中国科学院
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中国科学院
CHINESE ACADEMY OF SCIENCES

The Scientific Data Policy of CAS

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Sep. 26 2022
Online workshop

Outline

1. Overview of scientific data policies in China

2. Introduction on scientific data policy of CAS

3. The future planning

Overview of scientific data policies in China

The Measures for the Management of Scientific Data

Issued by the General Office of the State Council in 2018


中华人民共和国中央人民政府
www.gov.cn

国务院办公厅关于印发
科学数据管理办法的通知
国办发〔2018〕17号

科学数据管理办法

第一章 总 则

> Scientific data supported by government budgetary funds should be shared, following the principles of **openness as the standard and non-openness as the exception**.
>
> …
>
> data management should follow the principles of ‘hierarchical management, safety and controllability.’

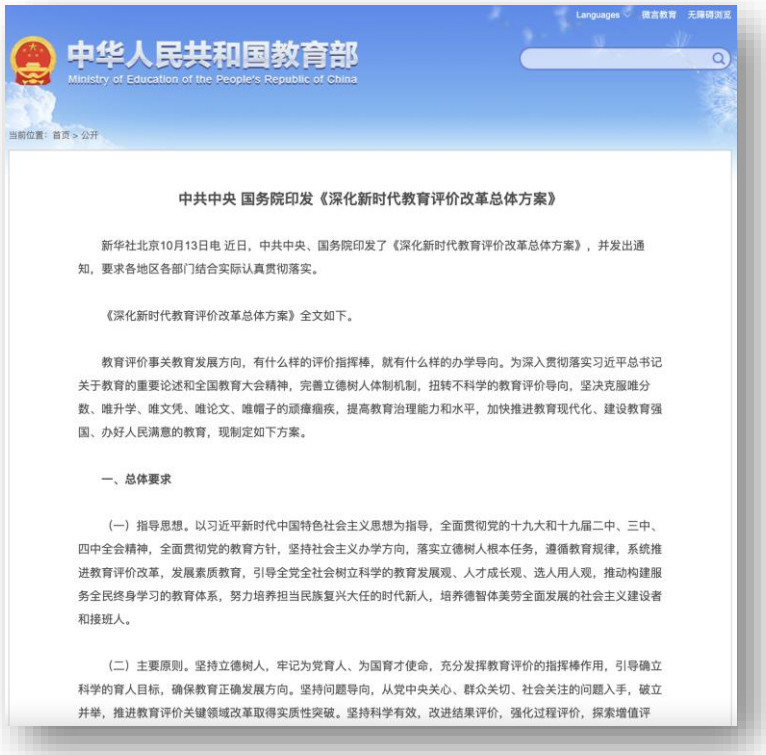
Overview of scientific data policies in China

By the end of 2021, of 34 provinces in China, about 35% of those have issued their Official Detailed Rules for the Measure.

Following the Measure, China promulgated a series of laws and regulations, involving **human genetic resources**, **biosecurity, data security, etc.**, forming a legal system for data management and open sharing step by step.

Overview of scientific data policies in China

The improvement of Research evaluation system



In recent years, research evaluation frameworks have moved away from a sole focus on the published research paper, and there has been an increase in policies proposing **non-traditional forms** of research outputs, like **data,** software and so forth, are accounted for and considered in the **evaluation mechanism**.

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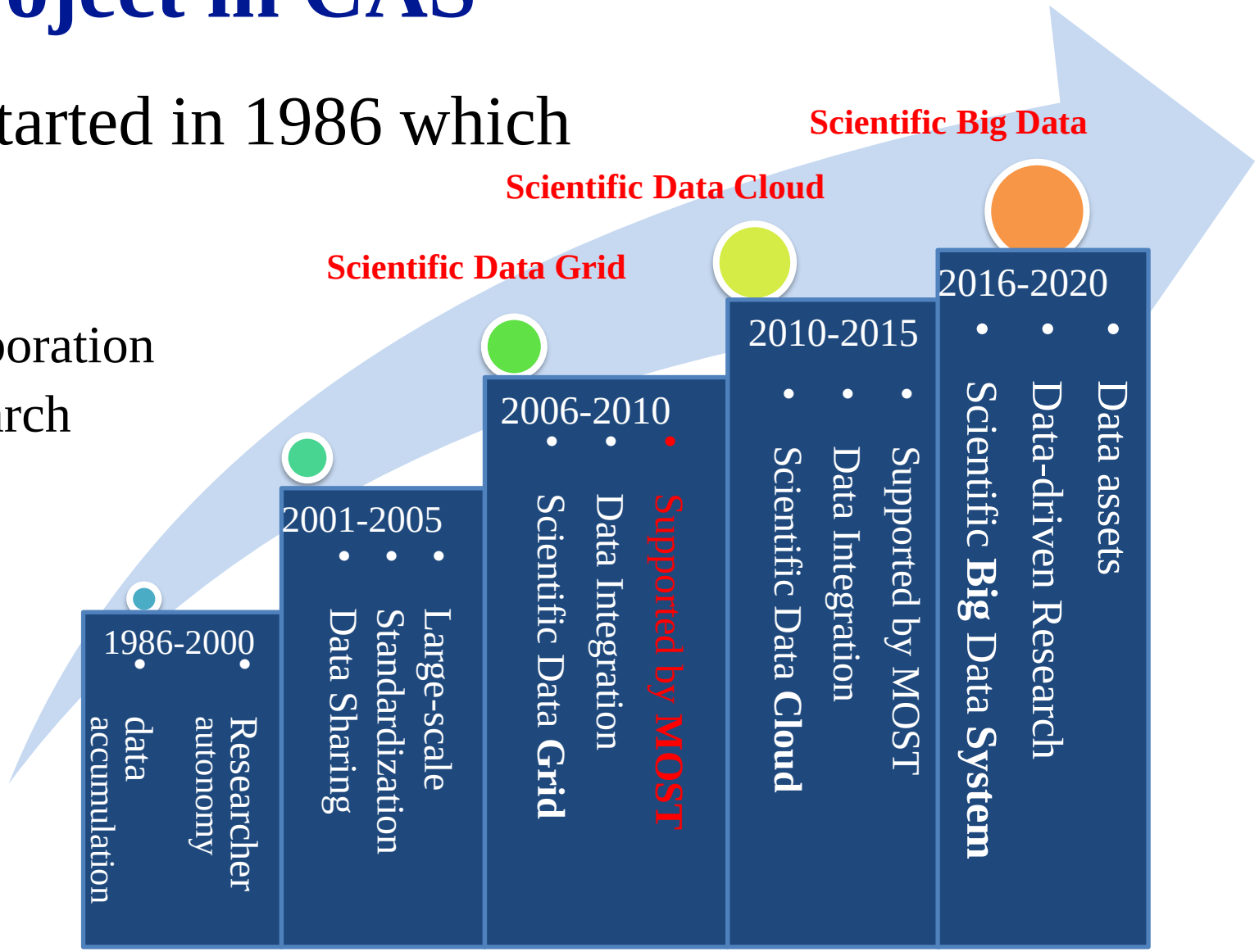
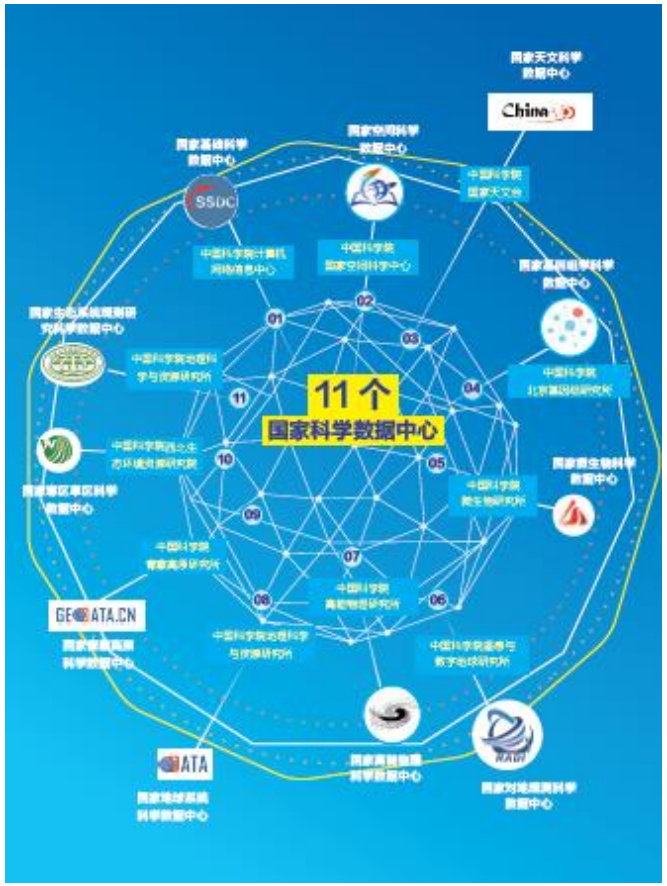
Scientific Data Project in CAS

- A Long-term mission started in 1986 which funded by CAS
  - many institutes involved
  - long-term, large-scale collaboration
  - data from research, for research



Scientific Data Project Achievements

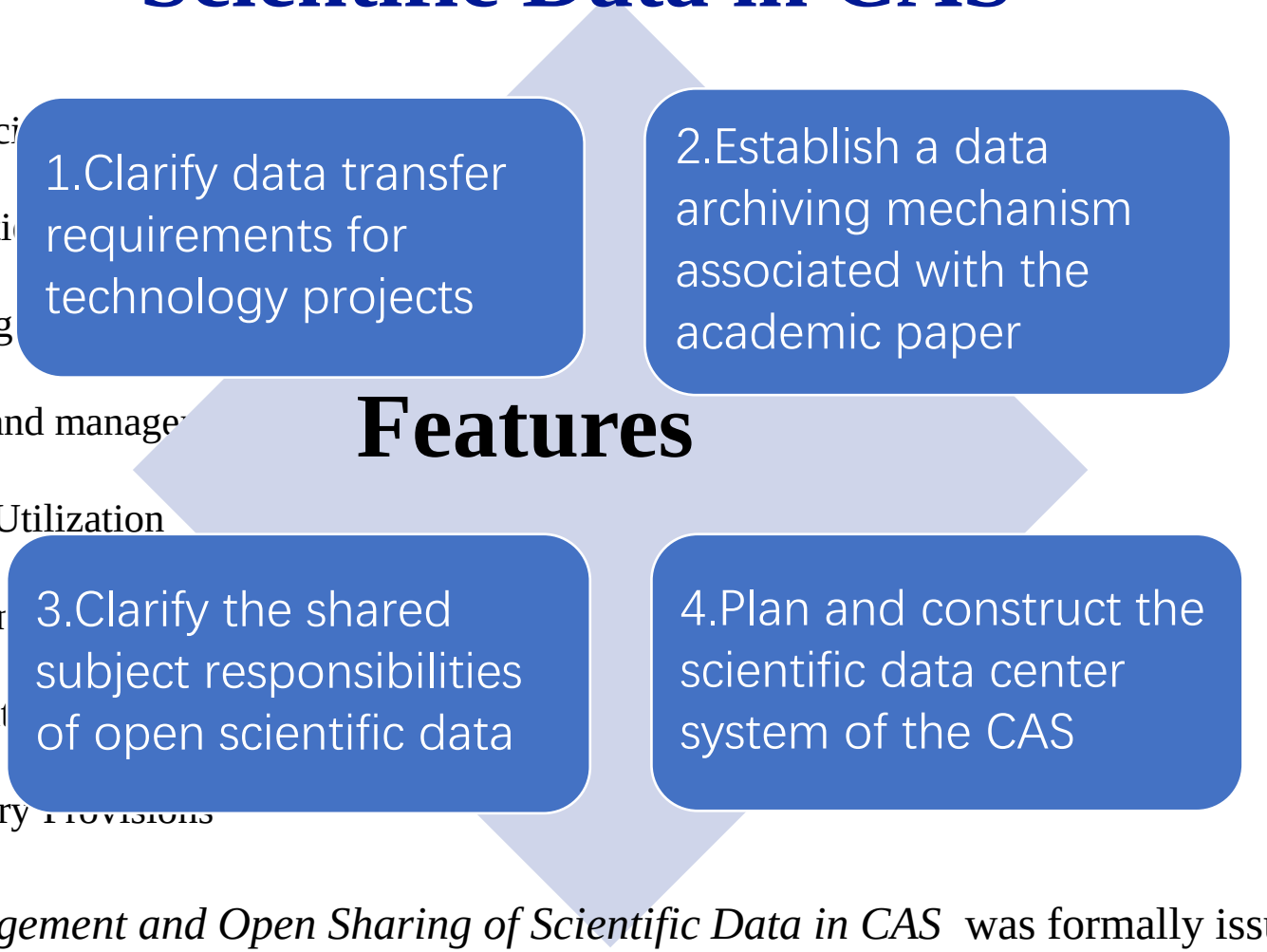
Platform
National High Energy Physics Science Data Center
National Genome Science Data Center
National Data Center For Microbial Sciences
National Space Science Data Center
National Astronomical Sciences Data Center
National Earth Observation Science Data Center
National Qinghai-Tibet Plateau Science Data Center
National Ecological Science Data Center
National Glacial And Frozen Desert Science Data Center
National Earth System Science Data Center
National Scientific Data Center For Basic Sciences



Of the **20** national scientific data centers to be constructed in 2019, **11** national scientific data centers were undertaken by the CAS

The Measures for the Management and Open Sharing of Scientific Data in CAS

- ✓ Chapter 1: General Princi
- ✓ Chapter 2: Responsibiliti
- ✓ Chapter 3: The archiving
- ✓ Chapter 4: The exchange and manage
- ✓ Chapter 5: Sharing and Utilization
- ✓ Chapter 6: Safeguards ar
- ✓ Chapter 7: Confidentialit
- ✓ Chapter 8: Supplementary Provisions



The Measures for the Management and Open Sharing of Scientific Data in CAS was formally issued by the Office of the CAS on February 19, 2019.

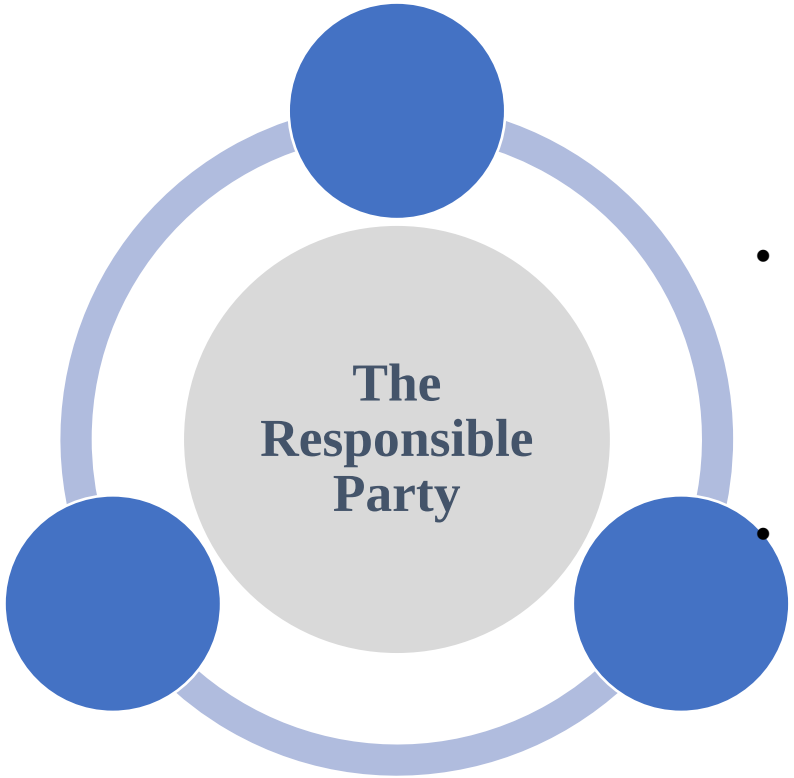
The Measures for the Management and Open Sharing of Scientific Data in CAS

1. Clarify data archiving requirements for technical projects

Project establishment phase	Project execution phase	Final inspection phase
Data management plan is necessary for project establishment	Project leader submits data according to data management plan	The responses upon fulfilment of the data management plan of the science and technology project shall be taken as the necessary condition for inspection.

The Measures for the Management and Open Sharing of Scientific Data in CAS

2. Establish a mechanism for the archiving of academic paper related data

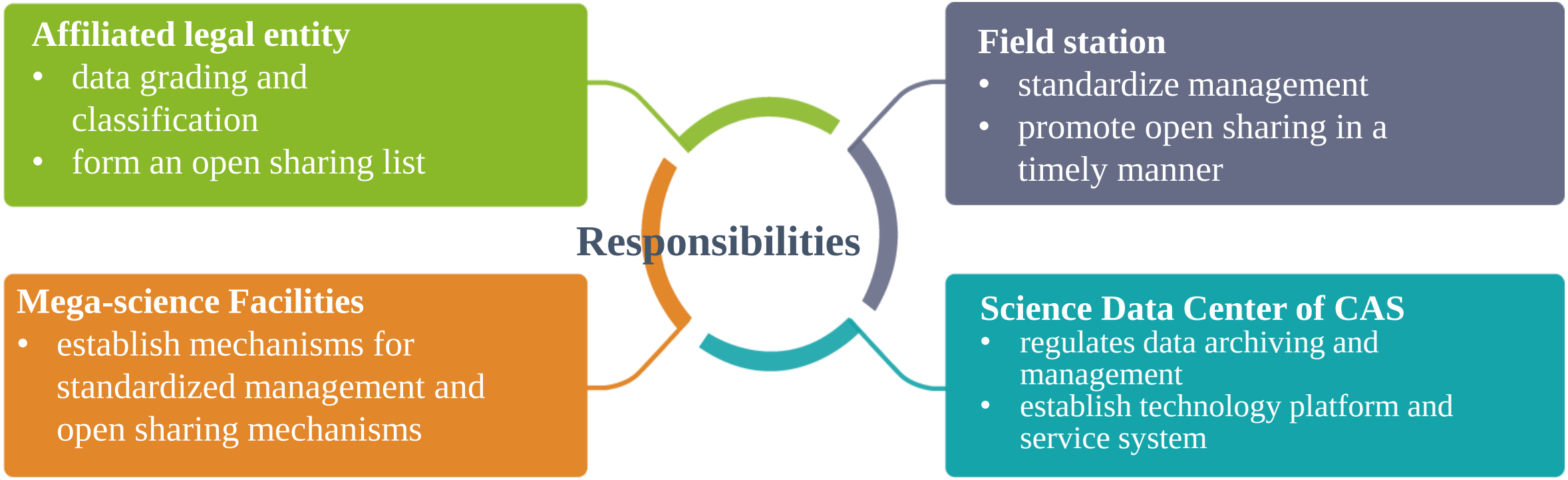


- Researcher
  - submit scientific data to scientific data management institutions
  - open and share in a timely manner
  - ensure that scientific research conclusions can be verified
- Journal of CAS
  - establish an archiving and management mechanism before the publication
  - subject to the supervision and evaluation of the competent department of the CAS
- Affiliated legal entity
  - establish an archiving and management mechanism for the academic papers
  - ensure that the paper related data is retained and archived in the unit

The Measures for the Management and Open Sharing of Scientific Data in CAS

3. Clarify the shared subject responsibilities of open scientific data

Open sharing principle:
Hierarchical, discoverable, accessible, reusable, open sharing at the right time



The Measures for the Management and Open Sharing of Scientific Data in CAS

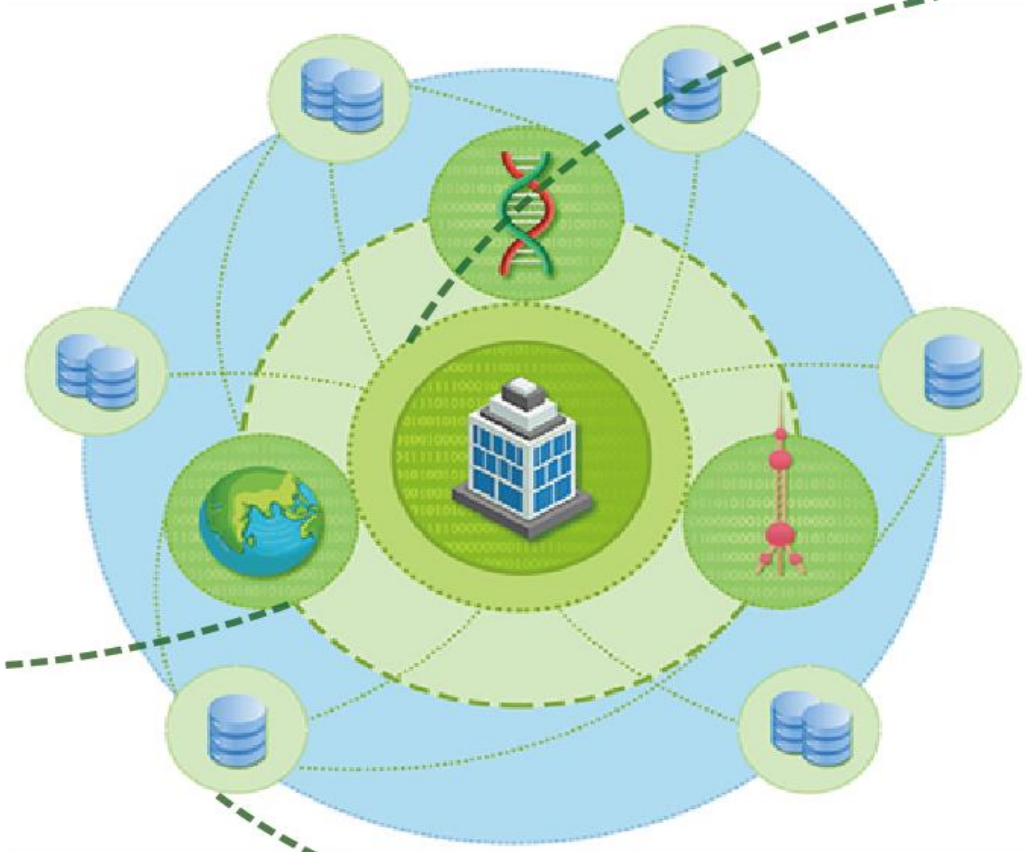
4. Scientific data center system of the CAS

general center (1)

- long-term preservation
- general technology
- general standards and specifications
- public service platform
- Interdisciplinary applications

disciplinary center (18)

- disciplinary data archiving, processing, sharing and publishing
- disciplinary standards and specifications
- domain data analysis platform

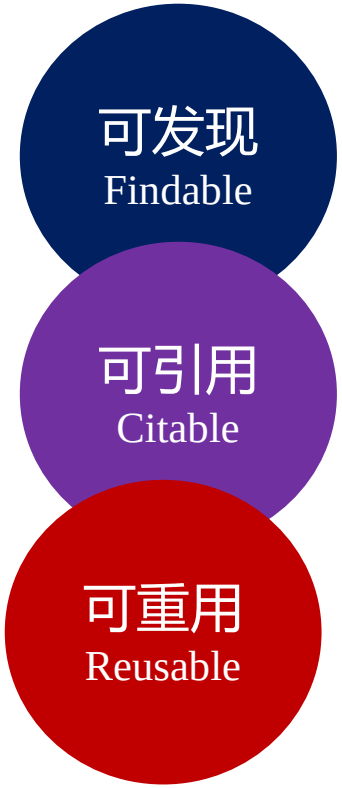


institutional center

- data archiving
- data quality control
- data sharing and publishing

The Measures for the Management and Open Sharing of Scientific Data in CAS

A more comprehensive technical support and solution system have been formed. The specific measures are as follows:



- **Scientific data unique identification system(CSTR、DOI)**
- **Data publishing platform and storage system (Science Data Bank)**
- **Scientific data citation (GB/T 35294-2017)**
- **Standard system**
- **Technical support system**

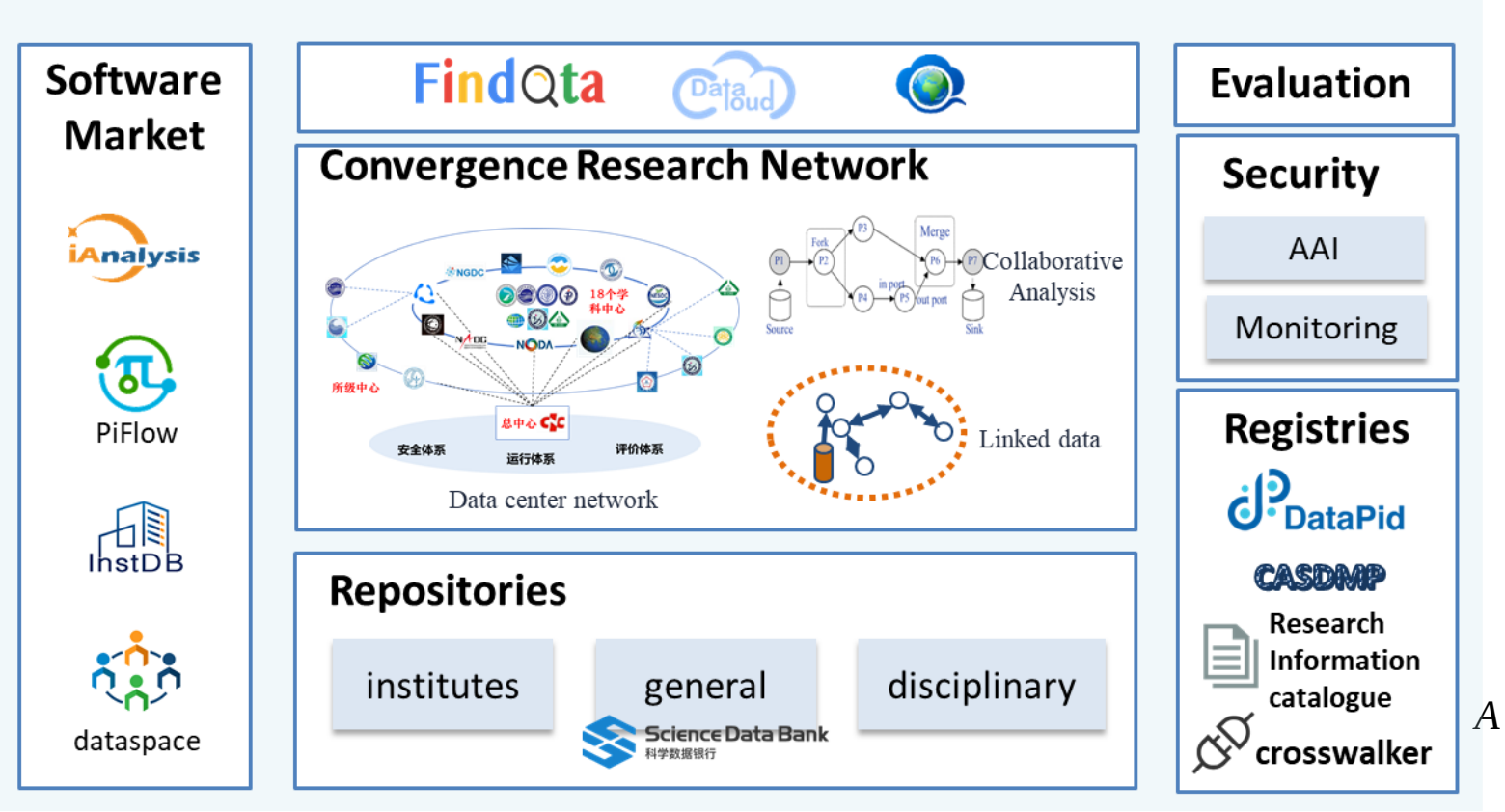
Sustainable Funding for developing a FAIR Data Ecosystem

Building critical components to make the ecosystem work

Operational Interoperable	• A DMP platform linked to the data catalog and all the data centers • Certification & Assessment metrics and tools for data centers
Technical Interoperable	• A stack of scientific data software and platforms • Authentication and Authorization Infrastructure and monitoring
Syntactic & Semantics Interoperable	• Machine-readable standards, interoperable protocols and metadata vocabulary • Identifier system (CSTR) for globally discovering and lineage

Building a CAS Data Infrastructure

- Data Infrastructure has to be optimized and developed
  - Help the researchers to realize FAIR
  - Work flows across centers
  - To be semantic interoperable to strengthen reusability
  - A collaborative research environment and ecosystem



- Federated
- Decentralized
- Open
- Transparent
- Trustworthy

A Technical View

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The future planning

- ✓ Construction of scientific data centers in CAS.
- ✓ Establishment incentives and evaluation mechanisms of CAS level for scientific data management

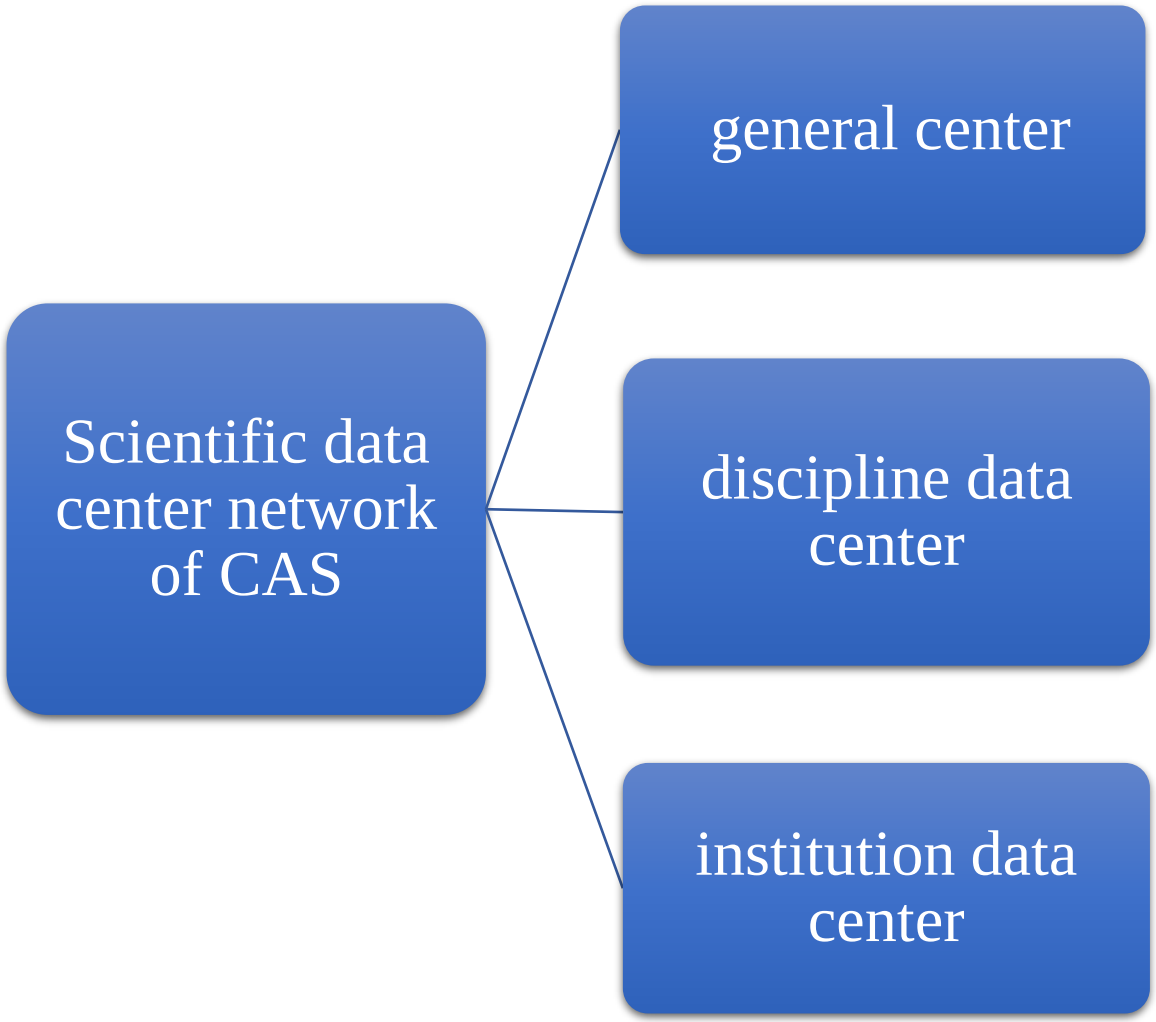
Scientific data centers

- General center
- discipline data center
- institution data center

Three supporting systems

- Security system
- Operating system
- Evaluation System

The future planning



- The scientific data resource archiving center, scientific big data sharing service platform operation and maintenance center, and general technical service center for scientific data management and open sharing of CAS.
- The scientific data resource archiving center of discipline, the operation and maintenance center for scientific data sharing service platform of discipline, and the general analysis and mining technology service center of disciplines.
- The archiving center of scientific data resources and the operation and maintenance center for scientific data sharing service platform of institutions.

THANK YOU!

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