

# Thoughts on Constructing the Disaster-Tolerant and Recovery Base of Archival Data in China

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- I'm sorry to say that:
- Because my speech involves too many special terms, and I will speak in Chinese.
- So please the foreign friends look at the PPT screen.

- Digital information security has been more and more important in the world. In the field of digital preservation, I have gained two NSFC foundations. On the base of these foundations, I and our research team do some research survey.
- This is the article embodied by SCI and SSCI, and the other two articles are prepared for this conference.

# Program

*electronic library and information systems*

## Status of the preservation of digital resources in China: results of a survey

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武汉大学图书馆学报

检索报告

SCI, SSCI 同时收录 1 篇

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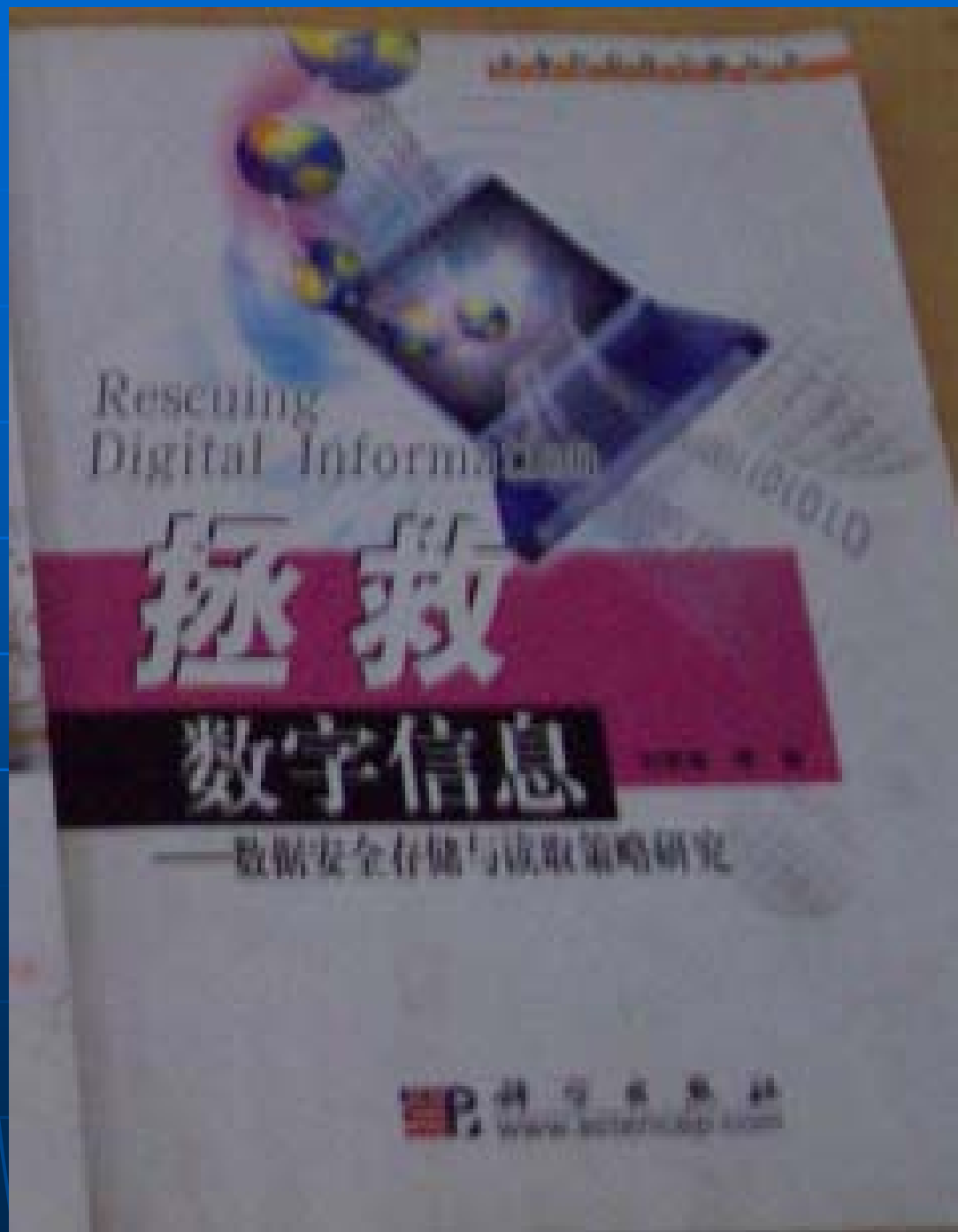
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- This is the monographs on data storage security, funded by NSFC, which had published three years ago.



- Digital document preservation has been regarded only by document management organizations. And then, with the development of digital government or e-government, global governments also draw attention to this field.
- This year, our team and Myron Gutmann team won the China-America e-government project on government information long-term storage.

- 考虑到数据存储的多风险性，提出数据备份基地的设想。
- Considering the risks of digital data storage, I bring the thoughts on constructing the disaster-tolerant and recovery base of archival data in China.

# 什么是档案数据？

- What is Archival Data?
- The archival data of documents means those digital document data with long-term or perpetual value for preservation and with continuous functions.



# 数据灾难

- The data disasters?
- The data disasters would appear as long as those key data was unusable. There are many risk factors which would lead to data disasters, those archival data risks in China has been listed in the table one.

表1 档案数据可能遭遇的风险

Table1: the risks which the archival data could encounter

Analysis		Controllable Trait	Probability	Damage Range	How to Avoid the Damage
Risk Factor					
man-made disaster	lapsus in the work	√	large	partial	Supervise strictly
	low personnel diathesis	√	large	partial	strengthen research and train clerks
	misgovern	√	large	local trade or department	set down the criterion and manage in scientific way
	destroy with malice	√	a little large	partial	supervise strictly and safeguard with technology
	war	×	small	local	disaster-tolerant and recovery in different place
physical calamity	fire	√	a little large	local	adopt fire-resistant architecture or fire extinguisher , security

# 人为灾难

- Man-made disaster
- October of 2005, we have a research survey on digital preservation in China. The data in my speech was draw from the survey.

# 物理灾难

- Physical disasters
- In Chinese digital resource management, few people has considered to carry backup for the document archival data in the different regions to prepare for disasters, and lower the data's deconstruction risks that the irresistible geological and meteorological disasters would cause.

# 数字馆藏的保存环境

Table 2 the analysis of physical conditions of digital collections

institution sort	physical damage on the medium	data couldn't be read out	obsolete storage technology
archives	32.10%	14.30%	10.70%
library	71.40%	47.60%	33.30%
information center	25%	0	12.50%

- China has vast areas, complex terrain, manifold and varied weather patterns, therefore each kind of natural disasters frequently takes place. Those types of natural disasters with lower probability but enormous destroying energy are related with a region's geologic structure and climate, so long as archival data are not backup in other regions, once the disasters arrives, the data preserved in this region is almost doomed to be destroyed.

- From the table, we can see the archival data in China is not safe.
- The reason lies in that: the local backup or the preservation separately in libraries or archives, possibly can not avoid the steals, the flood and the fire.

# 文献的档案数据远端异地离线存储的可行性

## Feasibility of far-end and off-line storing document archival data

- I think that it's feasible to build the far-end and off-line storing document archival data base. Following is the reasons:
- Firstly, off-line backup could be better used to maintain the integrity of document archival data, this is the most advantage.
- Secondly, in addition, considered current band width and the cost of data's far-end transmission, storing up the off-line backup to prepare for the data's disaster –tolerant and recovery is also economical and feasible.
- Thirdly, China has vast territory, which is advantageous for people to store up the backup data in different places to keep it away from disasters.



# 离线灾备储存基地的建设模式

- the construction mode of the off-line disaster-tolerant and storage base
- In China, archives and libraries lack enough funds and high level managers to ensure the data's security, and even lack related technical force and equipments for long-term preservation of digital resources. Considered the particularity of the literature data, the **co-construction** of the far-end different disaster-tolerant and recovery base is more appropriate.

# 共建灾备基地的5种运作策略

- So, we put forward 5 kinds of patterns for **co-construction, these are:**
- 1 The state investment, self-sufficiency
- 2 the conditional units construct by themselves or with others, other departments pay for sharing
- 3 Gather capital in the same system to construct jointly
- 4 Gather capital cross-system to construct jointly
- 5 Constructing backup storage base mutually

# 档案数据非现场存储的管理

## Archival data offsite storage management

- We think that: If storing the archival data outside the job site, people should attach importance to following questions:
  - 1 Access surveillance
  - 2 Storage environment management
  - 3 Construction facility
  - 4 Off-line data maintenance

# 档案数据存储基地的运营

## Operation of the archival data storage base

- Only by establishing the effective and persistent operation mechanism as well as scientifically management, playing the role of the base under risk-free condition by all means, the disaster-tolerant and recovery base constructed singly or jointly would possibly continue to develop. For this, suggestions as below:

1

- The base provides the social data maintenance services. This may enhance the investment repayment rate and resources sharing rate (sharing equipment and expert experiences, etc.), and generate good social benefits.

2 Make the best of the technical personnel and equipments in the base to train them with co-related knowledge and skills. This base also will become the center of raising mixed talents and carrying on continuing education training, to fill gaps in Chinese current training.

3 Take the base as the data security research center at the same time.

That's all. Thank you!

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