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Type: Session

## Data for Cognitive Health Equity: Shaping Global Data Ecosystems for Healthy Aging

Wednesday 15 October 2025 14:00 (1h 30m)

Cognitive decline represents one of the most critical public health and societal challenges of the 21st century, with approximately 50 million people affected by dementia worldwide, and nearly 10 million new cases annually (World Health Organization, 2020). As populations age the incidence of age-related cognitive impairments is expected to rise dramatically. However, the global response is hampered by significant disparities in how cognitive health data is collected, integrated, and used.

Most large-scale datasets and longitudinal studies are rooted in high-income contexts, often overlooking socio-environmental and behavioral variability that characterizes aging across different cultural and geographical settings. The underrepresentation of low- and middle-income countries (LMICs), ethnically diverse populations, and marginalized communities creates a skewed evidence base that can limit the generalizability of interventions and hinder global progress toward equitable cognitive healthcare. Furthermore, much of the existing data infrastructure focuses on clinical endpoints and lacks integration with behavioral and contextual data critical for early detection, prevention, and personalized care strategies.

In response, this session explores how cross-domain data stewardship, including behavioral, physiological, sociocultural, and environmental data, can address these gaps and support cognitively healthy aging as a global public good. Organized by the CODATA Task Group (TG) on *Data-Driven Social Change Towards a Society Promoting Cognitively Healthy Aging*, in collaboration with the *Cognitive Behavioral Assistive Technology (CBAT) Team* at RIKEN AIP, the session aims to foreground the role of ethically governed, culturally adaptive, and community-centered data in enabling more inclusive and actionable insights into cognitive health.

While the Task Group's original scope emphasized social data and environmental design, this session introduces perspectives from behavioral data science, including non-invasive methodologies, as promising tools for cross-cultural cognitive assessment. Japan's experience as a front-runner in addressing the challenges of a super-aged society provides a compelling case study for the integration of local community-based research, policy implementation, and interdisciplinary technological innovation. Drawing on lessons from the Japanese context, the session will highlight how ethical data stewardship, guided by principles of FAIR (Findable, Accessible, Interoperable, and Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility, and Ethics) can foster more resilient and cognitively inclusive societies. Finally, this session aligns with SciDataCon 2025's overarching theme, *Empowering the global data community for impact, equity, and inclusion*, by placing cognitive health equity at the intersection of data science, aging research, and global public policy.

### Session Structure Highlights

#### Opening Presentation

**Advancing Cognitive Health Equity through Cross-Domain Data Stewardship** Speaker: Dr. Mihoko Otake (Team Director)

This keynote will explore how ethically governed, inclusive data infrastructures are critical to addressing cognitive health disparities.

#### Presentation

**Visualizing Cognition: Data Insights from Eye-Tracking Research in Aging**

Speaker: Dr. Alexandra Wolf

Most cognitive health datasets rely on clinical or survey-based data, often overlooking behavioral signals that can offer context-sensitive insights. The talk will emphasize the adaptability of eye-tracking technologies across cultures and contexts.

#### Interactive Group Discussions

Participants will join **small breakout groups to collaboratively examine the barriers and enablers to**

**building inclusive cognitive health data ecosystems.** Themes will include ethical data governance, digital infrastructure disparities, culturally sensitive tool design, and interdisciplinary collaboration.

*Real-Time Polling and Summary*

The session will conclude with a **live poll capturing participant perspectives and proposed actions**, followed by a synthesis of discussion outcomes. These inputs will directly inform the CODATA TG's post-conference activities.

The proposed session will generate a structured and interdisciplinary dialogue around advancing cognitive health equity through data, leading to tangible contributions to international policy and practice. Expected outcomes include evidence-based policy guidelines for governments and public institutions on the ethical, inclusive collection and use of cognitive health data. The session will also offer practical frameworks for technology developers to design accessible, culturally adaptable, and cost-effective cognitive assistive technologies that meet the needs of diverse aging populations. In addition, the session will propose research roadmaps for integrating cross-domain datasets, including behavioral, clinical, and environmental data, to reduce bias in cognitive health research and enhance the responsible use of technology in interventions. These recommendations will support the development of inclusive digital and health infrastructures, particularly in low-resource settings. Ultimately, the session aims to support global efforts toward building cognitively inclusive, data-driven societies where people of all backgrounds can live and age with dignity, autonomy, and well-being.

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**Track Classification:** SciDataCon2025 Specific Themes: Empowering the global data community for impact, equity, and inclusion