【Grant-in-Aid for Specially Promoted Research】

Compilation of the New Tripitaka as a Digital Research Infrastructure: A Model for Constructing a Research Infrastructure for Next-Generation Humanities

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Purpose and Background of the Research

●Outline of the Research

Since the 1990s, rapid advancements in information and communication technology (ICT) have significantly reshaped various sciences by digitizing data collection, analysis, and dissemination. However, the humanities, encumbered by their intricate traditional knowledge materials, have not undergone a comparable transformation. This study endeavors to establish a research environment in Buddhist Studies where digitalization (DX) and artificial intelligence (AI) are integrated, proposing a novel humanities model that advances with technological innovation.

●The Challenges of the Humanities

The humanities aim to construct a dependable knowledge base for credible interpretation through meticulous textual criticism. Nevertheless, the continuous expansion and increasing intricacy of the corpus of knowledge has rendered it challenging to depend exclusively on conventional methodologies and human cognitive capacity.

●Compilation of the Reiwa Daizōkyō via ICT

Rapidly advancing ICT offers a solution to this challenge. This study proposes a model for addressing the problem within Buddhist studies, a leading field in the digitization of humanities knowledge. By applying an AI-OCR implementation system to the "SAT Daizōkyō Text Database," a web-based platform for compiling the "Reiwa Daizōkyō" is created. This structural reform will support the DX/AI transformation in various humanities fields.
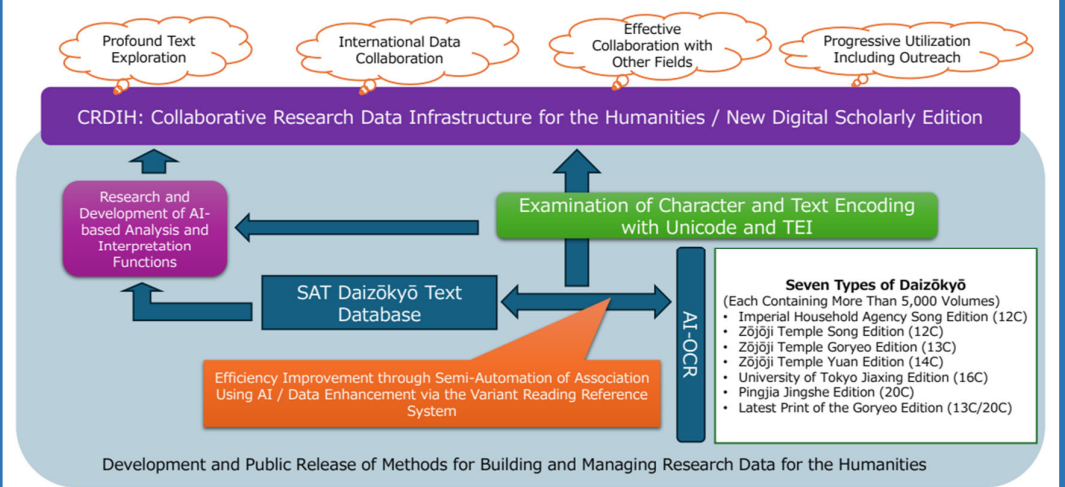

Figure 1. Overall Vision of the Target Outcomes

Expected Research Achievements

●Outline of Achievements

This study identifies the requirements for the humanities to thrive in a rapidly evolving knowledge environment shaped by digitization (DX) and artificial intelligence (AI). It proposes a pathway for building a digital scholarly space that meets these needs and enhances the humanities through three key points.

(1) Establishment of a "Collaborative Research Data Infrastructure for the Humanities" (CRDIH): The Taishō Shinshū Daizōkyō (Taishō Revised Tripitaka) has been a crucial resource for Eastern philosophy, literature, and history. This study utilizes OCR and AI technologies to systematically compare and compile textual variants from 110 million characters across various Tripitaka versions, including the Song, Yuan, Ming, Goryeo, and Imperial Household Agency Song Editions. The revisions are conducted collaboratively online, to renew Japan's international academic contributions for the next century. (See Fig. 1)

(2) Development and Promotion of International Standards: This study promotes the development of unified knowledge networking through the standardization of essential elements, including characters (Unicode), texts (TEI), and images (IIIF). By contributing to these international standards, the study aims to strengthen the foundation of Digital Humanities and support its growth in Japan. (See Fig. 2)

(3) Establishing Research Processes and Evaluation Methods: The CRDIH addresses challenges in developing research methods and evaluation standards for Buddhist Studies, aiming to extend them across the humanities. By applying the idea of preprints, it seeks to enhance scholarly validation and establish a coexisting, multi-layered evaluation system that addresses Open Science challenges. (See Fig. 3)
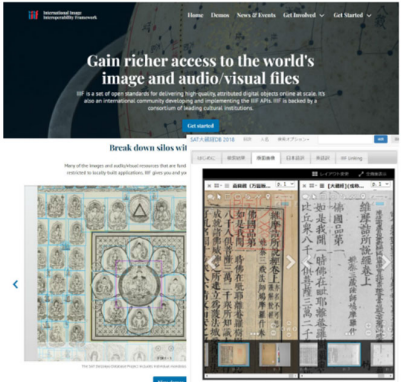

Figure 2. Digital Images Compliant with the International Standard

Figure 3. Towards the Dissemination of Our Achievements to Other Fields of Humanities

●Significance as a Specially Promoted Research Project

This study proposes a novel model for establishing a next-generation research infrastructure for the humanities, exemplifying Japan's capacity to contribute its extensive historical and cultural heritage to global intellectual pursuits. By reimagining the entire research process—from its initiation to its evaluation—it aims to enhance knowledge sharing and collaboration worldwide, laying a solid foundation for future humanities research.

Homepage Address, etc.	https://21dzk.l.u-tokyo.ac.jp/SAT/