.

Information audit can help museum management to collect all the associated information about an object present in the museum's collection, from the authentic sources, so that information can be provided to the user or any other enquirer whenever required.
4.3.3. Database Management

Management of information is essential for keeping up to date record about museum's collection, different activities and feedback, in addition to the administrative and financial information recording. A computerized data management system is essential in this purpose for storing huge data and easy retrieval. A Database Management System or DBMS, is a system, which allows the storage, maintenance, manipulation, and presentation of data, preserving their integrity and assuring their safety. DBMS provides easy data retrieval solution. Through DBMS many to many relationship can be established in a network system, and it can be designed as per requirement. It can be represented as following chart:

![Database Management Scheme](chart)

Prior to initiate the Database Management, the staff concerned with this job need to select a work site and need to assembled the data standard manual data-entry documents, any special implements and materials, and any other reference work needed, such as history files, field notebook, location maps etc. The various stages through which information passes for Database Management System may be categorised as below:

**Data Entry and Recording**

It is the process of assembling all available information about an item from all sources, including the input from curators in to a data-entry sheet. The data entry sheet can be ephemeral or can form a transaction document. It should be structured to make it feasible for addition of new data and alteration of existing data whenever necessary.
Chapter: 4  Management of Information Service

Data Verification

Modern Database Management System enables to control or to verify information as it is typed in, by creating controlled vocabularies to individual field and adding required terminology into the dictionary present in the computer's memory bank. All modern Database Management Systems allow online editing of the data, provided the user has been granted permission to change the information.

Data Processing

i) Retrieval of information
SQL (Structured Query Language) provides package for an easy retrieval of information. DBMS (Database Management System) also give easy access to users. It is better to provide a 'standard query box' to assist users to search the database.

ii) Level to access
Maximum museum visitors as well as museum staff do not have knowledge of computer. Thus, proper instruction should be given so that any literate persons can access information. Visitors and users should be given access to read-only information only, so that they could not alter any data intentionally or due to ill handling. It is recommended that only copies of information should be made available to users within the museum and in the museum's website.

Output

Inside the museum, visitors or users may be allowed to take printout of information and in form of CDs. In museum's website virtual visitors may be allowed to download basic information with poor resolution images only. All these information must support software, which helps to build and maintain files. It should ensure that all such information should be available through LAN and museum should reserve its Copy Right power regarding provided information.
4.3.4. Storage of Information as Record and Access to Information

Collecting all relevant information about an object present in the museum's collection, the job comes to store information for the future use. Information should be stored in following records:

◆ **Accession Register**: In detailed but classified forms with photographs that mainly store curatorial information.

◆ **Accession Card**: Same information about an object like Accession Register but in a card for easy handling.

◆ **Catalogue**: Classified information of objects present in a gallery wise, a book or cards form with or without photographs.

◆ **Index Card**: Like catalogue card or accession card information about an object of a particular gallery can also be stored in a post-card size Index Card with photograph. It includes all information of the Accession Register.

◆ **Monographs**: It contains detail information about objects present in a gallery.

◆ **Annual Report, Bulletin and Journal**: Museum should maintain a research cell and that should publish new inventory regarding objects present in the museum collection along with its monthly or yearly activity report. So that interested people and researchers can access it in the museum's library.

◆ **Ticket Selling Documents**: It needs to preserve because from the ticket selling record, number of visitors of the museum, visitors interest (in case of separate ticket in shows or activity) and museum's revenue earning can be analyzed that very much essential to know the success rate of the museum.

◆ **Label**: Information is also stored in brief and in details in different labels used for different purposes in the museum for informing visitors.
Chapter: 4 Management of Information Service

♦ **Gallery Plan**: It stores information related to the position of galleries and its contents for the use of visitors/users to guide them to find out their desire galleries.

♦ **Visitor's Books**: It records visitor's comment either on entire museum, gallery wise or about a temporary exhibition. Their comment is most valuables for updating information about visitors' acceptance, likes and dislikes for refining museum's services.

♦ **Media Review Cutting**: It is also necessary to collect all the news release and advertisement published in different newspapers for future reference. It is also required in case of any correction needed in the published news or advertisement copy. Otherwise readers will be wrongly informed.

♦ **Folders**: It stores information related to the museum and its exhibits in brief for informing visitors. Various types of folders are published by museums like museum folder, gallery folders, exhibition folder, activity folders etc.

♦ **Record of visitor's query**: It is very much essential to record the queries of visitors to assess the trend of information demand by the visitors to plan information dissemination in accordance with it. A register should be maintain in the information kiosk or reception counter to record these queries manually. It can be recorded in computer, setting a program.

♦ **Close circuit camera**: Its necessity in every Indian museum is very much felt after the incident of theft of the Nobel Prize of Rabindranath Tagore and many valuable objects along with it from the Raindra Bhavan at Shantiniketan, West Bengal, which is detected in March 2004 and after the theft of the Head of Buddha of the Gupta Period from the Indian Museum, Kolkata in December 2004. Recording of the whole day incident is, therefore, essential and cassettes should be stored date wise in the secured place, after proper inspection.
### Record Management

<table>
<thead>
<tr>
<th>Raw Data</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curatorial Information</td>
<td>Accession Register / Card, Catalogue / Card, Index Card and CD-ROM etc.</td>
</tr>
<tr>
<td>Detail Information about objects</td>
<td>Label, Individual File, CD-ROM as Data Bank, Gallery Guidebooks, Folders, Monographs, special publication etc.</td>
</tr>
<tr>
<td>Bibliographical Reference</td>
<td>Along with Documentation Details</td>
</tr>
<tr>
<td>Previous Research</td>
<td>Maintaining a list of persons, in a section file who had done research on museum's objects along with their topic of research and research abstracts.</td>
</tr>
<tr>
<td>Information related to artists / tribes / Community / performers etc.</td>
<td>Maintaining a list of names, addresses, locality, organizations, training centres, of artists'/ craftsmen with details information.</td>
</tr>
<tr>
<td>Security of objects</td>
<td>In cassettes, recorded by close circuit cameras, placed near every important object.</td>
</tr>
<tr>
<td>Press List</td>
<td>For public relations a list of the name of newspapers, TV Channels, reporters of print and electronic media should be maintained.</td>
</tr>
<tr>
<td>Website</td>
<td>Museum can launch its own websites or can load its information as web pages in any big portals.</td>
</tr>
</tbody>
</table>

*Table: 4.2. Showing raw data and its storage for getting proper information*
4.4. Human Resource Management

Human Resource Management is concerned with the management of people or staff of an organisation for utilizing their ability, efficiency, qualification and experience in accordance with the pre-determined mission and objectives of that organisation.

In a museum, human resource management is very much important as because of human intelligence, qualifications, experiences, communication skills, management power etc. that require to handle huge number of objects and their oceans of information in the service of society. Therefore, the authority should know the abilities, skills, knowledge and potentiality of all the people who work in the museum to utilize them in such a way so that they can be able to provide their full strength, intellectuality and sincerity at the highest level for achieving pre-set objectives of the museum. A museum information strategy should embody a supporting strategy for the use of people's ability and knowledge.

For managing human resource, a database management regarding staff is required to maintain for storing data regarding the following facts about the museum's staff:

1. Total number of staff—existing and retired, their designations, departments, contact addresses with telephone numbers.
2. Classification of all the staff according to their academic qualifications, training exposures, experiences, achievement etc.
3. Classification of the required knowledge in different field of museum's activities.
4. Record of the details of the resource persons associated with the museum and to whom consultations can be made or can be invited them for the purposes of the museum.
5. Record of the required resource persons that needs to appoint either fresh/permanently or as volunteer service.

This can be done in two ways: Knowledge Audit and Human Resource Audit.
4.4.1. Knowledge Audit

To manage and to utilize the knowledge, intelligence, experience and qualification of museum's staff, as well as to assess the further requirement in terms of all these, a knowledge audit is most essential today. It is also required to depute right person in right job so that he/she can serve his/her best. A museum can take following steps in this regard:

1. Finding out the resource of human knowledge and skills, which the museum needs, in order to achieve its aims.

2. The existing resources of knowledge embodied in the people who work in the museum.

3. Maintain a continuity of knowledge resources and protect them from loss, in the face of normal changes in the composition of the museum's staff and of major developments in the policy and ways of working.

4. The education and training that the museum needs to provide for its staff in order to develop and increase their knowledge.

5. The role of technology in supporting the people in using and interchanging knowledge and training requirement for staff to update knowledge regarding new technology.

6. The promotion of 'organizational learning'—the capacity of the organization as a whole to learn from experience and to apply it in developing its work.
4.4.2. Human Resource Audit

A museum needs a systematic assessment of the strength, limitations and developmental needs of its existing human resources in the context of organizational performance. It is the critical analysis of the existing human resource within the organisation. It should be done on the basis of the Knowledge Audit as given below:

A. Expertise Present

It includes present staff members, retired persons, external resource persons, volunteers etc. Following audits need for the assessment of staff and associated persons in accordance with the required knowledge for serving museum:

1. What knowledge and expertise do the museum's staff possess?

2. Record of experience of training taken by staff

3. Comparing qualification and experience with the requirement of job sectors.

B. Expertise Required

In most of museums or it can be well said as almost all museums in India a huge gap is present in between the existing human resource and required human resource. This is confirmed and can be confirmed after Knowledge Audit. It is then required to find out what more human resource, having desired knowledge is required in the museum. It can be done in following ways:

1. What additional knowledge and training the present staff require?

2. In case of insufficiency of qualified staff who can be trained further for improving quality of service, what more fresh qualified people need to recruit in the museum to manage the entire museum systems.

3. List of posts with essential and desired qualifications and experiences that required to fill up.
4.5. Information Service Management

Beside managing ocean full of information, museums need to manage its information service for visitors, general and target people, target institutions and information required for internal management. This service can be categorised as below:

1. Information Service for General People including target visitors outside the museum
2. Information Service for Target Institutions
3. Information Service for Visitors
4. Information Service for Users
5. Information Service for Internal Management

4.5.1. Information Service for General People including target visitors outside the museum

Without waiting for visitors, museums need to inform about it to general people for convincing and attracting them towards museum. Regular information regarding museum is also require to disseminate for creating general awareness about museum, its objects, and services and to remind people repeatedly. Besides this, every museum has its target visitors quite different then others and every service of a museum is targeted to specific group of visitors. Therefore, information needs to deliver these target visitors.

To run all these services smoothly and successfully a planed management is required for decision making, selection of target visitors, selection of information that need to deliver, selection of time period, selection of the modes of dissemination and media etc. This is required to deliver information to the correct persons and in correct time to give opportunity to people to take the benefit from the museum.
Chapter: 4 Management of Information Service

Flow of information that required maintaining among different departments to manage supply of information, is shown in the following chart:

```
<table>
<thead>
<tr>
<th>Central Management</th>
<th>Decision of Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Service Cell</td>
<td></td>
</tr>
<tr>
<td>Information need to disseminate</td>
<td></td>
</tr>
<tr>
<td>Publicity Division</td>
<td>Advertising Agency</td>
</tr>
<tr>
<td>Information to General People through mass communication and outdoor media</td>
<td></td>
</tr>
</tbody>
</table>
```

Chart: 4.8. Management of the Information Flow for General People outside the museum

4.5.2. Information Service for Target Institutions

Museums need to disseminate information to various institutions like cultural organisations, non-government organisations, schools, colleges, universities and museums for exchange of information, exchange of publications, invite officials, staff, students, members, professors, artists etc. to participate in training programmes, various activities, lectures, seminars and workshops, inviting or giving loan, sending or inviting travelling exhibitions etc. In maintaining all these level of communication following step of management is required:

1. Selection on target institution and respective persons working there
2. Selection of the Modes of Information Dissemination.
3. Communication through the pre-defined media
4. Keeping record of the receiving of the message by the target institutions.
5. Registrations and Confirmation of the said events.
4.5.3. Information Service for Visitors

Museum provides information to its visitors in multifarious ways. Proper management is very much essential so that each visitor can perceive provided information and get knowledge out of it. Information is generally deliver through following major services:

- Information Counter or Reception Counter/Desk
- Labels, signboards, captions etc.
- Guide Service
- Guide-o-phone
- Gallery presentations like slide show, video film show, audio system, etc
- Discussion with specialists
- Special programmes like cultural programmes, talk show, film show, show on science, natural aspects etc.

To run all the above system museum need to take following management steps:

1. Update information to all the above sectors.
2. Training to guides on the following aspects:
   - Subject matter, visitors' care, communication skill, operating models, handing group of visitors, asking questions tactfully, receiving feedback and reporting to the concern section about the queries, given answer and requirement of more information.
3. Operating and maintaining various presentations.
4. Invitation of artists, speakers for different programmes and arrangement of their required facilities.
5. Running regular announcement to remind visitors about scheduled events.
6. Provide all sorts of information to the enquirer from the Information / Reception Counter.
7. Analyse the information asking areas, drawbacks in the supplied information to improve the information dissemination system.
Chapter: 4  
Management of Information Service

4.5.4. Information Service for Users

A good number of students, teachers, researchers, artists, designers, etc. frequently use museum for referring objects, taking educational facilities, research assistance and use museum's library.

For managing all of them museum requires taking following decisions:

**Access Right:**
1. Persons coming through proper channel
2. Persons having prior appointment
3. Persons having valid interest

**Access Area:**
1. Access to Computerized Documentation, loaded in ROM\(^{19}\)
2. Access to Internet or Intranet in museum’s cyber room in ROM only
3. Access to Video films, documented on museums objects or related field.
4. Access to reserve collection, Accession Register, Catalogue, Index Cards and Annual Reports under supervision or in presence of responsible museum staff
5. Access to Conservation Laboratory, modeling unit in presence of departmental staff.

**Access Restriction:**
1. Handling objects that are very much deteriorated or can be damaged due to inexperienced handling.
2. Access to such information that may harm museum's interest.

**Access Charge**
1. In case of using museum's information for personal use, like publication of articles, books, taking designs for commercial use, as copyright charge.
2. Information Service Charge in case of such information that is explored by the museum.

\(^{19}\) Read Only Memory that can not be alter by the user
4.5.5. Information Service for the Internal Management

The internal management of a museum requires a large number of information regarding finance, human resource, collection, galleries, education, conservation, security, amenities etc. to run its every sector successfully. It also requires feedback from the public relations/publicity department, information/reception counter, ticket counter regarding visitors about their opinion regarding provided service to overcome drawbacks. Correlation needs among different departments for proper management as shown in the following chart:

![Diagram showing internal management relations required among different departments of a museum](image)

*Chart: 4.9. Showing internal management relations required among different departments of a museum*
Information Pyramid

Museum's information collection provision is like a Pyramid. At the top there is a single person who provide objects and few basic data about it to the museum. Small number of curatorial staff then refines this data and converts into information. This information is then properly documented by the staff for the access of large number of visitors/users and for future uses of the museum itself.

Chart: 4.10. Pyramid of Information Dissemination
Chapter: 4  
Management of Information Service

In the following charts an attempt has made to show information supply from the Central Information Service Cell to different locations from where information can be disseminated to the target sectors.

Chart: 4.11. Shows the role of the Internal Management in dissemination of information through the Information Service Cell that delivers information through various channels to target sectors.
4.6. Information Security

Information is the valuable resource of every museum. Inadvertent or malicious loss, misuse or destruction of data can lead to consequences as disastrous in terms of manpower, material and money. Thus, need for safeguarding information has become more acute. It includes two major aspects:

Information Security

It is the protection of data against accidental or intentional destruction, disclosure or modification. Computer data security refers to the technological safeguards and managerial procedure, which can be applied to computer hardware, software and data to ensure that organization's assets and privacy are protected.

Information Privacy

It is the right to decide what information the museum wishes to share with others or is willing to accept from others.

Museum deals with variety of information that is stored manually in different record books and cards as well as through computers in hard disk, floppies and CDs. Each and every information is important, precious and confidential. Leakage or misuse of any confidential information can invite criminal offence in museum such as stealing of antiquities from strong room, stores and display. For example, incident of stealing of the Nobel Prize of Rabindranath Tagore from the Rabindra Bhawan Museum at Santiniketan in West Bengal. Thus, in addition to the security of objects in galleries and stores, security of information is most essential today. Proper planning and management is very much required. At the time of research in different museums in India various drawbacks are found in the security of information. If it is not checked immediately, information piracy, misuse of information and alteration of valuable information by museum staff will increase that will invite more theft in museums. Thus development of strategies are very much essential in Indian museums to protect information.
4.6.1. Requirement of Information Security

1. People take information, photographs and photocopies of valuable documents and using this information for their own business like publication in their own name, writing and selling books etc. Many of them are demanding that this information is the achievement of their own research work and ignoring all efforts of museum. These effort affects on the museums achievement and revenue.

2. Any user may misuse information provided on museum website about the objects, by taking printout of the photographs and text information, using it for commercial purpose and demanding it as his achievement.

3. Any person can know about the location of precious objects in museum collection, its price, present location etc. and can prepare to steal it.

4. Maximum computer uses for searching information are connected through Local Area Network (LAN) system. Any error or event of failure of computer Hard-Disk may damage all the information connected via same line.

5. In case of any accident museum may suffer from the great loss of information.

6. Computers connected through Internet may acquire virus any times that may damage entire information present in all computers connected together.

7. Information may be corrupted, become unreliable through unauthorized change by any malfunctioning of system or fraudulence of any mischief.

8. Any virtual user of the museum website may damage the information system by Hacking data. According to Kehoe and Stephens (1996), it is estimated that one computer system on the Internet is broken in every 20 seconds.

9. Malicious attack by the employee may damage the valuable information.

10. In case of the use of the 'My PC' software by the museum in its LAN or Website, any person on Internet or LAN may damage the entire system by altering data and can give great loss to museum by stealing secret information.

All these may create a condition of doomsday scenario and objective of information service may show 'mission-critical'.
Security of Manually Stored Information

Manually, information is stored in different record books like Accession Register, Catalogue books / cards, Index Card etc. Analysing security measures in different Indian museums following threats are found:

 Threat of Information:
A. Damage due to Accident
B. Damage due to ill handling
C. Damage of information due to environmental factors
D. Modification of data by staff
E. Stealing of Information
F. Misuse of Information

Reference Study: 1. Madhav Chandra Goswami Museum, Guwahati University
It is found that many Indian and Foreign scholars / artists are taking huge number of patents of designs mainly of traditional ornaments and tribal textiles of Northeast India from this museum in graphical forms along with photographs without any acknowledgement and payment. They are using this valuable information in their respective fields and countries. Any information is the asset of museum; need a long research, knowledge and manpower. Thus, security is required immediately to check this sort of misuse of information.

Reference Study: 2. Indian Museum, Kolkata and Rabindra Bhavan, Santiniketan, West Bengal
From both of these museums most valuable objects are stolen. From the Indian Museum, Kolkata, a Head of Buddha of the Gupta Period, is stolen in December 2004, which was excavated from Sarnath by Sir Alexander Cunningham. From the Rabindra Bharati Museum the Nobel Prize of Rabindranath Tagore along with many valuable objects are stolen that detected in March 2004. It is fact that security of information regarding the location, weakness in the security system of these two museum were not maintain properly as a results these valuable treasures are successfully stolen.
Chapter: 4  
Management of Information Service

Measures Required in Information Security

Following security measures are most essential to combat with the above-mentioned threat in security of information:

1. Access to the information should be given to authentic staff / persons / visitors only.

2. Copy of information should be kept in a strong room.

3. Proper security should be arranged in and outside the strong room and office room where information is generally stored.

4. It should be ensured that the cabinets containing information and the room is completely secured from fire, water, earthquake, pollution, pests and theft.

5. Condition of all the documents should be inspected at regular interval of time.

6. All the records should be stored in multiple copies in different places and also in CDs and DVDs.

7. After the entry of objects in the Accession register and in other such type of documents, all the entries should be verified vividly to avoid any chance of manipulation of data.

8. In regular interval of time the stored information should be tallied with the objects in galleries and stores.

9. No staff should be permitted to take out any record books, CDs, DVDs, Floppies etc. out of the museum building.

10. Copied information should be provided to the users and enquirer under the supervision of a responsible museum staff.
Chapter: 4 Management of Information Service

© Security of Information Stored in Computer and in Computerized storage devices

Revolution in the Information Technology facilitates organisations to perform job more easily, effectively in very short period of time, giving minimum effort and spending very little money. But along with innumerable working facilities chance of information insecurity has also increased than manual information storing system. Because in addition to the security arrangement of the hard copies, organisations need to look after the security and maintenance of technologies and the entire systems that is operated by Personal Computers or PCs. Along with this it is also required to watch over manipulation of data by staff and users.

Security Status of Personal Computer

1. Data snoopers may steal confidential files or data and can modify information.

2. Anyone can turn the switch on and access information.

3. A LAN is an open opportunity for mischievous or disloyal co-workers to get confidential information. Any user can interfere with memory bank, erase data, and input wrong data.

4. While searching for information any layman or unskilled museum staff can create system error by wrong entrees that may create problems in information access for some time or cause missing of many valuable information.

5. Any person after entering into exhibits list can delete any important objects and can steal that object from the museum collection by removing all its information from museum’s documents.
Reference Study: 3

'One day in 1970s, the Natural History Curator of a City Museum, in UK noticed that the collection only contained three specimens of rare butterfly. The three butterflies were neatly pinned without any gap but the curator was puzzled. He checked the computerized databases but that also confirmed about only three butterflies. But the curator was still uneasy. He then checks the microfiche copies of the database taken at intervals of a year. He found that in the last year document there was four butterflies and confirmed that someone had not only purloined the specimen, but also altered the database by giving fraudulent information.'

The Need for Backup and Recovery

The hazards that could disable the computer operations are generally categorised as follows:

1. Hardware and Software failures,
2. Environmental failure involving electric power, air conditioning, building integrity etc.,
3. Accidents like fire, smoke, water, storms,
4. Vandalism, sabotage, rioting,
5. Operational errors, probably the most frequent case for inability to operate, often with the most severe consequences,
6. Non-availability of personnel whether due to strike, disease, communication breakdown or disruption of transportation.
7. Modifications and erasures of data,
8. Computer Viruses,
9. Data Tapping or Hacking
10. Unauthorized Access
11. Theft of PC, floppy and CDs loaded with important information.
12. Physical damage of floppies, CDs, DVDs as well as PCs

Hence, there is a definite need of a proper system for backup and recovery.
Chapter: 4  Management of Information Service

Steps taken for Information Security

Data security should be the prime concern, not only of the museum administrator, system manager, but also of all the people using and depending on the system. Therefore, strong action needed for the security of information. Here are few useful measures that are found effective in securing information:

Guidelines for dealing with computer maintenance

Physical Security

1. PCs should be physically bolt down to a table so that it cannot be casually lifted and taken away,

2. Locate the PC in such a way that it is conveniently accessible to users, but hidden from casual visitors,

3. Providing facility of keyboard to users or visitors should be avoided and access should be given through touch screen mode,

4. Keyboard and PC locking devices can be fitted so that PC cannot be operated unless these locks are opened by giving exact password,

5. Keep a record of all floppies in use, do not permit alien floppies, CDs, DVDs into any PC of the museum,

6. Use lockable rooms for PCs, especially those handling sensitive data,

7. Have temperature and humidity gauge placed in the close proximity of PC and keep a casual watch to ensure that conditions are within limits. Switch off if the limits are exceeded,

8. Ensure that excessive dust or paper scrap does not accumulate near the PC,
9. In case of abnormal electric supply, large variations of voltage and frequency or spikes, it is prudent to have voltage and frequency stabilizers for the PC,

10. Plug sockets should fit snugly and cables leading to terminals and printers should be secured properly and not left hanging,

11. PC and its all peripherals should be properly covered,

12. All equipment, PCs and its peripherals should be cleaned regularly.

13. It is always advisable to switch on machines that are heavy current users like lesser printer, scanner before the Personal Computer and off in same way attached in same circuit.

14. Only professionals in museum who know about the computer and system operation should touch computer and stay near computer when any outsider is operating it.

15. Museum professionals and persons who look after the cleaning of computers should know how to handle computers, its sensitivity and the severance of mistreating.

Software Security
1. Always original software for Operating System, compilers or software packages should be used.

2. Always shut down computer properly closing all the files.

3. Passwords should be given for individual applications.

4. Back-ups of all the files should strictly maintain in more than one set.
Chapter: 4  Management of Information Service

Network Security

1. Keep the server away and limit physical access.

2. Run servers in the background mode, thus the server can be booked on, for using in the network, but, for direct use of the server, a separate password is recommended.

3. Some networks provide auditing facilities that can be used.

4. Network cables should be inspected regularly so that no body can tap information. It is better to shield or conceal the cables to prevent easy access.

5. Codes and ciphers should be used in data communication.

6. Use fibre-optic cables for highly sensitive networks as they are difficult to tap, however it may be possible to steal data through sensing the perturbations of the fibre itself.

7. Prohibit the use of password embedded in communication access scripts if this is unavoidable, use encryption for password.

8. Consider the use of see-through devices for any system in networks or through dial up.

9. Should allow 'read only' access to visitors.

10. Museums can prefer "UNIX" written in 'C' language, since it has good security features.

11. Access Control Card is available on PCs. This card has its own memory and software and can be programmed as required. Anyone wants to access a PC, need to pass through the authentication routines through this card and thus, unauthorized access can be prevented.
Password Security

Using password is the basic necessity to ensure data security and the whole procedure should be as follows:

1. Identification Password: Here a code word or a secret number acts as a password to access into the information files.

2. Authentication Password: Here a series of queries are given that need to answer. If all the replies match then the user can enter into the systems.

3. Authorization Password: Here only a given user, to whom the permission has been granted, can access data, read and write or alter.

Protection against Misuse of Information

Using following actions museum can check misuse of information and tall claims on its information:

Copyright Reserve System

All the valuable documents of museum should acquire All Right Reserve authority to check misuse of data by any other person in his/her name. If any person is interested and willing to use this information he/she then need to take written permission from the competent authority. This will definitely save misuse and unauthentic claim. This provision should also be made in museum websites to secure information from its piracy. For example, the Website of the National Museum, New Delhi.

Licensing

Another defence mechanism is License system. Here willing person may use information after acquiring license for a specific period of time from the relevant museum against nominal fees.
Protection against Computer-Virus

Computer viruses are computer programs, which are a collection of coded instructions present in the Internet and created by some mischief. Like usual computer programs, viruses have self-replicating nature and capable of executing themselves without being asked for. Apart from self-replication, another devastation caused by viruses is data loss. It can corrupt the File Allocation Table or the directory area inside computer hard disk. Lodged in a host computer, the typical virus takes temporary control of the computer disk operating system, and when the infected system comes in contact with an uninfected computer, the virus passes on that machine. The viruses enter into the computer through Internet, floppy or CD. While entering, these viruses create bad-sectors inside the hard disk or in various software, present in hard disk.

Classification of Viruses

Viruses are classified on the basis of existence and there are three categories of viruses:

Boot Infectors

This virus physically resides in the boot sector of the hard disk. A system infected by this virus destroys floppies, displaces information where it resides and creates 'Bad sectors'. Once the Boot infectors are loaded, would stay in the memory until the system is shut off and the disk reformatted.

System Infectors

It deals with the components of the system itself. These viruses attach themselves to a file such as COMMAND.COM or other memory resident files and manipulate these files. It gain control after the computer is booted and infected a hard disk or bootable floppies, which contains the appropriate files only. These viruses may activate after a given period of time or may instantly begin subtle modifications in system processing such as, increasing the time to perform system functions, scrambling of data, or modification of systems error messages or information messages.
General.com or .exe Infectors

From the infection point of view, these viruses are most dangerous and devastating out of the three classes of viruses. They attach themselves to program files and can spread to almost any executable program in any system. These viruses change the original program instructions into its own code and hampering access to that file. By attaching themselves to .exe or .com files, they alter the file size and sometimes multiple infections renders program files too large to be accommodated in the memory.

Type of Virus

The virus list has become a non-ending entity and new viruses are joining in the list every day. Here below a list of most commonly prevalent viruses in the computer industry is given:

Score Virus

It is prevalent in Macintosh machines. It is activated in two, four and seven days after the disk has become infected. The consequences are varied ranging from printing problems, system clashes and malfunctioning of disk operations. To erase this virus all files in the hard disk need to delete.

Brain Virus

It destroys data present in files.

Lehigh Virus

This virus stays in the stack space of command.com. with the booting of a PC from an infected disk, the virus is spread through command such as COPY, TYPE, DIR etc. On any other disk with command.com the virus code gets copied to the other disk and a counter is incremented on the parent. When the counter reaches a value of 4, all files of the disk gets erased. The boot sector gets ruined.

Friday the 13th

This virus attacks not only the command.com but also other executable files.
Chapter: 4  
Management of Information Service

Sunnyvale Slug
It modifies the COPY Command, resulting in deletion of files instead of copying.

Raindrops
This virus infects .com files and showering characters on the screen like raindrops accompanied by sound effects.

In addition to above lists there is innumerable virus and the list is increasing day by day.

Prevention
Museums need to follow some simple precautionary measures, which can reduce the possibility of virus attacks. Here following measures are given that are very much essential to undertake to protect machines against Viruses:

1. The CHADSK command can be incorporated to the AUTOEXEC.BAT to check the disk. If the number of hidden files increases, the matter should be looked into.

2. The use of pirated software should be stopped.

3. Right protect tags should be used on the original software diskettes.

3. It is desirable that whenever computer is on the virus checker should run to check the hard disk.

4. Every floppy disk that is used on the system is checked for viruses before being accessed for the first time, and re-checked if it is used outside the institution at any time.

5. Proper backup of all data and program files should be kept.
6. Copying of files should be done carefully; a better practice is to write the COPY command in a batch file with CHKDSK command.

7. Used floppies should be reformatted.

8. Avoid letting the system to be used by unauthorized users.

9. Restrict the use of outside floppies.

10. In case of large number of floppies and CDs that need virus checking, museum may install a ‘stand-alone’ machine that can check virus prior to entering it into operation machines.

The Cure
The viruses are not omnipotent. Viruses can be cured with anti-viral program. This can be done as follows:

Prevention: Anti-virus software checks whether the system has been infected or not and stops the virus to infect the system and stop modification of executable files.

Detection: Virus detector software should be installed in the PC. This software is able to warn the user about the presence of a virus after it is loaded into the machine or disk. These programs maintain a file with a list of checksum values of the executable files.

Vaccination: the Vaccinator injects some code into the executable files. When the vaccinated file is run, the infected code performs an integrity check on the program being executed and warns if any changes have been made.

Inoculation: the innoculators insert the virus signature into infected areas or files at appropriate locations. When the virus performs their self-detection, they find their signature and find that the memory/disk/file is already infected or not.
Chapter: 4  
Management of Information Service

**Damage Control:** Anti-viral program can control damage through prevention or restoration. Preventive technique includes stopping attempts at direct access such as formatting and deleting, or even write protecting the hard disk while testing unfamiliar software. The restorative process is achieved by maintaining a copy of the CMOS information, boot sector information, the file allocation table etc. in floppy.

As a virus can hide itself in many different ways, it is difficult to detect all viruses with just one anti-viral program. Moreover, the virus writers keep alerting the viral code, so that it cannot be detected by any existing available virus detector software and, in principle there never will be.

**Protection against Hacking**

1. It is very much essential to isolate the internal computerized documentation system from the Internet or loaded it as Read Only System only to avoid any chance of Hacking.

2. Another line of defence is to erect a regular upgraded ‘Firewall’ in between internal and external access system to prevent unauthorized access to computer system. This ‘Firewall’ should be checked regularly by ‘Anti-Virus’ Software.

3. Overall it is very much essential not to load any sensitive information, such as cost and location of any precious objects, field site of endangered specimens etc. in the networked Information System that has public access.

4. Museum may also store sensitive information in coded form and should use decoder in separate file that have no access to public as well as museum employees who are not linked with.
Chapter: 4  

Management of Information Service

Protection of information in museum Website and WebPages

1. Right of all photographs and text documents in the museum website and in web pages of any portal should be preserved according to the Copyright protection system. Warning should be given for violating the Act.

2. All matter in Website and in WebPages should be in ROM and unprintable version.

3. Option should be given to user to contact with the museum in case he/she wants few photographs and textual information.

4. Online paid information system may be loaded for the virtual user against photographs and more textual information regarding any museum exhibits.

Data Security and Protection against Fraudulence

No one knows in what exact route people can fraud with information. Therefore, Data security is very much important to save museum from information paralysis. Thus, museum should take utmost security against data and fraudulence. Here are few measures to save data and protection against fraudulence:

1. Whatever data is entering in to the information access system it should have back up in Compact Disks.

2. Every Compact Disk should be well preserved in suitable temperature.

3. Outside users should be provided with Read Only Memory (ROM) Disk Information System.

4. Museum should allow authentic person to search and handle its main Information System.
Chapter: 4 Management of Information Service

5. Appoint more than a person in data entry and data check up in computer to prevent any malicious attack.

6. Only back-up routine can save information from total loss against losing for whatever reasons. From the back-up information can be restore.

7. Now Re-writable Compact Disc having High Speed Driver with 700 MB/80 min is the best medium for storing or back-up of information. Museum can use this Disk to store data.

8. Every museum should follow a back-up system. Here is an example of back-up system:

In a two level monthly back-up system needs three CD-RWs (Compact Disk-Rewritable). This type of CD has capacity to store a huge range of data again and again by deleting all the previous data. Here single correction or alteration is not possible that ultimately prevent the chance of any fraudulence.

Out of three CDs one is the Mother Copy second one is Daughter Copy and the last one is Processing Copy. Processing or reprocessing or adding and editing data should be made on Processing Copy. The First Processing Copy should be copied into two. One as Copy File and as Mother Copy and then it is again reprocessed after fifteen days.

This newly edited copy should be stored into two as a Copy File and a daughter copy and again after fifteen days reprocessed and resaved in Copy File and a new Mother Copy and new Daughter Copy. The old mother copy and daughter copy will be preserved as fifteen days back-up document.

In this way $2 \times 12 = 24$ Copies will originate. These files then are reduced into 12 after a year as monthly file and then into 4 CDs as quarterly files in the next year after thorough editing.

Highlights.....
1. Keeping hard copy of all the relevant documents that are in computer.
2. All documents should be inspected / tally with both hard copy and softcopy in every month.
3. Copyright should set against important documents, photographs and publications.
4. Museums should serve and give access to important document to the authentic persons, who come through proper channel.
5. In Websites images should place in very low resolution and if possible in non-printable version.
6. Anti Virus should be loaded in every computer to protect machine against common viruses.
Tribal Cultural Museum of the Tribal Research Institute, 28. Queen’s Garden, Pune, Maharastra

Date of Study: 30.05.2001* Type of Museum: Tribal Art and Culture Museum
Source of Information: Dr. Robin D. Tribhuwan, Asst. Director.

Subject Content: Tribal Art and Culture mainly include Warley Art, ornaments of Mughals and various tribes, masks, drums, tribal music in cassettes etc.

Museum’s Mission: The museum is established to preserve the tribal culture of Maharastra, for the proper development of different tribes, educate them and to aware urban people about the tribal ethnic culture.

Information Dissemination: The museum arranges different cultural programmes, film shows related to tribes in specific days of every week, arranges guided tour to different tribal areas for tourists, interested people, foreigners and researchers, to feel the tribal culture closely. A service called ‘Sanskritization’ is conducted here for cast verification. Scientific information regarding tribes are given from here to identify tribes. Selling tribal objects the museums provides information about crafts, its use and purposes. Information regarding decoration of house-interior, shops, exhibitions etc. by tribal arts is available from here. Through the museum respective tribes take the contract and decorated by their ethnic paintings and art objects. The museum also arranges international tours for tribes for cultural exchange. The museum also provides teacher’s training, so that they can aware students about the rich tribal heritage.

Museum’s Strength: The museum is situated in the Tribal Research Institute complex, and receives all supports from the institute. Activities of the museum are well managed by the Anthropological Survey of India. Financially the museum has no crisis, since it is fully sponsored by the Government of India. The institute organizes various cultural programmes, in which number of local people and foreigners come and visit museum. The museum and its activities are well popular among local people because of its regular advertisement.
Museum's Visitors: About 200 to 300 visitors visit the museum everyday for different purposes. Many people come here during the cultural programmes like dance, music and film shows. People like to participate in the various tours conducted by the museum in tribal areas. Since the museum is popular in the city as well as among the interested people, therefore, many people come here to attain the activities performed by the museum. It is along with the tribal research centre, therefore, number of research scholars come here regularly.

Information Management: The Museum has successfully managed the huge information regarding its collection in register and CDs. Good number of documentary films are in collection that are stored in video cassettes and CDs. Researchers on permission can access these documents. The Museum Library has good collection of books that can also be referred on permission.

Forward Planning:
1. To purchase a mobile van for more service to the tribal areas.
2. Formation of computerized Data Bank to store the information about the different tribes of Maharashtra.
3. Launching a Website and an e-mail facility for better communication with people.
4. Development of an Information Kiosk for giving information about the different tribes of Maharashtra.
5. The museum wants to provide guide service to the tourist for visiting tribal villages.

Suggestion: The museum has only one museum specialist; therefore it needs few more Museology known staffs for better museum functioning, especially in the field of documentation and display of museum objects.
Case Study: 11

Manipur State Museum, Imphal, Manipur

Date of Study: 29 & 30.12.2003*  Type of Museum: Multipurpose Museum
Source of Information: Dr. Sobita Devi, Curator and Dr. Dhanapati Devi, Asst. Curator

Subject Content: It is the first museum of Manipur established in 1969 by Late Prime Minister of India Mrs. Indira Gandhi. The museum has good collection of royal objects, gold objects, ethnological objects related to the meities and different tribes of Manipur and floras and faunas of the State. An Art and Painting gallery is developing in this museum with the collaboration of the Victoria Memorial Hall Kolkata.

Museum's Mission: The museum is established to preserve history of Manipur, various cultural heritage related to people of this State, Floras and Faunas found in different parts of Manipur.

Information Dissemination: The museum has three guides of different subjects, they guide group of visitors. Descriptive label is with every exhibit, which provides sufficient information regarding that exhibit to visitors. Other than information dissemination through exhibition of objects in number of galleries, the museum performs many activities and disseminates information about that particular subject area to participants or visitors. These activities include national and international seminars and workshops in every year on different issues, temporary exhibitions twice a year, regular competitions, promotional meetings, celebration of museum week and conservation week and audio-visual programmes in different museums of India etc. Information regarding these activities is given to target people through local newspapers, banners, posters, direct mails and over telephone.
Chapter 4  Management of Information Service

Museum's Strength: The museum has enthusiastic, trained and qualified staff having knowledge of Museology as a result they are implementing and practicing all the museological aspects in running the museum.

Museum's Visitors: Since a long period of time political unrest and inter tribal dispute have made Manipur a disturbed area. As a result very poor number of national and international tourists come Imphal. But good number of local people visit the museum due to its location at the busiest central point besides the famous and historical Polo Ground of Imphal, where large number of people gather for shopping and watching games.

Information Management: The Museum records information about its objects in Catalogue Cards maintained section wise. It includes almost information about the object that may satisfy any user of that object. Access to information is only given to persons, who have prior appointment or have come for serious purpose through proper channel. The Museum Library has good collection of books that can also be referred on permission.

Forward Planning: At present the museum has following plan regarding dissemination of information:
1. Organize temporary exhibition at regular interval of time.
2. Organize workshop, seminar and lectures in the museum.
3. Developing new galleries after finishing the present building extension work.
4. Renovating galleries to make it more informative to visitors.

Suggestion: The museum should go for sending travelling exhibitions to other parts of India so that people can get opportunity to see the treasure of this part of the country. The museum should go for computerized documentation to store huge information about its collection.
The Centre has its own small museum that demonstrate different aspects of the tribes located in this Zone including their house pattern, ornament, musical instruments, weapons etc. The centre performs so well in this politically disturbed and very remote corner of India that can be taken as a lesson of information management. The Centre looks after the cultural sectors of the six North Eastern States including Arunachal Pradesh, Assam, Meghalaya, Manipur, Nagaland and Mizoram.

**Objective of this Cultural Centre:** The Cultural Centre is established in 1987 to preserve and promote the rich diversity of arts of the Zone mainly music, drama, dance and literature to upgrade and enrich consciousness of people about their cultural heritage.

**Information Dissemination:** The Centre organizes ethnic cultural shows within the centre, within the six states, other parts of India as well as sends troops to abroad and facilitates the cultural exchange programme of the Government of India. In addition Seminars and workshops on matter relating to cultural heritage of India are organized in different zonal head quarters situated throughout India.

The centre provides good assistant to researchers working in the field of Cultural Heritage of the Northeast India. The centre informs local people about any programme through banners and local newspapers. The Centre has its own Website, through which communication and share of information is done with the target institutions and Ministry of Culture. Any interested person can communicate with the centre through this site.
Information Management: The Centre has a strong databank of the cultural life of the tribes of this zone including total number of tribes, their dance, music, martial arts, list of the names and addresses of artists, contact numbers and addresses of the troops, training institutes etc. The Centre encourages youth regarding folk culture, tribal arts, music and dance and supports performers for sustaining the vanishing arts. They have good computerized documentation of culture of this zone. All documents are well preserved both manually and in CDs. A library is there with large number of books related to the cultural life of tribes of this part of India. The centre has number of committees that look after different activities in different states under this zone.

Visitors of the Cultural Centre: A large number of people come during the cultural programmes held in the centre complex and in any part of India and abroad. Other than common people good number of researchers also come to this centre for collection of information.

![Graph: 4.3. Number of occasion of cultural programmes organized by the EZCC in 2001](image)

Suggestion: The centre should communicate with schools of nearby areas and give opportunity to students to know more about their own culture as the impact of the Western Culture is very much felt in this part of India and people are very much influence by it. The centre should take genuine initiative to generate awareness among people of the six states under the Zone to save the ethnic culture of the northeast India.