Software Preservation Network Membership Proposal 2021+

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What is Software Preservation and Why Does it Matter?

Software…

 …is embedded
 …is transparent
 …has reach and scope
 …embodies standards
 …is built on an installed base
 …is fixed in modular increments
 …becomes visible on breakdown[1]
 …is critical infrastructure.

More and more major businesses and industries are being run on software and delivered as online services — from movies to agriculture to national defense to global financial systems. If we think of our own practice, software is not part of a specific workflow or phase of work but embedded into our work routines. Therefore, if we want to fulfill our organizational mission, if we want to enable researchers of the future to access the past in meaningful ways, we must preserve software.

Software preservation requires collective action.

Precisely because software is so ubiquitous, no single organization can preserve and provide access to all the software represented by the digital objects in their existing and future collections.

Preserving and providing long-term access to software and software-dependent objects implies investment in several parallel streams of collective activity: metadata conventions; capacity building and training; law and policy advocacy; development of an international legal framework for software sharing and reuse; technological infrastructures; and practice-based research. Deliberately aligning investments of collective resources, time, and attention across these activities enables us to maximize the impact of our work.

The Software Preservation Network is a collective action effort ensuring long term access to software through community engagement, infrastructure support and knowledge generation. Network participation includes colleagues from design firms, public

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[1] Star, S. L. (1999). The Ethnography of Infrastructure. American Behavioral Scientist, 43(3), 377–391. https://doi.org/10.1177/00027649921955326

libraries, history of computing museums, research data archives, university libraries and the open source software community. Individual participants range in role and perspective, including legal scholar-practitioners, digital preservation specialists, metadata specialists, data curators, digital conservators, librarians, knowledge managers, archivists, software developers and data journalists.

Our Proposal

Join us. Invest $5,000 per year as a member of the Software Preservation Network.

SPN has a flexible budgetary framework[2]/ developed by members during the seed-funded period that allows us to adjust the level of activities and member services in response to the number of participating member organizations. Services and activities have been described in terms of Slim, Moderate, and Robust budgets. The Slim budget category is the baseline for continuing our current work.

Expenditures listed in the example operational budget provided below reflect the "Moderate" budget proposal:

Description of activity or function	Cost
Organizational Operations and Management ● SPN Community Coordinator (.75FTE) ● Educopia Communications Manager (.5FTE) ● 30K Fiscal and Administrative Hosting Costs	$105,000.00
Driving the Software Preservation and Emulation Law & Policy Agenda ● SPN Law and Policy Advisor retainer (8hrs/wk)	$30,000.00
Member Engagement ● Funds to support regional meetups and	$7,000

[2] SPN Flexible Budgetary Framework:
Slim Budget: The slim version of the budget assumes that SPN services and activities will remain the same after the 2020 period of fundraising and recruitment.
Modest Budget: The modest budget builds on the services included in the slim estimate, primarily supported by an increase of staff time committed to SPN efforts and the facilitation of in-person meetings and workshops at conferences and professional events. This budget also includes implementation of small-scale programs to provide professional development and technical support services to the SPN membership. SPN staff would also take a more active role in the development of grant proposals for affiliated projects, resulting in an expanded set of grant-funded programs under the SPN umbrella.
Robust Budget: A robust budget takes a maximal approach to planning for SPN's future, incorporating many activities articulated by membership during the two-year seed funded period. Legal work and professional development programs would be implemented at a larger scale than in the modest budget, and we would include possible internships and travel grants for research or conference attendance. This budget also anticipates an expanded software development program to create and administer tools needed by the SPN membership and broader professional community.

member networking events	

Community Development and Outreach
   ● Conference or other large event hosting costs (catering, staff, printing, venue rental)
   ● Online outreach, swag, effort investment in alliances with similar groups (important as we build members and provide services)
	$16,000

Research & Innovation Framework (including Affiliated Project Grant Pipeline)
   ● "Change capital" that enables SPN to streamline grant applications involving several members and external partners,
   ● "Research sprint" funding to members around a topical are of focus
   ● Contract with a data scientist to begin evaluating current sources of data that could be indicators for field-level, consensual measures of success for software preservation
	$7,000

Design, Publication, and Marketing ● Contract with designer or illustrator for working group and member deliverables, transcriptions for video and audio recordings, shipping costs	$10,000
Professional Development ● Prototype mini-grants or other methods to encourage professional development for member projects or interns	$10,000
Tool Management and Development ● Contribution to tool development - or costs to pilot a project with a third party emulation tool provider	$10,000
TOTAL	$195,000

Why You Should Join Us

Lead the increasingly critical field of software preservation.

SPN has successfully cultivated a healthy community of practice where the focus is on building field-level capacity: members design and complete research into evolving practice, affiliated projects and working groups identify common needs that allow SPN member organizations to make strategic digital curation decisions, and the nimble SPN staff provides training and coordination necessary to distribute software preservation skills across a broader set of individuals. SPN is not only crucial for advancing field level capacity for software preservation, it serves as a useful model for how we build capacity in other curation and user service areas that are not likely to receive significant dedicated investment within a single organization but are essential to supporting research, teaching, and learning.

Sustain and amplify the impact of your existing investments in digital curation.

By increasing the software preservation skills of a broader set of individuals, existing investments in educational, community, and technical resources (including programmatic activity at member organizations; working group and committee outputs; and grant-funded affiliated project findings and deliverables) can be leveraged to begin building a stronger, distributed, pool of practitioners with the technical skills and real-world know-how to preserve a wide range of software artifacts. A network of software preservation professionals and organizations distributes risk and lowers the actual cost of investment for each participating organization, allowing a greater number of organizations to participate in the work without dependence on one or a small number of organizations to *burden the cost* or *control the direction* of field-wide advancement. Distributing investment among a network of software preservation professionals also means distributing ownership over the strategic direction of the work and the use of collective resources.

Accomplish together what cannot be accomplished alone.

Software is a type of digital object and therefore many of our existing digital curation practices and tools apply. However, software also has unique properties, and many of the challenges of software preservation reflect changes in software distribution models,

networking, and intellectual property protections over time. No single organization can invest the resources necessary to address all the aspects of software preservation.

SPN also *draws on the expertise of and facilitates collaborative problem solving between* different functions within a single member organization, then *aligns that expertise across member organizations* towards progress in our five core activity areas. SPN facilitates what might otherwise be siloed conversations about similar software longevity challenges happening in different domains (research data curation, information technology, computer science, fine art, digital conservation, special collections and archives), bridging these into a set of cross-domain discussions about similar software longevity challenges (law and policy, training and education, research-in-practice, technological infrastructure, and metadata).

Exclusive Access to EaaSI Beta Hosted Service 2020 - 2021

SPN is partnering with the Emulation as a Service Infrastructure (EaaSI) Program of Work to explore the feasibility of offering scaled, high-quality emulation services to members at a consortial rate. Based on needs the community has expressed during the two-year seed-funded period (2019 - 2020), we have designed an opt-in pilot project to investigate interest in and possible structures for a potential service. The pilot program would begin in January 2021 and run until December 2021.

During this pilot, SPN would act as the first point of contact for EaaSI Hosted Service for its members, standardizing and overseeing member onboarding to the Network and synthesizing feedback/data from members in order to inform the EaaSI development roadmap and service design. Goals for the pilot include:
- Determine the feasibility of SPN serving as the 'pipeline' to EaaSI emulation services.
- Determine practicality of efforts to standardize and scale configuration workflows across institutions.
- Determine the level of SPN staff support and associated costs that would be required to make an ongoing partnership with EaaSI feasible.
- Determine whether a partnership can reduce time, expense, and complexity both for SPN member partners and the EaaSI Program of Work.
- Determine whether an ongoing partnership between SPN and a service provider is desirable, and if so, develop a more robust, data-driven fee structure that will directly inform the membership fee structure for SPN moving forward.

Member Services

Ownership and Control over SPN Strategic Directions

- Appointment of one staff member to the Steering Committee, which has voting rights and responsibilities
- Ability to self-nominate or be elected to governance committees such as Executive Council, Research & Innovation Committee, Policies & Procedures Committee, etc.
- Ongoing recognition as a "Sustaining Member" in all future SPN work as long as membership is maintained

Driving the Software Preservation and Emulation Law & Policy Agenda

SPN will keep abreast of the landscape in legal policy, decisions, and actions around software access and preservation especially in relation to and working with other library and archives legal advocacy groups.
- Agreements/licenses/models to support software licensing and legitimate re-use

Event Planning and Facilitation

SPN will plan and produce events to educate SPN members, stakeholders, and others on topics relevant to software preservation and inform the community of activities/outcomes of various projects managed by or affiliated with SPN (e.g., affiliated grant projects, working group publications, research projects, etc.)
- Meetings, workshops, seminars, webinars, online forums, etc.

Tool Management and Development

SPN will manage instances and provide access to tools for software preservation and emulation, such as EaaSI, software repository mirrors, and others TBD. Depending on the needs of the membership and the landscape of available tools, SPN may explore support for internal development or funding of new software to address common needs in software preservation.
- Exclusive EaaSI Hosted Service pilot for 2021
- Ability to guide development of community-driven software preservation and emulation tools
- Investigation into consortial rates on hosted tool subscriptions: Code Ocean, Lab Archives, EaaSI when ready, Archive-It, LYRASIS, Preservica, others?)

- Development support for emulators and technical infrastructure that supports software sharing and reuse

Research & Innovation Framework (including Affiliated Project Grant Pipeline)

SPN will nurture affiliated projects that advance the mission, vision, strategic goals, and research agenda of the Network through financial or in-kind support, shared measurement, and producing outcomes that inform priorities for action.

- A research and innovation framework that
    - Places current research and development activities across working groups, committees, and projects with the SPN research continuum
    - Provides an incubation pipeline to move community research ideas from ideation to implementation
    - Explicitly articulates the alignment between SPN's research directions and affiliated project goals/outputs
    - Outlines a grant pipeline that enables community project ideas to be part of a broader grant development framework where we match funders to areas of interest, and identify member organizations interested in taking lead on new projects
- Organization and coordination of research sprints on key topics of interest to the community that could lead to multi-institutional grant proposals
- Research-in-practice fellowships to encourage experiments and inform future work

Professional Development

SPN will offer events, funding opportunities, and other professional development services to advance the capabilities and expertise of the SPN membership and broader community of professionals engaged with software preservation.

- Access to an international network of institutions engaging in software preservation activities
- Minimal requirements for machine actionable software metadata

Design, Publication, and Marketing

SPN will create, maintain, and publish documentation that provides value to membership and stakeholders. This documentation will take the form of publications (such as articles, reports, data sets, and presentations that conform to the SPN Resource Publication Policy), as well as documentation that facilitates SPN's operations (such as directories, workflows, governance manuals, etc.).

- The [SPN library of resources](#) reflects the underlying logic of our organizational model: the network amplifies the efforts of any single member or affiliated project.
- In light of the pandemic, with so many additional library staff working from home, many of our members and project partners have requested SPN resources so they can use this pandemic period as a time to distribute digital curation know-how across the library. SPN has so many resources (across formats and modes) at this point that we were able to develop software preservation curriculum and topical guides (release forthcoming) which are intended to lower the barrier to entry for digital curators and colleagues in adjacent departments alike.
- Outside of software preservation-specific resources, several members and project partners have requested general resources on remote project management, meeting facilitation, and planning documentation. As a remote-first community with a small but experienced facilitation staff, we are also able to provide these types of resources.

Community Development and Outreach

SPN will conduct targeted outreach and marketing to diverse communities of stakeholders involved in software preservation, interested in the topic, or in a discipline related to the activities and goals of the organization in order to expand the reach and membership of the organization.

Organizational Operations and Management

SPN staff will oversee day-to-day operations of the organization (e.g., accounting, management, communications) and planning and implementation of various organizational policies, business planning, and fundraising.
- Metrics to enable ongoing tracking and reporting on progress across project-based and programmatic software preservation efforts
- A searchable directory database describing the operations of each member
- Investigation into consortial rates to other member organizations: Code Ocean, Lab Archives, EaaSI when ready, Archive-It, LYRASIS, Preservica, others?)
- Website hosting and management

Member Engagement

SPN will continue to engage current membership through periodic meetings and membership events and continued facilitation of working group activities.
- Networking opportunities, including in-person and virtual meetings, to share practices and make current work more visible and accessible

Why Now More Than Ever

The COVID-19 pandemic is presenting unprecedented challenges to organizations and individuals across the information stewardship landscape. Organizations are facing tough decisions about who and what they invest in.

The pandemic is also highlighting the critical role that member communities play in organizational resilience and continued support of the research enterprise. The Software Preservation Network has successfully cultivated a healthy community of practice where the focus is on building field-level capacity: members design and complete research into evolving practice, affiliated projects and working groups identify common needs that allow SPN member organizations to make strategic digital curation decisions, and the lightweight SPN staff provides training and coordination necessary to distribute software preservation skills across a broader set of individuals.

The SPN Return on Investment: What are our members saying?

Below are a few quotes by current SPN members. These quotes are in response to a question in the 2020 SPN Member evaluation about the "greatest return on member investment"

- "The Law and Policy chats – these have been quite instrumental in expanding our collective awareness of legal matters with respect to software preservation. In addition, we greatly appreciate that group's work in engaging the current legal activities where outcomes could benefit the software preservation community."
- "All of the legal work -- including the best practices for fair use, the amicus brief for Google v Oracle, the law and policy chats -- all of the other work relies on this happening alongside it so this definitely has the greatest ROI."
- "I think the greatest return on our investment has been the administrative support available to keep SPN activities running smoothly--mostly meetings and communications. So much work goes into this, and the results are impressive--meetings are inspiring and fruitful, and communications are consistent and polished."
- "Some efforts, however, have already expanded the Libraries' capacities in the area of software preservation: (1) ongoing advocacy efforts relating to the DMCA exemption and Supreme Court briefs strengthen the legal basis for software preservation and provide latitude for risk-averse institutions; (2) member-led discussions of substantive topics relating to software preservation (e.g. copyright

status of software, emulation as a service, reproducibility of computation research, etc.) provide opportunities for [Org Name] librarians to learn about and contribute to the definition of best practices in software preservation and curation."

■ "We'd like some confidence in knowing 'someone' is handling this" "supporting SPN and using it for thinking about our strategic needs is helpful"

■ "the DMCA exemption has been a bedrock for our work in the U.S. and our collaboration work internationally. This is a core component that allows us to pursue this work at all levels, and we support ongoing efforts (including the broader Law and Policy Chats, Supreme Court briefs and other related legal activities) to engage on legal issues to the extent possible. Community building and engagement also is important to us, not just for practical considerations. This area of activity includes all aspects of public communication (open forums and calls, newsletters, member profiles) as well as the sharing of data and activities beyond SPN--including solid governance structures, the pursuit of specific research questions to better align global software interests, and similar efforts. Such work lends itself less easily to measurement , but the return-on-investment of building deeper community engagement has taken a range of forms from first passes at metadata standards to documentation to research initiatives and partnerships. It has also helped link conversations between different groups at [Org Name] that understand a shared problem from different angles, such as 3D data and archives as they relate to software preservation, for example."

Current SPN Members

Sustaining Members

Canadian Centre for Architecture
Computer History Museum
Cornell University
Duke University
Georgia Tech
Harvard | Smithsonian Center for Astrophysics
Massachusetts Institute of Technology
Penn State University
Software Sustainability Institute
Stanford University
Texas Tech University
University of Michigan
University of North Carolina at Greensboro
University of Texas at Austin
University of Virginia

Supporting Members

Living Computers: Museum + Labs
New York University
University of Arizona
University of Illinois

Working Group Participation Beyond SPN Membership

Law & Policy

Kyle Courtney - Harvard University
Graeme Slaght - University of Toronto

Paula Jabloner - Computer History Museum
Ana Enriquez - Penn State University
Raven Lanier - University of Michigan
Brandon Butler - Software Preservation Network

Metadata

Allen Kwan - Ontario Digital Service
Patricia Falcao - TATE

Elena Colón-Marrero - Computer History Museum
Dianne Dietrich - Cornell University
Matthew McEniry - Texas Tech University

Research-in-Practice

Jessica Benner - Carnegie Mellon University
Christa Wiliford - Council for Library and Information Resources (CLIR)

Wendy Hagenmaier - Georgia Tech
Lauren Work - University of Virginia
Seth Erickson - Penn State University

Technological Infrastructure

Nick Krabbenhoeft - New York Public Library
Ashley Blewer - Artefactual Systems

Eric Kaltman - California State University Channel Islands

Vicky Steeves - New York University
Andrew Berger - Stanford University

Training & Education

Krasen Stefanov - Bulgarian Academy of Science
Morgan McKeehan - University of North Carolina at Chapel Hill

Katy Boss - New York University
Neil Chue Hong - Software Sustainability Institute
Michael Olson - Stanford University