



ibhaan microfiche



# KNOW THE STORAGE POTENTIAL OF MICROFICHE

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Record keeping is a very crucial process for both individuals and governments although there is a significant variation. An individual's records consist of his/her national identity, birth certificates, school certificates, degrees, marriage certificates, property papers, and several other documents which are important to assist that individual through several processes which he/she encounters. For governments however, the intensity and responsibility increases to thousand folds as they have to secure every minute detail about their citizens and other matters of national and international interest. It is also important for the governments to ensure that the information which they have gathered is safe and secure enough.

In India, various methods of preserving records are used at a governmental level and to address the importance of record-keeping, the government of India issued its mandate for record-keeping in 2012.

# Government of India's Mandate for Record Storage:



The **Department of Administrative Reforms & Public Grievances** released its recommendations regarding record categorization. Under its recommendations, the department has categorized records into two major categories which are then further divided into their sub-categories. They are:

## Physical Records:

A file that belongs to physical records can be classified into Category A, Category B, and Category C.

### Category A:

Files in category A are intended to be kept and microfilmed. They should be preserved in microfilm form for administrative purposes as they contain:

- A precious document which must be preserved in its original form and the access to its original form should be barred to the minimum people so that its damage can be avoided or;
- Material which different parties require frequently for referencing purposes or;
- The file having historical importance.

## Category B:

Includes file which is meant to be kept but not to be converted into microfilm. This category includes files which should be preserved permanently for administrative purposes. However, the nature of materials which are described in the first

## Category C:

This category includes files that are meant to be kept for specified purposes only. These files are of secondary importance and their reference value does not exceed more than 10 years. In cases where some files from this category are required to be retained for more than 10 years, they will get an up-gradation to Category B. Category C files are classified as C-3, C-5, and C-10, which means that the files can be kept for 3, 5, and 10 years respectively.

Digitalization of e-Files/records can be made into any of the following categories:

### Category-I

(e-Files/records which are of historical importance and require permanent preservation). Such files can be kept in the Department's server for 10 years after which they will be transferred to the server of the National Archives of India.

### Category-II

e-Files/records of secondary importance and have a reference value for a limited period). These files will be kept in Department's server for 10 years and if they are required to be kept for more than 10 years then they will receive an up-gradation to Category-I.

# What are the Permanent Records?



Following is the list of records which are classified as permanent:

## All Public Records:

Records which come under this domain are:

- Land Records
- Land Registration
- Birth Certificate
- Aadhar Card
- School Education
- Secondary School Certificate
- Higher Education Certificate
- Technical Education
- Medical Education
- EPF
- ESIC

- Insurance
- Passport
- Death Certificate
- Court Records
- Hospital Records
- Transport Records
- DC Office
- City Municipality
- Smart City etc.

### Investigation Records:

Investigation records include

- CBI
- RAW
- NIA
- Lok Yukta and
- Police Records etc.

## Defence Records:

Defence records include defence records of all sorts including those which belong to the three services, DRDO, and Defence Production.

## Financial Records:

Financial records include records of:

- Banks
- Financial Institutes,
- Tax,
- Customs, And
- Central Excise etc.

## R&D Records:

Research and development records such as:

- ADA



- HAL
- NAL
- ADE
- GTRE and
- LDRE etc.

### Confidential Records:

Records containing confidential information of nuclear power and space projects.

### Important Records:

Records that belong to important places such as:

- Vidhan Sabha
- Archival
- Presidential Secretariat
- Cabinet Secretariat
- Raj Bhavan
- Libraries

- Museums and
- Coal plants, steel plants, and oil & gas plants.

Nearly, most of the records from the above-mentioned categories are either preserved in files which are then kept in vaults in different offices belonging to the government, or they are stored in digital records on computers and servers belonging to the government. Keeping the history of the Indian Sub-continent in mind, it is usually seen that the clerks working in these offices prefer these records in written form. These offices are usually seen with heaps of files and other paperwork accommodated on shelves.

# Cons of Hardware Storage:



## Occupation of Space:

Files and other paperwork require large space for their storage. There is a need of building adequate infrastructures having multiple storage facilities within them. This setup requires a large amount of manpower and there are security issues associated with these infrastructures.

## Damage:

Short circuits can set fire across the storage facilities and can cause a considerable amount of damage if the old-fashioned wooden shelves are used for storage purposes. Various insects and rodents can also destroy the records.

## Natural Aging:

The paperwork compiled in files gets de-colored, faded, and brittle with time and becomes useless.

### Natural Disasters:

Natural disasters have played a very big role in the destruction of such records. Fire, cyclones, and floods have destroyed many worthy documents in the past.

### Time Consumption:

A lot of time is consumed in printing and retrieving the hard copies of records and documents.

### Miscellaneous Problems:

Mishandling, mismanagement distortion, and several other problems also lead to the loss of valuable records.

# Natural Disasters and Their Impact on Record Preservation:



India gets subjected to natural disasters every year especially its coastal areas face a huge risk of getting affected by hurricanes, cyclones, and flooding. A list given below indicates the areas which have been affected badly by drastic floods and as a result of which, hard copy losses have been reported:

- Assam
- Kerala
- Gujarat
- Bihar
- Himachal Pradesh
- Rajasthan
- Arunachal Pradesh
- Punjab
- Orrisa
- Karnataka
- J&K

## Hardcopy losses in India include the following:

- Hardcopy losses in the Registration Department, where many states have lost digital as well as hardcopy records.
- Indian Railways lost its records 3 times due to a fire in Chennai.
- Floods in Chennai resulted in loss of Land Records, Registration Department Records, ELCOT, and Police Personal Records.
- Hyderabad High Court lost its records due to fire.
- Mantralaya Government lost its records due to fire in Maharashtra.
- Central Secretariat, Home Department lost a huge amount of its records.
- A huge amount of Land Records in Chhattisgarh were lost during fire incidents.

Many other states such as Visakhapatnam, J&K, Orissa, and Karnataka have lost a huge amount of important records in different incidents. In Visakhapatnam, a flood caused a considerable amount of damage to the records and books that were stored in the Vizag State Archives. Hundreds of thousands of books were washed out, including some books dating back to the 18th century.

These lists are evident of vulnerability of India's record preservation. One may argue that in the modern age, why we cannot use digital means, such as computers and other electronic means of the same category to store our electronic records.

It is true that digitalization has made record keeping and maintenance a lot easier but here are several disadvantages associated with digital means of storing records.

# Cons of Digital Storage:



The disadvantages of digital storage are not only found in India but many other countries and technology companies have faced the problem with digital storage. Some of these are:

## **Dynamic Shifts in Digital Technology:**

Technology keeps advancing at a rapid pace. A hard disk which is in use today in every corner of the world will get replaced by one of its better variants in a year or even less and then the world will have to adopt it. These fast changes in technology make the older variants useless and obsolete.

## **Data Incidents and Digital Loss:**

Digital data is more vulnerable than the data stored as hard copies. Hacking, malware attacks, system crash, computer theft and loss, improper disposal, and malicious insider, etc. are some of the profound examples which indicate damage and loss to digital data.

## **Magnetic Strips and Their Vulnerability:**

All the hard disks and other means of storage use magnetic strips to some extent. Their biggest drawback is that they have a very short life span and their damage and destruction can lead to a considerable amount of data loss.

## Human Error:

Humans working on storing data into these computers can become a source of eradicating all of it in just a few seconds. Although they are proficient in their work, a single wrong lick can wipe out terabytes of data. Human error can also replace the data from its original folder to somewhere else, which again can cause a considerable amount of problems.

## Hacking:

Digital media is always vulnerable to hacking. Governments can use this means to launch an attack on their rivals and steal all of their data or simply erase it from their servers.

## Viruses and Malware:

Viruses and malware can be planted from both outside and inside and once inside the system, they can damage the stored information. Although different modern anti-virus software has made viral attacks nearly impossible, the threat still persists.

Statistics have shown that no digital technology media has been able to survive more than 10 years. Hence we can say that these media of technology require either up-gradation or complete replacement after every 10 years which is a time-taking process.



# Global Mishaps in the Digital World:



Digital means of technology are considered very reliable. However, mishaps that have occurred globally in the last few years indicate otherwise. Data scientists and digital experts are now continuously pointing out the flaws with digital media in storing data. These flaws and vulnerabilities are not only faced by third-world countries and those countries which lack technical expertise in this matter but also by technological giants such as Google and Amazon. Countries like the USA and UK have also faced such issues and India which is showing its potential in the global technology market is also vulnerable to these issues. Some of these global digital mishaps are listed below:

## **Amazon's Web Service Outage:**

A report of Recode from March 2, 2017, told people about the suffering which was caused by human error. According to the report, one of Amazon's employee was fixing an issue in the billing system when he accidentally took more servers than intended. This resulted in a crash affecting Amazon servers and users around the world.

## **U.S. Government Hack and Record Theft:**

The Guardian in its report on 23rd September 2015 indicated an incident with the Office of the Personnel Management which resulted in the theft of fingerprints of more than 5.6 million federal employees of USA.

## Is Cloud Security Really Secure?

Cloud storage and security has taken the world by storm. Many cloud services are being made available today with the most notable of them being Google's Google Drive and Microsoft's OneDrive. People usually prefer to store their data on these cloud servers to make their data secure and safe forever but an article from Computer World from 2012 says something opposite. The article says that there "are no guarantees" regarding the claims of online storage services when they claim that all of our data is encrypted.

## Cyber Attack on National Health Services:

A May 5, 2017's report of National Health Services shared the news of a global cyber-attack which also affected NHS databases and loss of patients' data.

## Loss of Cloud Storage Data by Google:

A news report of Computer World told about a natural disaster which resulted Google in losing data of some of its cloud customers. According to the report, lightning hit its data center which is situated near St. Ghislain in Belgium four times which resulted in causing sufficient loss to Google Compute Engine storage.

Now as we know that even reliable digital technology is not so reliable, what are the alternatives that are worth exploring? What are the solutions that can guarantee us long-term storage along with 100% safety and security? Are there any alternatives that are independent of technology and still cost less?

The answer to all of these questions lies in the use of microfiche. Microfiche is a piece of film which can contain photomicrograph of pages of newspapers, catalog, or other documents. It also means to reproduce a document on microfilm. Although the idea may seem obsolete in the modern technological age where there are smartphones to take care of the picture-taking business, microfiche and microfilming can still pose their impact in various fields of lives for example, in warfare.

Microfiche techniques have recently gained wide-spread popularity around the world. News records show countries such as Germany, Australia, and Switzerland and different other countries have shifted towards the microfilming process for record storage.

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# Advantages of Microfilms and Microfiche:



## Space Convenient:

The biggest advantage of microfiche is that it saves A LOT MORE SPACE as compared to hardware and digital storage. Digital storage also occupies a large area of space as multiple data centers have to be opened and multiple media (HDD, Tape Drives, and Laser Disks) are required for the storage process. Their equivalent can be found in the form of microfilms where hundreds of shelves housing thousands of files or large mainframe computers can be converted into a single compact shelf containing microfilms.

## Longevity:

Microfilms have been proven to have the life of 500 Years when compared to other storage media such as CDs, DVDs, HDDs, Tape Drives, and Paper.

## Water-Proof:

Microfilms are water-proof and cannot be harmed by water during floods.

## Security:

Microfilms are highly secure from manipulation and attacks from hackers, malware, viruses, and migration.

# Highly Recommended Storage Media:



Microfiche techniques have been recommended by various prestigious institutions and governments around the world such as:

- ISO (International Standards Organization).
- ANSI (American National Standards)
- BSI (British Standards Institution)
- AS (Australian Standards)
- NS (New Zealand Standards)
- WSS (Washington State Standards) and
- GSS (Georgia State Standards).

This technology is now being used in over more than 80 countries out of which Russia, France, Germany, UK, the USA, Sweden, China, Brazil, Netherlands, Korea, Greece, Israel, Japan, and Norway, etc. have made microfilming mandatory for record preservation.

# Microfilm Recommendation and Implementation in India:



In India, various archives and departments of different states such as:

- Department of Administrative Reforms and Public Grievances
- Manual of Office Procedures
- National Archives of India
- RBI Archives and
- Defence Ministry etc. have recommended microfilms as the medium for record preservation.

Also, various cities and governments of different states of India such as those of Delhi, Maharashtra, Tamil Nadu, Chennai, Bangalore, Thanjavur, and Mumbai, etc. have already opted for microfilming techniques for records preservation.

Now since we are clear on incorporating microfiche and microfilms for record-keeping and preservation, a question arises that whom to look for this purpose and the answer to which is IBHAAN Digital Edge.

IBHAAN Digital Edge Advance Solutions Pvt LTD, aims to provide the Government of India with reliable technological solutions, particularly in the form of microfiche and microfilming so that the Government can prepare itself to evade any major national disaster by ensuring preservation of its documents.

IBHAAN Digital Edge Advance Solutions Pvt LTD. provides its customers with the most innovative technological solutions.

Founded in 2000, the company provides its solutions for:

- Systems integration;
- Service management consultancy and
- Document management consultancy.



# Our Attributes:



IBHAAN Digital Edge Advance Solutions Pvt LTD is always determined to provide its customers with services that can help them in their document storage needs. Our staff is proficient and is fully aware of the latest technology. We had always preferred quality over quantity and will continue to do so.

Our firm belief in the following values keeps us striving for perfection:

- Punctuality;
- Quality Compliance with International Standards;
- Keeping up with the latest technological trends;
- Customer satisfaction.

# Why Should You Look Forward to IBHAAN DIGITAL?



At IBHAAN Digital Edge we;

- Comply with ISO 9001-2008;
- Follow the Project Execution Path;
- Are up-to-date with the latest knowledge in Digitalization and Microfilming;
- Stick to our schedules to give you your desired quality output;
- Respond to our customers in a very short period;
- Value Delivery Model for all of our projects;
- Use customized software for easy Indexing;
- Undertake on Confidentiality Agreement on all of our projects;
- Possess High Customer Satisfaction Rating.

# How Can We Benefit India with Our Microfiche Techniques?



The biggest benefit which India will reap with our careful planning in budgeting and costing regarding the microfilming will be financial relief as there will be a very minimal infrastructure and maintenance cost. Electricity costs will be cut by more than five-times since the number of air conditions required to maintain the temperature will be reduced significantly. There will be no spending on Disaster Recover (DR) on-site maintenance and migration costs.

# IBHAAN Digital Edge Advance Solutions Pvt LTD, Recommendations to the Government of India for Microfiche:



Although India is readily advancing in adapting microfiche, we still lack basic record storage facilities whereas countries such as France, the USA, Iran, Brazil, Germany, Norway, Switzerland, Australia, Singapore, and Japan have taken significant steps in this regard. Therefore if GOI wants to attain benefits from IBHAAN's Digital long-term document storage solutions and digitalization and archival solutions, it should look forward to building a centralized perennial storage record room. This advancement of ours towards the microfiche techniques will assist us greatly in securing the future of India.

A teal background with a white crosshair graphic consisting of a vertical line and a horizontal line intersecting at the center. The word "Thanks" is written in white, bold, sans-serif font in the bottom-right quadrant of the crosshair.

**Thanks**