

Community Standards for Next-Generation Modeling



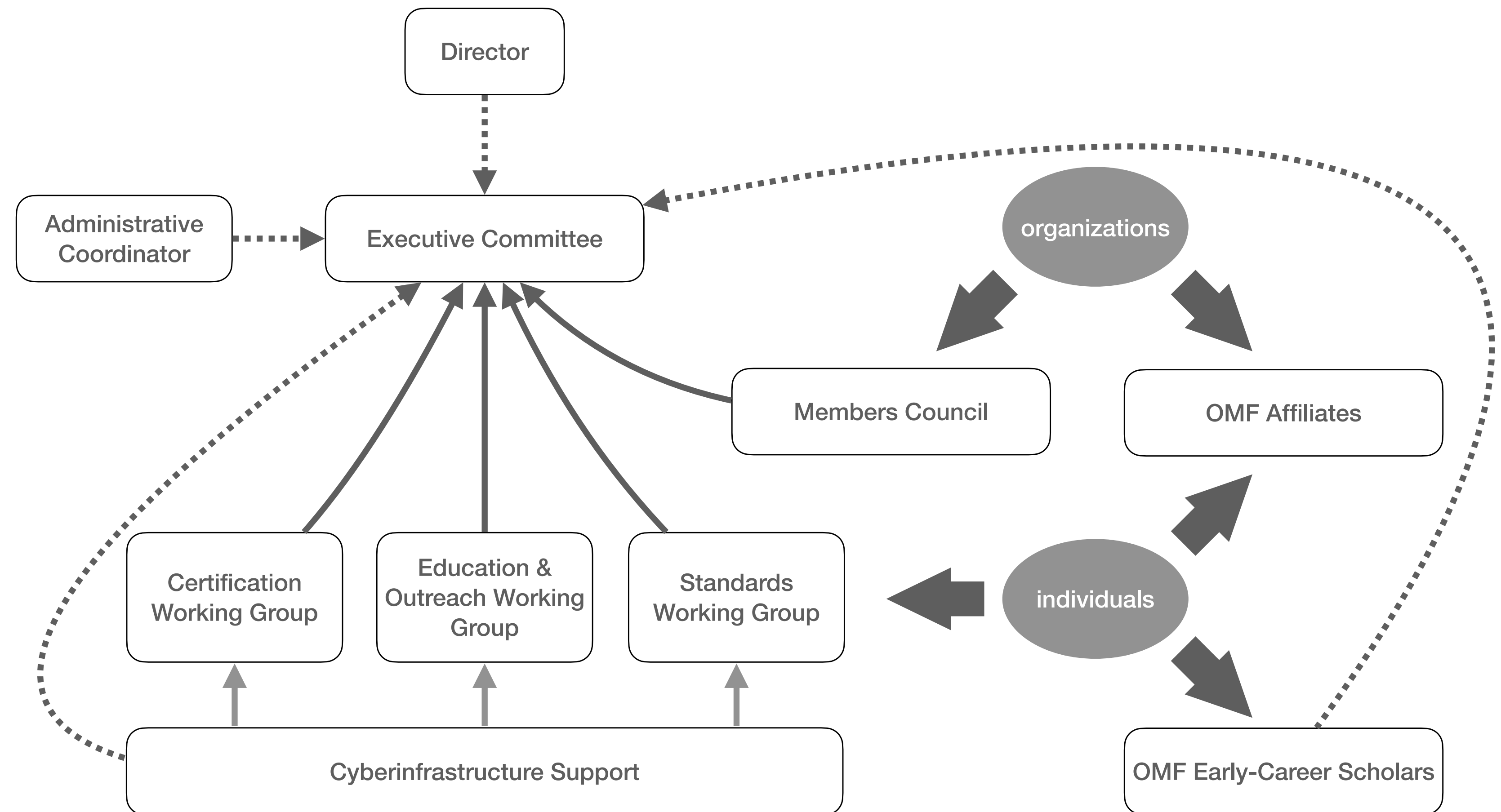
- The [Open Modeling Foundation](#) (OMF): an international alliance of modeling organizations to coordinate and administer community standards and best practices for computational modeling in the social, ecological, environmental, and geophysical sciences
- Series of strategic planning workshops 2019-2021
 - 67 organizations representing modeling science and stakeholders participated
- Formally adopted governing charter and values statement December 2021

Community Standards for Next-Generation Modeling

- Current status
 - 47 member organizations
 - Representing >10,000 modeling scientists from around the world
- Elected International Executive Committee
- Now organizing working groups: membership open
- Supported by the



Open Modeling Foundation: Organization & Membership

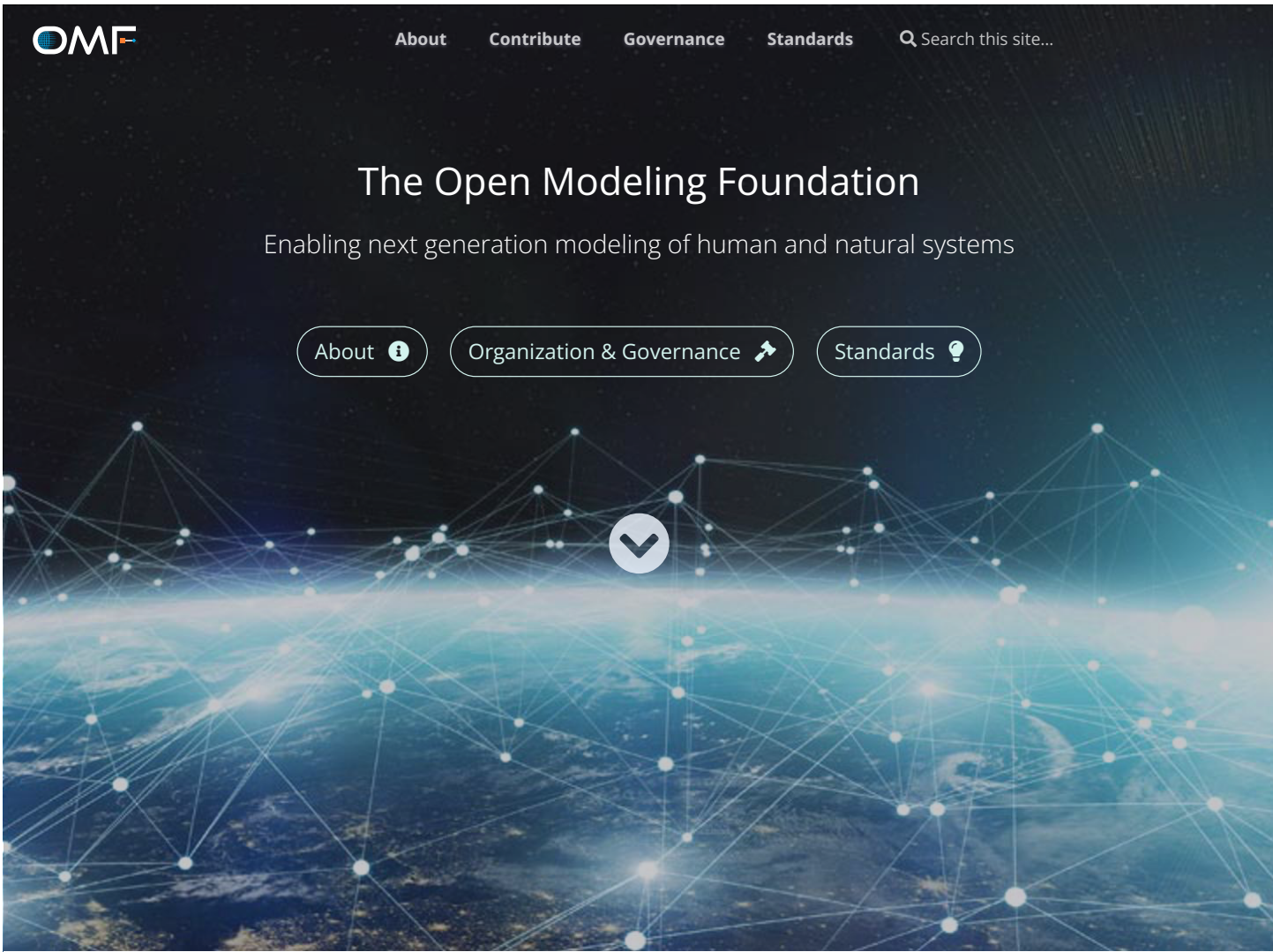


Community Standards for Next-Generation Modeling



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- The Open Modeling Foundation (OMF) is an international open science community that works to enable the next generation modeling of human and natural systems. The Open Modeling Foundation is an alliance of modeling organizations that coordinates and administers a common, community developed body of standards and best practices among diverse communities of modeling scientists. It also provides informational, data, and technological resources to facilitate the implementation of common standards and best practices among the scientific communities it serves.
 - The OMF endeavors to accelerate modeling science by making models more easily discoverable and globally accessible. It also develops and administers a suite of common standards and technology for model reusability, reproducibility, and interoperability. The OMF also promotes the recognition of those who endeavor to apply these standards and best practices through the ethical practice of fully citing models and model authors, whenever their work is used by others.
 - From OMF Charter: <https://openmodelingfoundation.github.io/governance/charter/>

Community Standards for Next-Generation Modeling



The Open Modeling Foundation is an alliance of modeling organizations that coordinates and administers a common, community developed body of standards and best practices among diverse communities of modeling scientists.

How to Participate

You can [contribute to OMF activities](#) as a representative of a member organization or as an individual in a [Working Group](#).

[How to contribute ...](#)

Community

The OMF community is committed to providing a welcoming, civil and constructive environment to improve modeling science.

[Read more ...](#)

Latest updates

Follow the latest in OMF developments on our [GitHub repository](#) and [GitHub discussion forums](#).

[Read more ...](#)

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Member Organizations and Representatives			
 Agricultural Model Intercomparison and Improvement Project (AgMIP)	 ADVANCING EARTH AND SPACE SCIENCE American Geophysical Union (AGU)	 Analysis, Integration, and Modeling of the Earth System, Future Earth (AIMES)	 Community for Data Integration and Model Catalog, US Geological Survey (CDIMCAT)
 Centre for Policy Modelling, Manchester Metropolitan University Business School	 Network for Computational Modeling in Social and Ecological Systems (COMSES)	 Center for Open Science (COS)	 Complexity Science Hub Vienna (CSH)
 Community Surface Dynamics Modelling System (CSDMS)	 Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI)	 Deltaires	 Decision Support System for Agrotechnology Transfer (DSSAT)
 Environmental Modelling and Software Journal	 Earth Systems and Society Program, Lawrence Berkeley National Laboratory (ESS) at LBNL	 European Social Simulation Association (ESSA)	 Geosoundable
 Institute of Coastal Systems Modeling and Analysis, Institut für Zentren Hereon, Geesthacht, Germany (Hereon)	 HR Wallingford	 NSF Institute for Geospatial Understanding through an Integrative Discovery Environment (I-GUDE)	 International Institute for Applied Systems Analysis (IIASA)
 INTERNATIONAL SOCIETY FOR ENVIRONMENTAL MODELING	 International Society for the Systems Sciences (ISSS)	 Key Laboratory of Virtual Geographic Environment, Ministry of Education of PRC, Nanjing Normal University	 Quantitative Archeology Lab (Department of Prehistory, Universitat Autònoma de Barcelona, Spain) (LAQU)
 State Key Laboratory of Resources & Environment Information System, Institute of Geographic Sciences & Natural Resources Research, Chinese Academy of Sciences (LIES)	 Modeling Geographical Systems Commission of IGU (International Geographical Union)	 Modelling and Simulation Society of Australia and New Zealand Inc. (MSSANZ)	 Open Geospatial Modelling and Simulation (OpenGMS)
 Planet Texas 2050, Bridging Barriers Program, The University of Texas at Austin	 Pacific Northwest National Laboratory - Multiscale Dynamics (PNNL)	 Research Data Alliance - US (RDA-US)	 Systems Science in Public Health and Health Economics Research Consortium (SPHER)
 Shenzhen Municipal Engineering Lab of Environmental IoT Technologies, Southern University of Science and Technology, China (SZ-EnvIoT)	 Texas Disaster Information System, Institute for Disaster Resilience Texas, Texas A&M University	 Helmholtz Centre for Environmental Research Ltd. - UFZ, Leipzig (UFZ)	 University of Twente and the Participatory Modeling Community of Practice
 Social Complexity and System Transformation at the Resilient Center, University of Graz (SCST)	 Wageningen Data Competence Center, Wageningen University and Research (WUR)	 Young Geographer Working Group of AGU (Asian Geographical Association)	

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Adopted December 8, 2021

Open Modeling Foundation Charter

Vision

A globally connected humanity is now a major driver of diverse Earth system processes, creating a complex, planetary socio-ecological-technological system that exceeds our innate capacity to anticipate the consequences of societal decisions and actions. Modeling is critical to enhancing ethical analytical and decision-making capabilities for policy and planning, environmental management, resource investment, and security preparedness.

Our vision is to enable open and ethical modeling efforts across domains of human and Earth systems sciences and engineering to work together to provide an integrated representation of the complex world in which we now live. This vision can be realized through a common suite of ethics, standards, protocols, and best practices that enables modeling scientists to share knowledge and build on one another's research.

Mission and Goals

The Open Modeling Foundation (OMF) is an international open science community that works to enable the next generation modeling of human and natural systems. The Open Modeling Foundation is an alliance of modeling organizations that coordinates and administers a common, community developed body of standards and best practices among diverse communities of modeling scientists. It also provides informational, data, and technological resources to facilitate the implementation of common standards and best practices among the scientific communities it serves. We seek to promote a diverse, equitable and inclusive modeling science community as expressly articulated in our [values statement](#).

The OMF supports the work of all modeling scientists endeavoring to advance the understanding of diverse dimensions of our complexly interacting human and natural world. The OMF promotes cooperation and transparent knowledge exchange among modeling scientists through common standards and best practices. The OMF develops and maintains an open-access, community framework for enabling an ecosystem of reusable, interoperable models to study complex interactions between people and the environment at multiple scales. The OMF allows scientists and planners world-wide to contribute to developing modeling approaches and applying them to help sustainably manage our planet. Because sustainability is a global challenge, it is important to engage the world in developing and deploying the science needed for this endeavor, and democratize advanced modeling to ensure that all members of our global human community have access to the scientific and decision tools they need.

The OMF endeavors to accelerate modeling science by making models more easily **discoverable** and globally **accessible**. It also develops and administers a suite of common standards and technology for model **reusability, reproducibility, and interoperability**. The OMF also promotes the **recognition** of those who endeavor to apply these standards and best practices through the ethical practice of fully citing models and model authors, whenever their work is used by others. The OMF supports training and educational programs that help modeling scientists develop their skills, learn best practices, and share expertise. OMF member organizations promote transparency and ethical practice of crediting the work of modeling scientists in all domains.

In these ways, the Open Modeling Foundation seeks to enable the many scientists across the world who are represented by its member organizations to contribute to nimble, effective modeling of natural systems, human systems, and their integration at multiple spatial and temporal scales. Through fostering innovative modeling science, the Open Modeling Foundation endeavors to help humanity confront rapidly changing and ever more complex and global issues, and improve human well-being.

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Vision

Mission and Goals

Activities

Organization and Governance

Members Council

Executive Director

Executive Committee

Administrative Coordinator

Working Groups

Cyberinfrastructure and Technical Support Staff

Affiliated Early Career Scholars

Open Modeling Foundation Affiliates