ARCHIMEDES

Advanced **R**esearch **C**ollaboration for **H**ealth **I**ntegration, **M**edical **E**xploration, and **D**ata **S**ynthesis
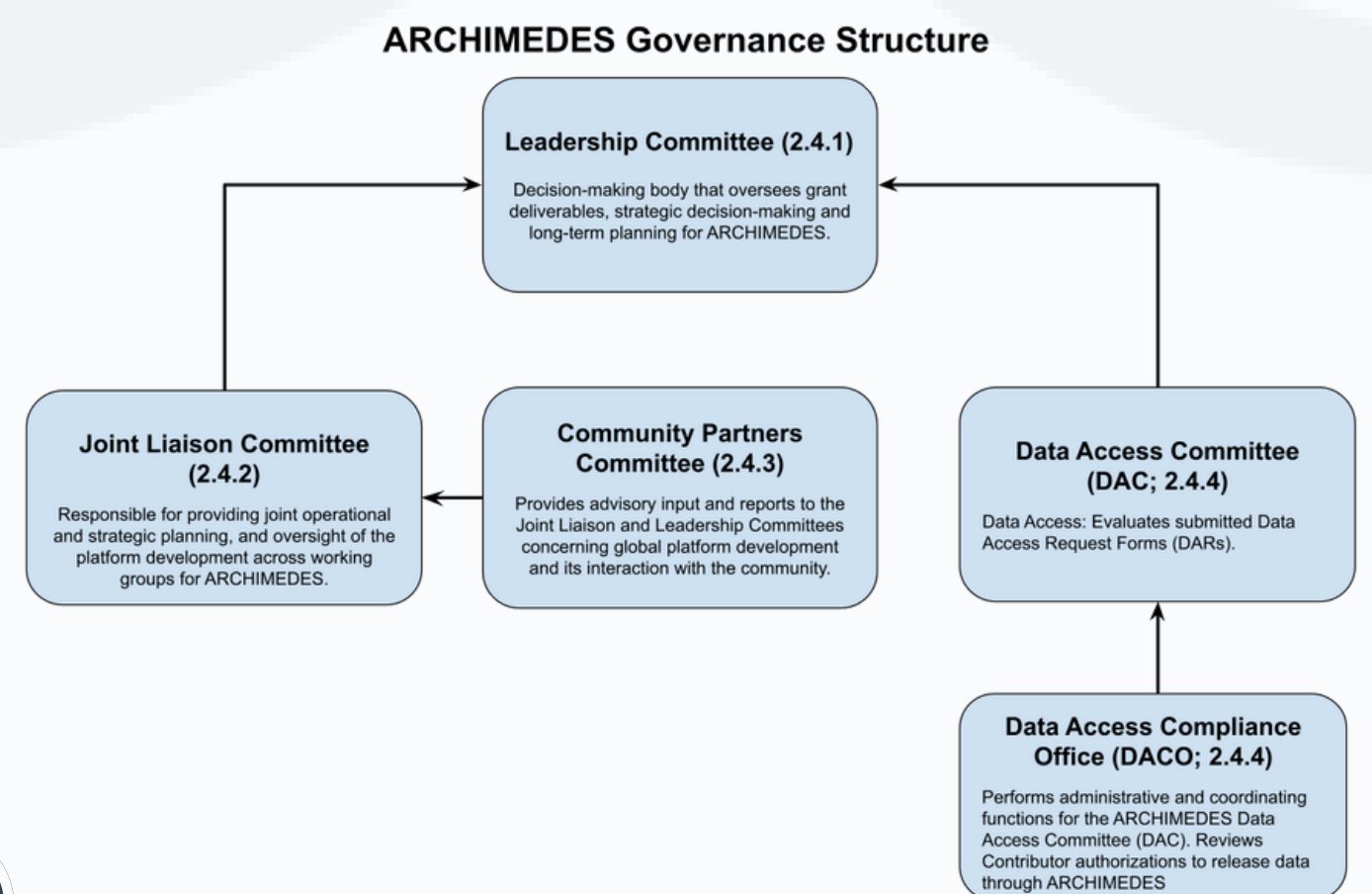
Ethics and Data Governance Framework

Introduction to ARCHIMEDES

ARCHIMEDES is a bilingual national health data platform that provides centralized and flexible access to multi-modal health data and can be used to collect, manage, share, or perform high performance computing and analytics. ARCHIMEDES has a flexible user-centric data governance structure, enabling Data Contributors to select the tier of data governance (i.e., open or controlled) most appropriate for their data. All data in ARCHIMEDES has been consented and coded and/or deidentified.

ARCHIMEDES Governance Structure

The ARCHIMEDES Leadership Committee, Joint Liaison Committee, Community Partners Committee, Data Access Committee (DAC) and Data Access Committee Office (DACO) perform portfolio-specific decision-making and advisory functions.

The DACO and DAC review all data access requests to ensure compliance with our governance framework and user governance preferences.

ARCHIMEDES Governance Structure

Leadership Committee (2.4.1)
Decision-making body that oversees grant deliverables, strategic decision-making and long-term planning for ARCHIMEDES.

Joint Liaison Committee (2.4.2)
Responsible for providing joint operational and strategic planning, and oversight of the platform development across working groups for ARCHIMEDES.

Community Partners Committee (2.4.3)
Provides advisory input and reports to the Joint Liaison and Leadership Committees concerning global platform development and its interaction with the community.

Data Access Committee (DAC; 2.4.4)
Data Access: Evaluates submitted Data Access Request Forms (DARs).

Data Access Compliance Office (DACO; 2.4.4)
Performs administrative and coordinating functions for the ARCHIMEDES Data Access Committee (DAC). Reviews Contributor authorizations to release data through ARCHIMEDES

Technical Components of ARCHIMEDES

Data Ingestion
Data ingestion tools that enable credentialed users to submit data to ARCHIMEDES for private, controlled or open release.

Data Discovery Tools
Data discovery tools that enable queries across available multi-modal datasets.

User Access Tools
User authentication and access request tools, which enable credentialed users to obtain and apply to use controlled-access datasets.

High-Performance Computing Tools
High-performance computing capabilities in partnership with the Digital Research Alliance Canada (DRAC) computing cluster.

Requirements to Contribute Data

Authorizations
Contributing researchers must confirm that they hold institutional and legal permissions for data sharing as described in the Data Contribution and/or Access Agreement and ARCHIMEDES policies.

Informed Consent
Informed consent forms (ICFs) must include data sharing.
The ARCHIMEDES Open and Controlled Access Consent Form Templates can be adapted to any institutional ICFs and found [here](#).

Data De-Identification
ARCHIMEDES policies require all direct identifiers and high-risk indirect identifiers be removed by the data contributor prior to release. Technical personnel perform limited automated and manual verifications of data de-identification.

Codes, Linage Logs and GUIDS
Data Contributors are required to code their data, ARCHIMEDES will use the GUID tool to translate single-coded data into a unique long-code identifier (GUID). This enables ARCHIMEDES to link participants across studies.

Data Contribution Support Services
The University of Ottawa Heart Institute (UOHI) operates an ARCHIMEDES Ethics Helpdesk for all users to obtain information about the data governance practices of ARCHIMEDES.

Data Contribution

Prior to contributing data to ARCHIMEDES, user institutions must complete a Data Contribution Agreement (DCA). This is a contractual agreement between the Data Contributor and the data steward (UOHI) that enables authorized Principal Investigators (PIs) at the signatory research organization to contribute data to ARCHIMEDES, as part of a specific research project.

Each Data Contributor (institution) will only enter into one Data Contribution Agreement with the UOHI, and thereafter designated users (PIs) can create or amend one or multiple projects through the submission of a Data Contribution Form.

Data Access

ARCHIMEDES supports Data Contributors to make data available through open and controlled data access tiers.

Open Access

Open Access Data on ARCHIMEDES are made available through a public website that anyone can access, to all categories of future users and for any research purpose.

Controlled Access

Controlled Access Data on ARCHIMEDES are made available to authorized users that can request access by creating an account, submitting a data access request (DAR) that is reviewed by the DAC who verifies the applicant and approves the request.

Data Protection

Each Data Contributor that submits data to the stewardship of UOHI must ensure compliance with applicable data protection laws, including the Personal Health Information Protection Act (PHIPA), or equivalent local or sectoral data protection statute(s) that govern data collection, use, and disclosure. UOHI treats data from Data Contributors as assignments to act as an agent.

Data Security and Recovery Tools

ARCHIMEDES applies a layered, role-based security model supported by institutional IT policies and biomedical data governance standards, with encryption, firewalls, and strong user authentication. Continuous monitoring, vulnerability audits, and secure infrastructure ensure protection against unauthorized access and system threats.

- Data Storage and Backup Strategy: daily, weekly, and monthly backups and storage separation on dedicated storage volumes in a secured backup network.
- Disaster Recovery Plan: a rapid response and restoration in the event of hardware failures, software corruption, security incidents or natural disasters.
- Compliance and Data Retention: All retained backups are subject to encryption-at-rest, audit controls, and retention schedules.