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A Practice of Science Data Bank on Promoting Data Sharing in China

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Data sharing is considered one of the effective practical means to enhance research transparency. Data repositories are pivotal e-infrastructure in fostering this. As a generalist data repository, Science Data Bank (ScienceDB) offers free services to the global community for sharing and dissemination of non-traditional research outputs, such as datasets and codes. It has been built and maintained by Computer Network Information Center, Chinese Academy of Sciences since 2015 and shared more than 8 million datasets by now.

But the recognition and practice of data sharing among researchers are generally insufficient. This requires multiple efforts to jointly promote policies, standards, digital infrastructure service capabilities, and incentive mechanisms.

To foster the practice of open data, the repository integrates with a variety of external systems including preprint servers, manuscript submission systems and published paper systems. Through these integrations, Science Data Bank streamlines the data sharing process across diverse research outputs, making data sharing more convenient at the system operation level, supporting the data review of the articles' peer-review, and assisting policy makers such as journals and publishers encourage the data sharing behaviors. Moreover, the integrations establish the links between data and literature not only in the repository but in the external systems. ScienceDB pulls all these links to DataCite, Scholix, Dimensions and CSCD database (a famous paper database in Chinese) , and ensure that enriched output can be easily retrieved from both the data and paper ends

To facilitate institutional data management and data sharing, ScienceDB integrates with the institutional data management tools. This work effectively reduces the repetitive operation of researchers uploading data files multiple times under requirements from different policies. By establishing an institutional Data Community on ScienceDB, it provides a better display and unified service portal for the data sharing of an institution.

To incentive data sharing among researchers, ScienceDB integrates with Intellectual Property Registration System in China. In order to encourage data management practices, China's National Intellectual Property Administration has launched a pilot project to register data intellectual property rights. As the only pilot platform for scientific data supporting property rights registration, ScienceDB has successfully completed multiple data intellectual property registration tasks for research data shared by Chinese scientists. The brandnew attempt to enable researchers to share data while achieving recognition for more efficient intellectual contributions.

By integrate with various external system, ScienceDB connects multiple scenarios of data sharing with many positive impacts on disseminate the best practice of data sharing and foster the research transparency.

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