

SIMON-INSTITUTE

Funding Sources Narrative

*A Strategic Funding and Partnership Framework for the SIMON-INSTITUTE
Facility and the Goldilocks Network*

Prepared for strategic planning and development

Planning narrative for internal review

*Program names, solicitation status, award conditions, and deadlines should be confirmed against
official agency or vendor materials at the time of application.*

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Executive Summary

SIMON-INSTITUTE should be financed as a layered capital stack rather than as a single grant-dependent project. The facility itself, the critical mechanical and electrical infrastructure, the advanced compute layer, the on-prem quantum layer, the cloud quantum reserve-time layer, the curriculum and workforce components, and the long-term federation functions do not fit neatly into one funding source. They should be matched to the funding or financing instruments most naturally aligned with them.

The strongest near-term federal lanes are those that treat SIMON as shared research infrastructure, campus cyberinfrastructure, and a governed academic platform for high-consequence research. In practice, that points first toward shared instrumentation and cyberinfrastructure programs, selected biomedical instrumentation mechanisms where the use case is clearly health-related, and pilot-support resources that allow the university to demonstrate utilization and governance before the largest capital commitments are made.

The strongest flagship lanes are institute-scale and region-scale opportunities. If SIMON is positioned as a next-generation institute for advanced AI, quantum experimentation, and workforce formation, or as a multi-university regional engine for translation and talent development, then larger institute and ecosystem programs become relevant. Those pathways are demanding, coalition-driven, and slower to mature, but they are highly compatible with a federation model.

In parallel, SIMON should pursue private and semi-private sources that match the project's physical and technical profile: build-to-suit or leaseback structures for the facility, equipment leasing for GPU, storage, networking, and quantum systems, philanthropy for student-facing and workforce-facing elements, and vendor participation for credits, discounts, architecture support, training, and letters of support. The practical objective is to let grants fund what grants fund best, let financing fund what financing funds best, and let vendor and philanthropic support reduce early cash burden and accelerate proof points.

Illustrative Funding Stack

Layer	Best-Fit Sources	Primary Use	Planning Note
Facility and core infrastructure	Build-to-suit, leaseback, philanthropy, selected grants	Shell, utilities, critical infrastructure, site integration	Separate building costs from instrumentation and services
Advanced compute and quantum systems	MRI-type instrumentation, DURIP, equipment leasing, vendor finance	GPU clusters, storage, networking, on-prem quantum systems	Use leasing to align with refresh cycles
Cyberinfrastructure and orchestration	CC*, CSSI, campus IT investment, vendor support	Network, identity, storage, security, orchestration, observability	Frame as shared research enablement, not generic IT
Institute and workforce layer	AI Institutes, QLCI, NSF Engines, Tech Hubs, philanthropy	Research agenda, workforce development, partnerships, regional coordination	Coalition quality and measurable use cases matter
Early pilots and access	ACCESS, cloud credits, quantum access credits, STRIDES, vendor pilots	Benchmarking, training, classroom pilots, proof points	Use early pilots to strengthen large proposals

1. Planning Premise: SIMON Requires a Layered Capital Strategy

SIMON-INSTITUTE is not just a building project and not just an academic program. It is a combined facility, instrumentation, curriculum, workforce, research, and federation initiative. That matters because funders rarely underwrite all of those dimensions with one vehicle. A successful financing plan must therefore separate the project into components that can be funded, financed, leased, sponsored, or phased differently.

A useful planning approach is to divide the initiative into five components: (1) the facility shell and site-adapted buildout; (2) advanced compute, storage, networking, and quantum systems; (3) secure cyberinfrastructure, orchestration, and observability; (4) academic and workforce programming; and (5) federation-scale research and collaboration functions. Once separated, each component can be matched to a more realistic funding lane.

This also improves conversations with universities, agencies, and vendors. Federal funders are more responsive when the request is clearly framed as instrumentation, cyberinfrastructure, workforce formation, or a research institute rather than an undifferentiated request to 'build an AI center.' Private capital is more responsive when the facility and equipment obligations are tied to predictable institutional commitments. Vendors are more responsive when they are asked for specific forms of support rather than vague 'partnership.'

2. Federal Non-Dilutive Funding Pathways

2.1 Instrumentation and Campus Cyberinfrastructure

The most natural early federal lanes are those that view SIMON as shared research infrastructure. The U.S. National Science Foundation's Major Research Instrumentation program is a strong fit when the advanced AI environment is positioned as a shared-use research instrument serving multiple principal investigators, a defined research user base, and a credible governance and operations plan. The campus-cyberinfrastructure lane is a strong fit when the need is secure, high-bandwidth, research-ready integration across on-prem systems, cloud resources, and research networks.

The Cyberinfrastructure for Sustained Scientific Innovation program is especially relevant when SIMON is framed not only as hardware, but also as an orchestration and community-cyberinfrastructure layer: reproducible workflows, observability, services, software, and measurable community use. This is the funding lane that best fits the 'Goldilocks platform layer' rather than the facility shell.

2.2 Institute-Scale Research and Workforce Lanes

If SIMON is framed as a flagship institute rather than a room full of equipment, then larger institute-scale federal opportunities become relevant. The National Artificial Intelligence Research Institutes model is the clearest example on the AI side. It is a fit when the institute has

a coherent use-inspired research theme, a workforce-development plan, multi-stakeholder partnerships, and an infrastructure strategy that can support durable research and education outcomes.

On the quantum side, the Quantum Leap Challenge Institutes framework becomes relevant when the quantum layer is part of an institute-level agenda in research, education, and workforce development rather than a stand-alone hardware acquisition. In both cases, SIMON is strongest when it is presented as a disciplined platform for discovery, training, governance, and translation rather than as a generic technology showcase.

2.3 Regional Ecosystem and Translation Lanes

A regional coalition model is especially attractive when SIMON is advanced through a Texas, Florida, or other multi-state strategy. The NSF Regional Innovation Engines framework is built for place-based innovation ecosystems that join higher education, industry, government, and nonprofit partners around technology translation, workforce formation, and long-horizon ecosystem growth.

The U.S. Economic Development Administration's Tech Hubs program is likewise relevant where SIMON can align with an existing or emerging regional technology strategy. These lanes are most persuasive when the narrative is not only academic excellence, but also regional competitiveness, talent development, commercialization pathways, and infrastructure that can support shared testbeds and durable collaboration.

2.4 DOE and National-Lab Alignment

The U.S. Department of Energy becomes especially relevant when SIMON is framed as a platform for AI-for-science, advanced computing, quantum-enabled discovery, and national-laboratory collaboration. The Office of Science and the Advanced Scientific Computing Research program are the most direct pathways for advanced computing and scientific-AI agendas. In practice, DOE pathways are usually research- and partnership-oriented rather than building-oriented, which makes them especially useful for the scientific program that sits on top of the facility.

The DOE National Quantum Information Science Research Center ecosystem is also important. For most universities, the most realistic route is not to expect SIMON to replace a national center, but to make SIMON a valuable collaborator, demonstration site, or workforce pipeline connected to national-lab and QIS-center agendas.

2.5 Biomedical and Clinical Research Lanes

Where SIMON's use case is explicitly biomedical, NIH-aligned pathways become important. The NIH S10 instrumentation family is relevant when the request is framed as shared-use scientific instrumentation that advances NIH-funded research. These mechanisms are strongest when there is a clearly documented biomedical user community, shared access rules, and evidence that the equipment materially advances funded investigators' work.

The NIH STRIDES initiative is not a building grant, but it is a practical cloud-resource pathway for biomedical research. It can strengthen a hybrid model by reducing cost barriers to cloud

services, professional support, and training for NIH-facing workloads. In other words, STRIDES is not a substitute for on-site infrastructure, but it can be a valuable part of the compute-access layer for biomedical and translational projects.

2.6 Defense-Relevant Instrumentation and Research

For institutions with strong defense-relevant themes, the Department of Defense's Defense University Research Instrumentation Program remains a credible lane for research equipment tied to national-defense priorities. It is most persuasive when the university can connect the requested equipment to active defense-relevant research questions, a clear user base, and the education of scientists and engineers in fields important to national security.

SIMON should not assume that defense agencies will fund the entire concept. The better strategy is to identify specific mission-aligned instrumentation or research work packages where defense relevance can be articulated clearly and credibly.

3. National Resource and Access Programs That Reduce Early Capital Burden

Not every support pathway needs to be direct cash. In the early phases of SIMON, national access programs and shared-resource pathways can materially de-risk the project by allowing pilot instruction, benchmarking, and proof-of-concept research to begin before the full local environment is operational.

ACCESS is particularly valuable because it gives researchers, educators, and students access to advanced NSF-supported computing resources at no cost, which can support classroom readiness, pilot benchmarking, and proposal-strengthening evidence. Internet2 and its related community services are equally important to the credibility story because they strengthen the network, identity, secure-access, and cloud-connectivity narrative that large research and education projects increasingly require.

Where AI access rather than facility cash is the immediate bottleneck, the evolving National AI Research Resource ecosystem and related public-private access pathways can also provide useful pilot capacity, especially for faculty teams and educators who need to test workflows, access models, and workforce uses before committing to major local capital expenditures. In the quantum space, industry consortia and network membership structures can also strengthen credibility, peer visibility, and standards alignment even when they do not directly write checks.

4. Private Capital, Institutional Finance, and Philanthropy

SIMON's physical and technical profile makes private and semi-private financing especially relevant. The facility itself may be well suited to a build-to-suit, leaseback, or similar structure when the university prefers speed, risk transfer, or off-balance-sheet flexibility. This is often the cleanest path for a specialized facility whose core value lies in long-term academic use rather than short-term commercial turnover.

Equipment financing is a separate question and should be treated separately. GPU systems, storage, networking, and some quantum-related systems often fit better into leasing or refresh-aligned financing because the refresh cycle is shorter than the life of the building. SIMON already contemplates phased expansion and technology turnover; financing structures should match that reality rather than forcing the university into a large one-time hardware purchase.

Philanthropy should not be treated as an afterthought. In many university settings, major gifts, naming opportunities, endowed access programs, student fellowships, and restricted operational support can be decisive in moving a concept from aspiration to implementation. Philanthropy is especially well matched to theaters, classrooms, community engagement functions, student programming, visiting researchers, endowed faculty leadership, and workforce-development initiatives that grants often underfund.

If, at a later stage, SIMON includes a commercialization or services layer around orchestration, managed services, or platform IP, then mission-aligned growth capital may also become relevant. That should generally be treated as a separate question from the financing of the university facility itself.

5. Vendor Participation Strategy

Major technology vendors should be approached as capability accelerators and credibility multipliers, not merely as sellers. The strongest asks are concrete and legible: credits, discounts, training, design review, reference architectures, proof-of-concept support, joint proposal participation, and letters of support that describe exactly what the vendor will contribute.

5.1 Cloud Credits and Hybrid Compute Support

AWS remains a strong early-pilot pathway through its Cloud Credit for Research program, especially for proof-of-concept workloads, benchmarking, workshops, and cloud-bursting comparisons against on-prem systems. Google Cloud's research-credit and higher-education pathways are useful for research pilots, data-intensive workloads, and teaching or faculty-led experimentation. Microsoft's Azure ecosystem is relevant both for cloud support and for quantum access through Azure Quantum.

5.2 Quantum Ecosystem Participation

Quantum vendors and ecosystems are especially valuable while the on-prem quantum layer is ramping. Azure Quantum and the IBM Quantum Network are both meaningful because they offer structured access pathways, community credibility, and hands-on opportunities that can support coursework, benchmarking, and early research. Depending on the academic focus, other quantum hardware partners or service providers may also play a role in reserve-time access, research collaboration, or curriculum support.

5.3 On-Prem AI, Network, and Storage Platforms

NVIDIA is a natural anchor partner for the advanced AI compute layer through its higher-education and academic-grant ecosystem. Server OEMs, networking vendors, and storage

providers should likewise be engaged not only for pricing, but also for deployment guidance, reference-architecture support, training, service terms, and integration planning. In many cases, these relationships can be paired with vendor-finance structures to reduce initial capital demands.

5.4 Critical Facility and Reliability Vendors

For a facility that will support secure compute and specialized systems, critical-infrastructure vendors are also part of the funding story. Power, cooling, monitoring, and reliability partners may support the project through discounted equipment, design review, deployment assistance, training, and co-marketing support. They can also strengthen the credibility of grant and philanthropic narratives by demonstrating operational seriousness.

6. Standard Ask Ladder

SIMON should use a consistent, funder-friendly menu of asks so that universities, agencies, vendors, and philanthropies understand exactly what form of participation is being requested.

- **Cash:** Restricted support for facility buildout, shared instrumentation, workforce programming, pilot research, or student access.
- **In-kind contributions:** Discounts or donated value for GPU systems, storage, networking, quantum access, monitoring tools, or security tooling.
- **Credits:** Cloud compute, quantum compute, or training credits for pilot cohorts and early proof points.
- **Services:** Architecture review, deployment support, security review, commissioning support, integration help, and training or certification programs.
- **Letters of support:** Specific letters that explain what is contributed, what it enables, and how students, researchers, or regional partners will benefit.
- **Advisory participation:** Participation in advisory boards, curriculum workshops, faculty sessions, or student pipeline development where mission and visibility align.

7. Recommended Sequencing

Phase I should focus on credibility and pilots. That means securing cloud credits, quantum access pilots, letters of support, research-network alignment, and early faculty or course use cases. The goal is to produce evidence that the project is real, governed, and already useful.

Phase II should focus on the core infrastructure stack. This is the point at which instrumentation, cyberinfrastructure, equipment finance, and selected biomedical or defense-aligned requests should be assembled. By this stage, the project should be able to demonstrate who will use the systems, how governance will work, and what early outcomes or curricula are already in motion.

Phase III should focus on flagship and coalition-scale opportunities. Once the facility concept, early utilization, and governance model are credible, SIMON can more persuasively pursue

institute-scale or region-scale opportunities such as AI Institutes, QLCI, NSF Engines, Tech Hubs, and deeper DOE collaboration.

Phase IV should focus on sustainment. At this point, philanthropy, industry memberships, refresh-aligned leasing, recurring service agreements, and multi-university federation pathways become the tools that prevent the initiative from becoming a one-time capital event.

Conclusion

The central funding conclusion is straightforward: SIMON-INSTITUTE should not be pursued as a single-source project. It is strongest when advanced as a blended capital and partnership strategy in which federal programs support what they are designed to support, private capital and leasing support what they are designed to support, and vendors and philanthropies reduce early risk while strengthening long-term institutional credibility.

The most important discipline is sequencing. Early pilots and visible governance make later capital easier. A clear facility plan makes equipment finance easier. A strong user community makes instrumentation proposals stronger. A regional coalition makes institute and ecosystem proposals more credible. In short, SIMON's financing story is not just about finding money; it is about building a funding architecture that matches the academic, technical, and moral architecture of the Institute itself.

Appendix: Illustrative Official Program and Partner Categories

The following categories are illustrative planning references only. They are not exclusive, and all solicitation details, eligibility conditions, and timing should be confirmed before use.

Federal programs and public-resource pathways

- NSF Major Research Instrumentation (MRI)
- NSF Campus Cyberinfrastructure (CC*)
- NSF Cyberinfrastructure for Sustained Scientific Innovation (CSSI)
- NSF National Artificial Intelligence Research Institutes
- NSF Quantum Leap Challenge Institutes (QLCI)
- NSF Regional Innovation Engines
- EDA Tech Hubs
- DOE Office of Science and ASCR pathways
- DOE National Quantum Information Science Research Center partner paths
- DoD DURIP
- NIH S10 instrumentation programs and NIH STRIDES
- ACCESS, Internet2, and related national-access or consortium resources

Vendor and ecosystem categories

- AWS Cloud Credits for Research
- Google Cloud research credits and higher-education programs

- Azure Quantum and related Azure sponsorship pathways
- IBM Quantum Network and related quantum-access programs
- NVIDIA academic research and higher-education pathways
- Server OEM, networking, storage, and critical-facility vendors

Private capital and institutional finance categories

- Build-to-suit or leaseback structures
- Equipment leasing and vendor finance
- Restricted philanthropy, naming gifts, and endowed access programs
- Mission-aligned private capital where a separate commercialization layer exists