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NBRC develops worldâ??s first multimodal brain imaging data and analytics

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The project offers big-data architecture and analytics for various disease categories under one platform

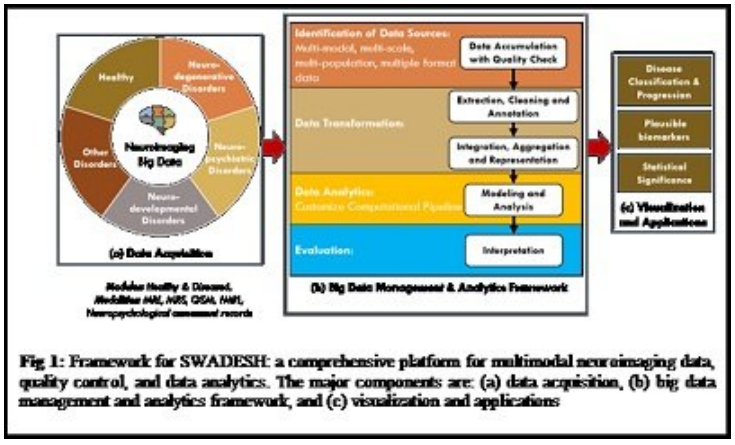

Fig 1: Framework for SWADESH: a comprehensive platform for multimodal neuroimaging data, quality control, and data analytics. The major components are: (a) data acquisition, (b) big data management and analytics framework, and (c) visualization and applications

The National Brain Research Centre (NBRC) has recently developed project SWADESH, a unique brain initiative focusing on certified neuroimaging, neurochemical, neuropsychological data and analytics that are made accessible to researchers for

managing brain disorders.

SWADESH is the first large-scale multimodal neuroimaging database designed specifically for the Indian population with big-data architecture and analytics for various disease categories under one platform.

SWADESH proposes a big-data architecture that manages and analyses six modules, namely neurodegenerative [AD, mild cognitive impairment (MCI), and Parkinson's disease (PD)], neuropsychiatric (schizophrenia and bipolar disorder), neurodevelopmental (autism and epilepsy), COVID-19-related disorders, other disorders, and healthy subjects. It is supported by JAVA-based workflow environment and Python.

Backed by a dedicated storage system, it provides quality control, data analysis reports, and data backups. Its development will facilitate the integration of multi-site data and collaborative research worldwide. Presently, SWADESH has data of 500 AD and MCI patients and 70 PD patients. It also includes data of 600 healthy old individuals and 800 healthy young individuals in the control group.