

Membership Guide **2023**



**Data to understand, explain and improve
the public value of research and higher education**

Welcome!

Thank you for your interest in membership in the Institute for Research on Innovation and Science! IRIS is a national source of credible data and rigorous findings about the productivity and public value of higher education and research.

Our mission is to help our member institutions understand, explain and improve higher education and research by providing unique data products and tools.

This guide provides support to help your institution think through common questions and issues involved in IRIS membership, including contact information for the relevant IRIS staff.

Membership in IRIS involves many stakeholders on campus, including data managers who will submit the relevant data to IRIS, as well as users of our reports such as representatives from government relations, economic development and institutional research units. We suggest that member institutions identify an IRIS champion on campus to help bring the right people together.

Please reach out to us at IRIS-info@umich.edu to set up a meeting or to suggest topics for discussion that have not been covered sufficiently in this guide.

We look forward to hearing from you!

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Approximately 100 people attended the 2019 IRIS Summit in Ann Arbor, MI.

Details of membership

As shown in Figure 1, the essential structure and process of IRIS membership is that 1) member institutions submit data to IRIS, 2) IRIS cleans the data, links them to other datasets, and produces reports and tools based on the data and 3) sends those reports and tools back to the member institution.

IRIS reports have several target audiences:

- government relations representatives (e.g., our reports break down research-related spending by state legislative and congressional district)
- institutional researchers (e.g., reports track career trajectories of research-funded employees, for example)
- economic development advocates (e.g., reports show industry sectors that benefit from research-related contracts)
- offices of research
- executive and/or research communication offices.

Another benefit of membership is that researchers on your campus will have free access to the de-identified IRIS dataset that is released each year for researchers across the globe. IRIS charges non-member researchers \$1,250 per year for that access. For more information on the IRIS research dataset, see iris.isr.umich.edu/research-data.

The membership fee for a single institution (or for a university system that provides a single data stream) is \$25,000 per year. This fee covers the infrastructure costs at IRIS, which include staff salaries, new data product development, computer software and hardware, and overhead.

For more details, please see the IRIS Membership Agreement on our website at <https://myumi.ch/JpkjG>. Once you have reviewed the Agreement with your Office of General Counsel (or the appropriate legal/contract representative on your campus), send your signed or redlined Agreement to Nancy Calvin-Naylor (nbirk@umich.edu) and Karen Woollams (woollams@umich.edu).

Convening a team

Because so many different people on campus are involved in the work of becoming an IRIS member institution, including IT representatives who can pull the required data from various offices, we have found it most effective for members to identify a campus champion that can convene the relevant stakeholders for meetings or consultation as needed.

For example, soon after a Membership Agreement is signed, we typically meet with an IT team that can find, retrieve and prepare the data on research, purchasing and employment that is submitted to IRIS.

IRIS also asks for three contact people at member institutions: a data contact, who is familiar with the institution's data systems; a communications contact, who will be updated when IRIS reports and services are provided to your institution; and an invoice contact, who will receive the IRIS invoice.

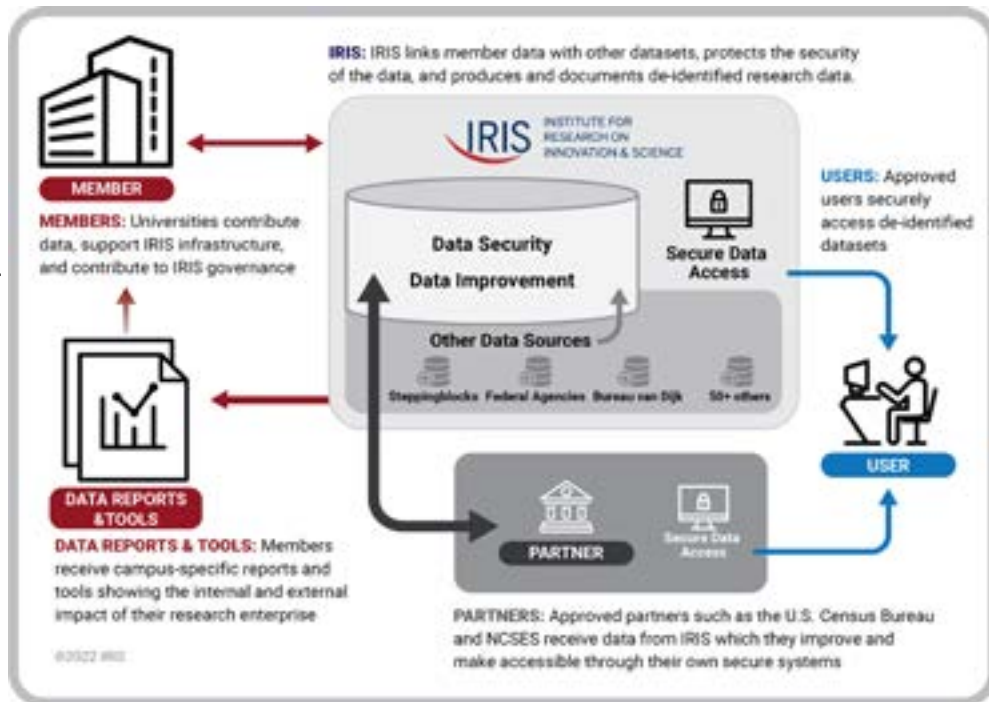


Figure 1: An overview of IRIS operations

Data transmission to IRIS

IRIS reports are based on data submitted by member institutions relating to their research spending and employment. Members transmit data to IRIS twice each year.

IRIS has worked with institutions that are quite diverse in how they manage data, and we will walk through any issues that may arise with your data point of contact. Our technical director, Kevin Bjorne (kbjorne@umich.edu), helps institutions manage this process effectively. The initial data transmission normally takes about 40 hours of institutional effort, and considerably less time for the subsequent biannual data transmissions. Please contact us at IRIS-info@umich.edu to schedule an individual phone call or conference call to review the process if you have not done so already.

Where is the data stored?

Typically, data needed for IRIS are housed in a few different places on your campus:

- Research-related expenditure data are often found in the procurement and payment systems.
- Research-funded employee data are usually in the HR system
- Research award data can usually be found in the sponsored projects system

These different systems can reside on one or more enterprise systems. IRIS is familiar with SAP, Peoplesoft, Ellucian Banner, Maestro, and others. Some of our existing members use these ERP systems as well as data warehouse systems to manage their data. Business or Data Analysts can normally pull data from these systems using SQL queries, Tableau or Cognos reports, and put them together in the requested format for submission to IRIS.

Who controls the data?

On most campuses, data stewards control access to the data they manage. These stewards usually reside in the department responsible for the data. For example, human resources will have a data steward that oversees access to employee data. We recommend scheduling a meeting with one or more of these stewards to answer their questions and provide information on data security, which is usually one of the top priorities for them. For an overview of IRIS security systems, see iris.isr.umich.edu/security/, and for more details see the section below titled “Data security at IRIS” on page 9.

Sometimes access to the data is managed by a central IT unit. They may want to review the IRIS data security measures before moving forward with access to the data. We are happy to schedule a meeting with them to expedite this process.

What are the time frames of the data?

When a member first joins IRIS, we ask for an initial data submission that covers as much time as possible. Ideally, this initial submission should include the past three to five fiscal years of data. After the initial submission, IRIS asks for an annual data submission of the most recently closed fiscal year.

Mentors and support

Whenever possible, IRIS will team a new university with a contact at an existing member university for support and mentoring on constructing and submitting the requested data. These mentors are selected based on similar ERP systems. For example, if your university uses SAP to manage your data, we will connect you with data contacts at an existing member university that also uses SAP. Even if the implementation of the systems aren't identical, they are usually similar enough so that the mentor can answer important questions, provide already written code, and explain how they prepared data for submission.

IRIS reports and products

IRIS will provide reports on several aspects of your institution's research enterprise, including vendor spending and economic development, and the career paths of research-funded employees. The underlying data of these reports are also easily accessed by member institutions. Most reports include benchmarking information on peer institutions.

The uses of IRIS reports and data depend to a great extent on the internal and external priorities of your institution. With each report, IRIS supplies a press release template meant to help you disseminate the information to relevant audiences. Some reports are geared toward specific groups of decision-makers or stakeholders such as congressional delegations.

Here are some examples from organizations that have benefited from IRIS data:

Internal uses

- Acquire better understanding of suborganizational units, e.g., schools, colleges, institutes, etc.
- Generate knowledge of how research funds are expended, e.g., what staff, what equipment, which vendors
- Understand movement of faculty, staff, and students supported by research funds and the networks they form, etc.
- Generate analytic decision-making tools for research management, e.g., growth areas, start-up resource requirements, staffing needs, graduate student program development, etc.

External uses

- Tools for conversations with external stakeholders, e.g., legislators, boards of regents, donors, public, etc.
- Institutional promotion for development, recruitment, student admissions
- Benchmarking institutional growth and development

Working with your university's government relations office is often an excellent approach. Liaison with unit and institutional development officers is also useful, and your public relations office and speechwriters will want to have access to information to include in talks, institutional publications, press releases, and social media.

A gallery of use cases is available on the IRIS website at iris.isr.umich.edu/use-cases. Examples of IRIS reports can be viewed at iris.isr.umich.edu/reports.

IRIS will email members new reports as they come out; all reports are available via the IRIS web portal at <https://irisweb.isr.umich.edu/>. Reports can be shared via a web link or a downloadable PDF. The underlying data is available to download through the portal. IRIS staff is also available to provide an overview of the reports through a conference call with stakeholders on your campus. Below is a summary of our reports.

Spending Report

The Spending Report focuses on federal research spending for each institution. It shows the individuals paid on research funds, the funders that provided the support, and the national and regional distributions of research expenditures to vendors and subawardees. It also features maps showing spending by state and by congressional district.

Vendor Profile Report

Linking member institutions' data to the Orbis dataset of businesses from Bureau Van Dijk, this report gives details on the companies that provide goods and services in support of sponsored research projects. The report shows which geographic areas and industries benefit the most from research-related contracts, and provides details about vendors such as number of employees, average wages, and whether they are owned by women or minorities.

Employee Profile Report

Using Census-linked data, this report presents information about the employment and earnings of research-trained employees, allowing institutions to track the flow of people into the economy. It provides top state destinations for research-trained employees who leave member institutions to take jobs elsewhere, as well as details about the employment sectors in which they find work, and subsequent earnings.

Government Relations Reports

Several IRIS reports are geared toward government relations, summarizing research impact by state, legislative district, or congressional district. Images of some examples can be found on the opposite page.

Congressional Fact Sheet

This report provides a quick overview of member institutions' research spending, including top funding agencies, percentage of students on federal awards, portion of research-trained employees that stay in-state after leaving a university, and research vendor spending broken down by congressional district.

State Legislative Fact Sheet

This report shows research spending and impact broken down by state legislative district for the last fiscal year, as well as the past five fiscal years combined.

Congressional District Detail Report

For any congressional district in the country in which your university had contracts or subcontracts for research-related goods and services, this report details that spending. It also shows the number of university employees and students in each district.

Impact Finder

This map-based tool allows users to identify research-related spending in specific parts of a state or region.

Examples of data visualizations in IRIS reports

Federal Research Spending 2014-2016



The Vendor Profile Report provides detailed information on the businesses that provide goods and services for university research projects, such as industry sector and total amount received from member universities (above).

The Congressional Fact Sheet includes a map of research-related spending by congressional district (left).

Access to the IRIS research dataset

One of the main benefits of IRIS membership is free access to the IRIS dataset for anyone at your institution.

The dataset contains data on approximately 535,000 funded research awards; \$127 billion in award spending; wages to about 864,000 employees, and payments to about 970,000 vendors.

Researchers in economics, sociology, complex systems, industrial and operations engineering and many other domains have found the dataset to be useful in producing dozens of published, peer-reviewed papers and 3 books. Some of the research topics investigated using the data include:

- Exploring the relationship between research outputs (patents, publications, startups established) and funding sources, specifically the differences in private sector funding of academic research
- The role of collaboration networks in science productivity
- The degree to which team structure and ethnic diversity influence scientific productivity
- Economic outcomes for people who conduct interdisciplinary research in STEM.

The data are also available for non-research uses such as program evaluation.

The data are accessed through our Virtual Data Enclave (VDE), which is available from any computer on your campus. Data users must fill out a short Data Application Access Form – an online version is available at <https://irisweb.isr.umich.edu/researcher/>.

Researcher data users are asked to provide a list of collaborators and co-applicants; a description of the research to be done; the scientific benefit expected from the research; a description of any additional data that will be used; and an IRB approval if applicable.

Access to the IRIS dataset is also available to those with Census Bureau Special Sworn Status through the Federal Statistical Research Data Center system (FSRDC). For more information, visit <https://www.census.gov/fsrdc>.

Questions about FOIA

Private institutions often have concerns about FOIA. In 1994, the State of Michigan passed the Confidential Research and Investment Information Act (CRIIA) to protect confidential research, intellectual property, and trade secret records maintained by any public university or college in Michigan. Under CRIIA, data provided to a public university in Michigan by a private external source may be withheld from disclosure if all the following conditions are met:

- (a) The information is used exclusively for research, testing, evaluation, and related activities;
- (b) The information is designated as confidential by the external source before or at the time it is received;
- (c) The University has entered into an authorized agreement to keep the information confidential; and
- (d) A document containing a general description of the information to be received under the confidentiality agreement, the term of the agreement, the name of the external entity with whom the agreement was made, and a general description of the nature of the intended use for the information, is recorded by the University within 20 regular working days after it is received.

The University of Michigan's General Counsel and FOIA Office have determined that your data submission meets the requirements



for an exception to FOIA requests under CRIIA. Our Agreement specifies that all FOIA requests will be reviewed accordant to any applicable FOIA exceptions, including, to the extent the institution depositing data with IRIS is a private entity and the materials have been clearly designated as confidential, the Confidential Research and Investment Information Act (CRIIA).

Questions about FERPA

Universities often ask us about FERPA. We leave the determination of whether your data are protected by FERPA up to you and your Office of General Counsel. If you decide your data are protected by FERPA, IRIS will protect them as outlined in the Member Agreement, consistent with FERPA requirements under the study exception.

Protection of data privacy and confidentiality

IRIS is committed to the responsible use of restricted data. We do not share your identifiable data with anyone other than our partner, the Census Bureau, and IRIS Nodes (see IRIS Member Agreement for more details).

Once your data are sent to the Census Bureau and matches with their datasets have been made, results generated from matched data are rigorously screened by the Census Bureau in a process called “disclosure proofing.” Disclosure proofing procedures are designed to prevent re-identification of an individual or organization from the reports you receive. Disclosure proofing of results from analyses of restricted Census data is required by federal law. Some specific details of the disclosure proofing process are also protected by law and cannot be shared. With that said, the disclosure process influences the reports you receive in several ways.

- 1. Individual Data.** Information on individual employees can only be released if it is based on a sufficient number of cases to insure that no single person can be identified in the data. Low match rates combined with fine categories in some panels of your reports mean data points cannot be disclosed.
- 2. Vendor and Subaward Data.** Information on business establishments can only be released when it is based on a large enough number of establishments and when the concentration rate is low. In the kinds of spending data we report, a concentration rate would be high if a small number of vendors accounted for a large percentage of spending in a particular category. Hypothetically, if your institution has a contract with an airline that means most travel expenses are charged to that vendor, then even if your employees use many airlines, we may not be able to disclose spending information because of high concentration rates. Spending in some NAICS codes cannot be reported because of these issues.
- 3. Secondary Disclosure and Implicit Samples.** Effective disclosure proofing requires attention to the possibility that data in a single report, or data disclosed in more than one report can be used to infer information about individuals or organizations. For instance, if we were to issue an updated report that differed from the data in your prior reports by only one or two data points, comparing reports would allow you to identify information about those data points, compromising privacy and confidentiality.

We continue to work with our University partners and with the Census Bureau to produce the most detailed and valuable reports that conscientious attention to privacy and confidentiality concerns will allow.

Non-Census Partners

We follow the same privacy protection and confidentiality principles with our other data partners as we do with the Census Bureau. All data transmitted to partners are encrypted at the file level. Personally identifiable information is destroyed after the matching process is complete. Data are returned to IRIS at the individual record level and IRIS determines disclosure thresholds on these data in accordance with Census Bureau standards.

For more: iris.isr.umich.edu | Follow us on Twitter: @IRIS_UMETRICS

Data security at IRIS

IRIS has a robust data management and security plan. The IRIS data infrastructure is managed centrally from within the Institute for Social Research (ISR) at the University of Michigan. The ISR is the world's largest academic social science survey and research organization. Established in 1949, ISR has a long history of gathering, managing, disseminating, and protecting valuable research data, including personally identifiable information.

The safeguarding and protections of data are based on a defense-in-depth architecture. Firewalls, secure remote application access platforms, and other boundary controls are implemented based on a risk-based approach that adheres to a least privilege access control model. Specific configuration controls are safeguarded on a strict "need-to-know" basis.

The IRIS client-server environment is protected from intrusions, malicious software, denial-of-service attacks, and insider misuse using a combination of administrative, physical, and technical controls. Access to server resources once inside the network is based on a role-based directory service architecture. Host-level security includes antivirus and malware protection software that is centrally managed to allow for rapid incident response. Access to all data storage and management systems is restricted to only 4 personnel.

All IRIS enterprise servers are located in separate, secured rooms with access limited to authorized administration staff. Server rooms are locked at all times with access restricted to only IT personnel utilizing electronic proximity access badges to gain entry. Licensed restricted-use dataset access is tightly controlled in accordance with security requirements. Access to the general systems is limited to IRIS employees. Visitors are accompanied by IRIS staff throughout their visit and not allowed access to the internal network.

In order to be a responsible trustee of contributed university data, the data are stored and accessed in a manner consistent with stakeholder concerns and follows evolving data management practices in the United States and within Data Management Association (DAMA International) standards, as well as relevant government regulations and laws (for example, the Family Educational Rights and Privacy Act, or FERPA).

A core aspect of IRIS is making de-identified data available for research purposes. There is a balance between protecting the privacy of stakeholders while also granting access to this information (all while abiding by legal guidelines). We use the four A's to meet these requirements: authenticate the user's source, understand what they're authorized to do, create an account and audit their activities.

Authorization




In allowing access for researchers, IRIS weighs the merits of each research project and determines whether there is a valid need for access to the data. Each researcher has an approved area of focus and his/her permissions reflect defined, appropriate views of the data.

Access

Access to the full data repository is restricted to the participating NODE institutions, the Census Bureau, IRIS Technical Director, and ISR Data Security personnel. Access to the de-identified data set is restricted to qualified research individuals that have been vetted and approved through IRIS research data use application process. All individuals are required to sign

Data Security at IRIS



Regular Security Audits  Annual audits and quarterly reviews of system integrity are conducted by external information assurance teams at the University of Michigan.	IRIS Virtual Data Enclave  <ul style="list-style-type: none">• IRIS meets the CUI standard (NIST 800-171)• Security processes modeled on DOD requirements• Server room under camera, sound, and environmental monitoring 24x7x365• Network separated from University of Michigan network by three layered firewalls• All software is scanned and updated monthly• Hardware encryption: Bitlocker on all physical hard drives• Database encryption: Transparent Data Encryption• Field-level encryption: PII tables have AES-256 Encryption at the individual field level• Personnel restrictions: Two admins, separation of duties and access
Enclave Users  <ul style="list-style-type: none">• Key software versions: Windows Server 2019, SQL Server 2019• Active Directory Management controls access to databases, servers and tools• Two-factor authorization for all users• 15-character passwords with complexity• 10-minute session time-outs	

Questions? IRIS-info@umich.edu

affidavits of non-disclosure before gaining access to the data. User access will be revoked upon termination of employment or at the end of the approved research timeframe.

Access will be monitored to compile data about who is accessing information for compliance auditing, and to detect unusual or suspicious behavior. Confidential information will be more strictly monitored. The data are secured on site within the IRIS enclave at the ISR facility on the University of Michigan campus.

Authentication

Each member has been effectively verified as being who they say they are.

Audit

Auditors must be independent of the data and/or the process involved. In addition to any external auditors required, we will provide internal auditing to keep quality standards high. Responsibilities include reporting on the “State of Data Security,” by verifying that activities are in compliance with regulations, and comparing our procedures against best practices. Auditing is not a substitute for data security management; rather it is a support process that will occur regularly.

Destruction of Data Post-Project

Upon the date of expiration or termination of this Agreement, the parties mutually agree that Michigan shall, at Michigan’s expense, remove any identifying elements from the Materials in Michigan’s possession (the “De-identified Materials”). Michigan agrees to send a statement certifying the de-identification of the Materials to the Depositor within 30 days of their de-identification. Michigan agrees that no data from the Materials, or any parts thereof, except in the form of the De-identified Materials, shall be retained unless written authorization from Depositor for the retention of such files has been received and confirmed.

Let us know if you still have questions about data security. We’re happy to share the IRIS Data Management Plan, the IRIS Business Continuity Plan, and the IRIS Incident Response Plan.

Governance and member participation



IRIS is governed by a Board of Directors elected by member institutions. The board oversees the management of the affairs, business, and activities of IRIS, and establishes policies and directives governing the business and programs of IRIS.

The 10-member Scientific Advisory Board provides recommendations on the scientific direction of IRIS, proposals for partnerships, and decisions related to data and data linkages.

The Policy and Outreach Committee was created in 2019 to, among other things, help streamline the membership process, offer guidance on marketing, generate best practices and uses cases for data, reporting and advocacy; expand communities of support among members; help translate new research findings for various IRIS stakeholders, and contribute to the planning of IRIS meetings.

The Technical Advisory Group recommends directions for technical aspects of IRIS, such as product development and the testing of new products and services.

Current membership of these bodies is posted at iris.isr.umich.edu/about/governance/.

If anyone at your institution is interested in serving on these boards or committees, please contact IRIS-info@umich.edu.

The IRIS Team (partial list)



Jason Owen-Smith
Executive Director
jdos@umich.edu
734-936-0463



Dharma Akmon
Managing Director
dharmrae@umich.edu
734-615-7464



Kevin Bjorne
Technical Director
kbjorne@umich.edu
734-936-0465



Natsuko Nicholls
Research Manager
hayashin@umich.edu
734-763-0447



Dan Meisler
Communications Coordinator
dmeisler@umich.edu
734-647-3587



Amy Butchart
Lead Programmer
butchart@umich.edu
734-647-1729



Meg Weideman
Administrative Assistant
megdw@umich.edu
734-615-0015

For a complete list of IRIS staff, see
iris.isr.umich.edu/about/our-team

IRIS Board Members

Bethan Cantwell

Assistant Provost for Institutional Research, Michigan State University
Term: June 1, 2023-June 30, 2024

Richard Greeley

Associate Director of Licensing, Office of Technology Transfer, University of Michigan
Term: July 1, 2021-June 30, 2024

James Hilton

Vice Provost for Academic Innovation, University Librarian & Dean of Libraries, University of Michigan
Term: April 1, 2017-

Michael Holland

Vice Chancellor for Science Policy and Research Strategies, University of Pittsburgh
Term: July 1, 2022-June 30, 2025

José Román

Vice President of Research Administration, Rutgers University
Term: July 1, 2021-June 30, 2023

Amy Roundtree

Assistant Vice President for Research, Texas State University
Term: June 1, 2023-May 30, 2025

Jan Weisenberger

Director, Office of Research and Project Administration, Princeton University
Term: July 1, 2022-June 30, 2025

Sample Announcement on IRIS Membership

Suggested for on-campus audiences potentially interested in accessing the IRIS dataset

Contact: Dan Meisler, IRIS Communications and Marketing Coordinator, 734-647-3587, dmeisler@umich.edu

University's membership in IRIS data consortium provides on-campus access to dataset on the value of sponsored research

The University has joined the Institute for Research on Innovation and Science (IRIS), a consortium of America's leading higher educational institutions focused on providing data to demonstrate the public value of sponsored scientific research.

The University's membership means that all researchers on campus will have no-cost access to the rich and detailed dataset IRIS has developed on the impact of funded research – including economic development and the career paths of faculty, students and employees.

IRIS will also supply the University with detailed reports on research spending, research vendors, and the employment and earnings of research-trained employees.

INSERT QUOTE FROM UNIVERSITY REPRESENTATIVE

"One of the main benefits of membership in IRIS is that researchers on member campuses have free access to the IRIS dataset that has proven useful in the publications of numerous books and peer-reviewed articles in the fields of sociology, economics, complex systems and others," said IRIS Executive Director Jason Owen-Smith, a professor of sociology at the University of Michigan.

He added that researchers have found the dataset useful in investigating a wide range of subjects, including the relationship between research outputs (patents, publications, startups established) and funding sources; the role of collaboration networks in science productivity; the degree to which team structure and ethnic diversity influence scientific productivity; and economic outcomes for people who conduct interdisciplinary research in STEM, among other topics.

The 2019 release of the IRIS-UMETRICS dataset includes transaction-level information on nearly 400,000 sponsored projects that represent more than \$83 billion of direct cost expenditures and employ more than 643,000 people at 31 universities. These data are linked to information on scientific outcomes at multiple levels of analysis. Linkages to federal employment and earnings data are available through the Federal Statistical Research Data Center (FSRDC) system administered by the U.S. Census Bureau. Researchers interested in accessing the data can find more information at <https://iris.isr.umich.edu/research-data/access/>. Data are deidentified before being made available for researcher access via the IRIS virtual data enclave.

IRIS was founded in 2015 with initial funding from the Ewing Marion Kauffman Foundation and the Alfred P. Sloan Foundation. Ongoing support comes from member contributions and federal and non-federal sponsored projects. IRIS was created to sustainably expand the Universities Measuring the Effects of Research on Innovation, Competitiveness and Science (UMETRICS) initiative developed in collaboration with the Committee on Institutional Cooperation. IRIS is housed at the University of Michigan's Institute for Social Research, the world's largest academic social science survey and research organization. IRIS is a consortium of research universities organized around an IRB-approved data repository.

For more information, visit iris.isr.umich.edu, or get in touch with your University contact.

Sample Press Release on IRIS Membership

Suggested for external audiences

Contact: Dan Meisler, IRIS Communications and Marketing Coordinator, 734-647-3587, dmeisler@umich.edu

University joins IRIS data consortium focused on demonstrating the value of higher education and research

The University has joined the Institute for Research on Innovation and Science (IRIS), a consortium of America's leading higher educational institutions focused on providing data to demonstrate the public value of sponsored scientific research.

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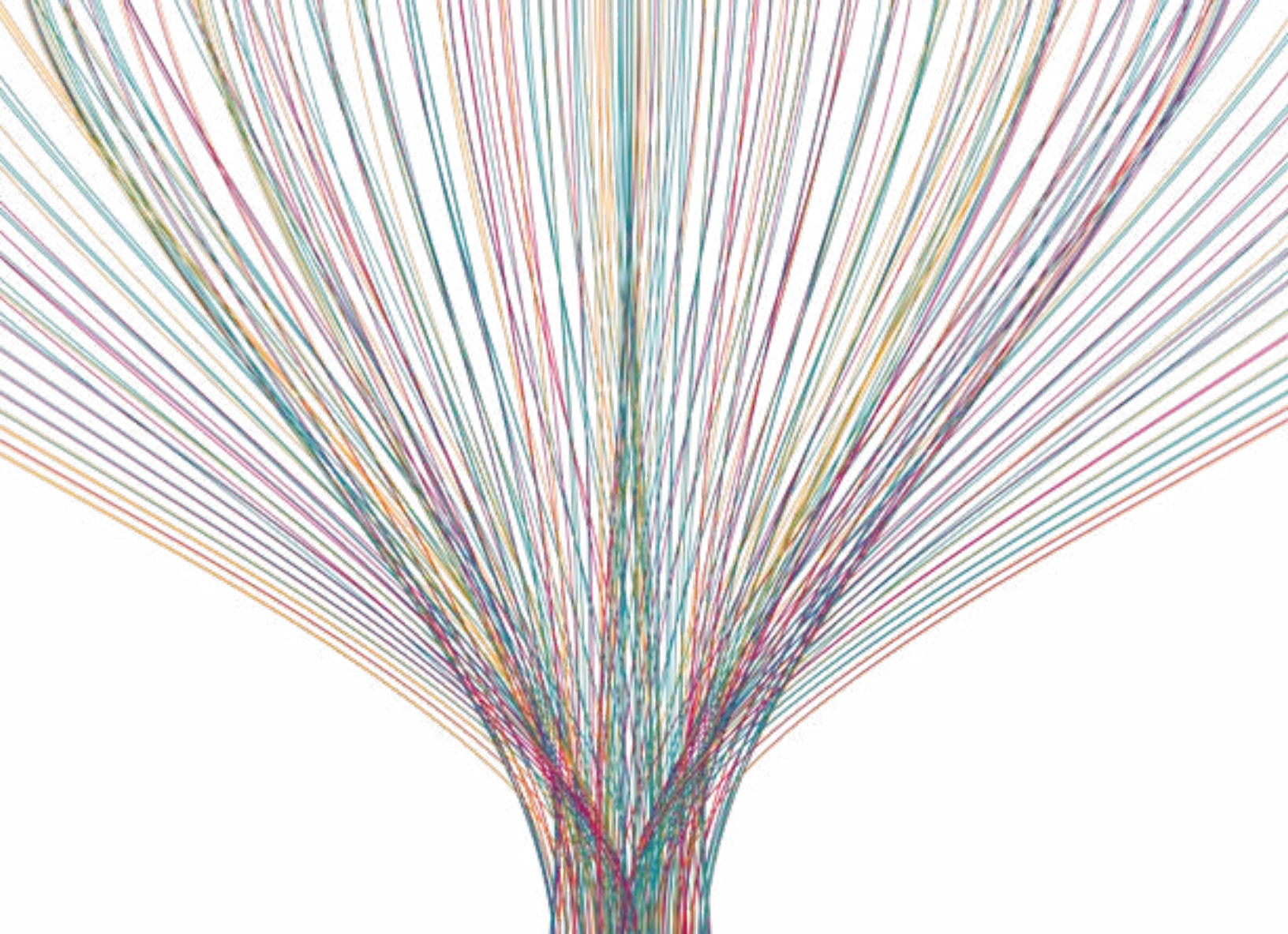
INSERT QUOTE FROM UNIVERSITY REPRESENTATIVE

"The benefits of IRIS membership are two-fold. First, we provide in-depth reports on the public impact of research that helps universities demonstrate the value of their research enterprises to internal and external decision-makers and stakeholders," said IRIS Executive Director Jason Owen-Smith, a professor of sociology at the University of Michigan. "And secondly, researchers on member campuses have free access to the IRIS dataset that has proven useful in the publications of numerous books and peer-reviewed articles in the fields of sociology, economics, complex systems and others."

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For more information, visit iris.isr.umich.edu or contact IRIS-info@umich.edu.



Institute for Research on Innovation & Science

University of Michigan, Institute for Social Research, Survey Research Center

330 Packard St., Perry Building Room 2354, Ann Arbor, MI, 48106-1248

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