**Science Gateways Community Institute**

**Science gateway** /ˈsɪən ɡətˈweɪ/ n.
1. an online community space for science and engineering research and education
2. a Web-based resource for accessing data, software, computing services, and equipment specific to the needs of a science or engineering discipline

**Science gateways community institute** /ˈsiən ɡətˈweɪ-wəz ka-myüˈna-tə-lə ɪnˈtər-sta-təl/ n.; abbrev. SGCI
1. an online and physical resource for community building and supporting science gateways: specifically: one sharing expertise, such as experiences, technologies, and practices
2. an organization enabling gateway creators to leverage efforts across projects and allowing scientists to focus on science

**Incubator:** Expertise for the gateway lifecycle

The incubator enables clients to learn and benefit from the previous experience of others.
- We show how to implement the technical details.
- We cover all aspects of the gateway lifecycle—from planning and design through end-of-life or sustainability.
- We offer a variety of services to fill in the specialized skill sets that may be missing from a development team.

“I am a custom concept that is quite different from the way many research projects think about shared services. It is a model used effectively by many non-profits in the research and higher-education field.” — Kate Wiltonberg, ITHAKA

This area is led by Michael Zentner, Purdue University.

**A Framework for Decision Making**

Technology Planning
- Choosing technologies
- Cybersecurity
- Software engineering
- Interfaces to compute and data

Business Planning
- Business model development
- Financial planning
- Project management
- Software licensing

Client Interaction Planning
- Usability studies
- Web/visual/graphic design
- Impact measurement
- Community engagement
- Support for education

Network / Cohort Formation
- Common Experiences
- Training sessions
- Group interactions

Continuing Engagement
- Customized structure, content, goals
- Mentoring
- Pay It Forward

An Ongoing Dispassionate Ear

**Experts You Could Not Otherwise Afford**

Security
- Center for Trustworthy Scientific Cyberinfrastructure

Sustainability
- Nancy Maron, creator of the ITHAKA SUR course on Sustaining Digital Resources

Evaluation & Impact Measurement
- Ann Zimmerman Consulting

Internal Resource Development
- Notre Dame’s campus gateway task force

**Workforce Development:** Keep the best and the brightest in the sciences

“Keeping the best and the brightest in the sciences involves our research professionals in the academic workforce and...” — Ian Stokes-Rees, Continuum Analytics

Workforce Development aims to:
- Increase the pipeline of young developers.
- Tap the unrealized potential of students from underrepresented groups.

To do this, we are using several strategies:
1. Fellowships and internships for students committed to learning gateway technologies
2. Connections with STEM professors integrating gateways into their courses
3. Efforts to gain acceptance for job titles and career tracks in gateway development

**Focal Areas**

Promoting Gateway-Related Career Paths
- Student-related conference programs
- Opportunities on campus

Establishing Center for Training and Education at ECSU
- Vigorous schedule of on-site and virtual training
- Development of training and course curricula about science gateways technologies

**Integrating Gateways into Course Content**

- Providing broader access to high-end resources

**Project Management**

Our team brings together seven universities, each focusing on a different facet of the Institute. The SGCI is led by Nancy Wilkins-Diehr, San Diego Supercomputer Center, University of California, San Diego.

We also have a steering committee of representatives of key scientific communities and experts, plus we have several organizational partners and external consultants as resources.

**Scientific Software Collaborative:** Leveraging existing investments in gateway technologies

The Scientific Software Collaborative helps with building gateways through two guiding principles:
1. Gateways should not be built as a series of one-off efforts.
2. A single software solution will not fit all problems.

We offer a collection of reusable components in order to help gateway builders:
- Choose technologies
- Integrate new features and capabilities

**End-to-End Solutions**

- Serve a diverse set of scientific domains
- Out-of-the-box gateway solution that can be customized
- Based on Docker – executable images that are the skeleton for a secure and functioning gateway
- Portable and reproducible
- Community-contributed

**Software Integration & Community Contribution**

- Docking mechanisms for community-contributed software, including NSF Si2
- Incorporate community standards

**Gateway Discovery**

- Open registry
- Promotes use of existing science gateways
- Community-contributed
- Admin approval
- Automated cleanup

**Engage Other Areas of Institute**

- Support projects leverage existing components
- Selection of components evolves as a result of gateway engagements
- Community outreach

**Community Engagement and Exchange:** Key to a successful institute

The SGCI needs to be a vibrant gathering place—face-to-face and virtual—for learning, sharing, and connecting.

Our community includes science and engineering web developers, across multiple disciplines, federal agencies, and nations.

To support this community, we plan to:
- Offer an annual conference, diverse website resources, and professional development to encourage conversation across disciplinary and organizational boundaries.
- Help community members learn how SGCI services might benefit them.

**Website Activities**

- Discussion forums & social media
- Gateway showcase with case studies
- Symposium series
- News: media coverage, related happenings, academic publications, job openings, events calendar
- Curated blog with guest authors
- Professional development: synchronous and asynchronous training
- Capture client/user feedback on web and through other areas

**Annual Conference**

- Tutorials and workshops
- Paper presentations
- Invited keynote and panels
- Interactive elements: Open Space, poster sessions
- Travel support for students and campus IT staff

Builds on 10 years of experience with GCSE and IWSG series

**Outreach to Complementary NSF Initiatives**

- NSF Si2 projects
- Large NSF projects
- Science and Technology Centers
- Engineering Research Centers

**Campus Gateway Groups**

- Task force builds campus-based expertise
- Channel for scaling Institute services

**SGCI Areas**

- Google Summer of Code (GSoC)
- Association of Computer Information Sciences and Engineering Departments at Minority Institutions (ACIDE)
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)

**Partners**

Visit sciencегateways.org or contact us at info@sciencегateways.org to learn more and connect with us!