Futuring/Connecting 4S Report

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* Note: A spreadsheet/CSV File/Excel form with all share-able responses from the survey is available with this report.

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Overview:

In early 2019, the Futuring/Connecting 4S Committee - charged by the 4S Council - launched the Futuring/Connecting 4S Survey. Opened in advance of the 44th annual meeting of 4S to help foster connection within 4S and the broader STS community, the survey invited members to share perspectives on current work, new developments, and growth within the community. The survey was designed to explore and extend 4S’s ongoing commitment (since its founding in 1975) to be “open to anyone interested in understanding developments in science, technology, or medicine in relation to their social contexts.” [i] When the first 4S Review was published in 1983 – the same year of 4S' 7th annual meeting– it was documented that “our membership stands at between 400 and 500, and shows signs of increasing steadily. Individual members come not only from a great variety of disciplines (including anthropology, chemistry, economics, history, philosophy, physics, political science, and sociology) but also from many countries (Australia, Belgium, Canada, Israel, Mexico, Norway, the United Kingdom, and the United States, among others).” [ii] A survey of this kind has not been undertaken in the recent history of 4S. This report summarizes feedback and findings from the survey, highlighting recommendations and implications for the overall growth and inter-connectivity of the Society and its membership.

Over 50 responses were received [iii] that represented diverse geographic locations: 15 from the US/Canada, 16 from the EU, 8 from Latin America, 3 from the Middle East, 2 from Asia, 5 from Australia, and 4 from anonymous participants. Responses also reflected generational diversity: 5 were as graduate students, 19 were assistant professors or equivalents, 11 were associate professors or equivalents, 12 were full professors, and 4 were professor emeriti. Both longtime and newer attendees to the annual conference also responded. Further, respondees were based in a range of academic locales and universities, only some of which are recognized as having a specific institutionalized tie to STS via a discrete department or disciplinary unit. Overall, the diversity of responses, detail, and engagement reflected was positively received by the Committee.
This report shares findings from survey organized around topics addressed in the survey: Pedagogy, Research, Communication, Annual Conference. Additionally, we summarize recommendations for short and long term priority areas for the Society. We end with an Implications and Conclusion Section.

We note that responses to all questions in the survey were optional. Respondees could indicate at the end of the survey how their input should be used and attributed. More than half of the respondees (29) indicated they were comfortable with their responses being shared with attribution. Another 19 participants identified themselves for the survey but requested that their responses be shared anonymously. Four respondees provided no identification and specified they were comfortable with their responses being shared anonymously.

Pedagogy Summary/Findings:

Image 1: Voyant visualization of all responses to survey Question 6 “What educational programs and teaching techniques have you been impressed by in recent years -- whether STS focused or not?”.

Responses reflect pedagogy and curricular development as a clear area of value, investment, innovation and engagement by scholars and researchers in the community. Respondees expressed a desire for the Society to support more visibility and exchange about teaching practices and methods, and noted opportunities to engage membership on such topics. Expanding resources from databases on teaching and training resources in the network, to email lists dedicated to teaching experiences and videos, and pedagogy technique workshops at annual meetings were noted as valued means to expand the STS community. Respondees further expressed particular interest in STS pedagogy developments related to:

**Intersectional theories, spanning intersectional feminist, queer, social justice, and decolonial pedagogies.** Respondees noted growth and support of interests around
STS and intersectional theories in diverse institutions (ranging from those with established and recognized STS programs, to others with STS interests and communities growing outside). Responses further reflected the growth of such interests globally, in institutions in Australia, Brazil, Ecuador, India, Turkey, Venezuela, the US/Canada and Western Europe, among other sites. Relatedly, respondees underscored valued contributions from STS work oriented to varied forms of community engagement and activist pedagogies. As one respondee wrote: “approaches that start from questioning ‘essences,’ ‘purity,’ ‘universality,’ and ‘neutrality’ of knowledge are the most useful and promising to all.” [iii]

Interfaces with emerging STEM and arts and humanities fields. Responses reflected members’ particular interest in STS pedagogies’ relevance for emerging interdisciplinary fields including data science, data studies, digital humanities, and speculative design and arts. Respondees noted the value of attending to such areas in relation to student interests in professional development and teaching on blended approaches with qualitative and quantitative methods (exemplified for instance, in the means by which critical data studies programs also integrate teaching on data visualization skills). Relatedly, the use of mixed and experimental formats and the application of performative/demonstrative teaching techniques was noted, with the Annual Meeting’s Making & Doing Session positively recognized for its pedagogical value in showcasing new research and design practices.

Growing and supporting undergraduate student interests via curricular developments and interdisciplinary program collaborations. Responses reflected a vibrancy around undergraduate-oriented curricular developments, and referenced the importance of STS scholarship and courses being drawn into the training of STEM-based undergraduates, as well as developments in courses co-taught by scholars in STS and STEM. As one respondee wrote:

“I’m very impressed by the program I am currently teaching in—it is an undergraduate interdisciplinary applied science program (ABET accredited) that has a strong ‘social contexts’ component (essentially, STS, with two dedicated STS classes) incorporated into what we frame as a holistic problem-solving spine of course that involve faculty from different disciplines co-teaching a series of courses at the 100, 200, 300, and 400 (student capstone) level, aimed at engaging students in hands-on usually team-based approaches to holistic problem solving, systems thinking, ethical reasoning, and the broader integration of social and technical approaches to analyzing problems and solutions. For example, this year, I (an STS person) am co-teaching a year-long sequence at the 300-level with my colleague whose background is in computer engineering, and the class is called “Holistic Problem Solving Workshop” and our specific flavor of it is called ‘Privacy in a Connected World.’” [iv]

Support for gatherings—within and beyond the annual meeting—to advance exchanges on pedagogy as strong opportunities for community building and
support. As one respondee noted: “I think there’d be robust interest in regular conference programming devoted to pedagogy and teaching.” [v] Suggestions spanned from workshops and panels at the Annual Conference dedicated to contributions (syllabi, assignments, reading lists) featured in the 4S Syllabus Bank, to topic-based workshops, and independently organized field schools and field trips. Respondees noted the value of enabling online community exchanges that could carry on year-long around syllabi and lesson design, and noted the value that would be added if users were able to sort content (for instance around “pedagogic practices”) in the Syllabus Bank. They further noted the value they gained from creative applications of existing online tools (Google forms, docs, etc) in teaching, and underscored how their use of and reliance on online resources (podcasts, MOOCs) strengthened learning on new techniques and tools in teaching.

Research Summary/Findings:

![Image 2: Voyant visualization of all responses to survey Question 8 “What research methods have you found particularly useful and exciting in recent years?”](image)

Responses reflected the wide range of research methods and topics—intersecting with a variety of other disciplines in the humanities and social sciences, and also incorporating other disciplinary collaborations with STEM fields—that members engage with. Responses reflected the value that STS has long lent to other fields via such collaborations, while also signaling new value and benefits lent to emerging interdisciplinary fields— noting particular relevance for growing fields including data science, data studies, digital humanities, simulation, and speculative design and arts. As one respondent pointed out: “art is a good media to convey abstract STS concepts to public.” [vi] Respondees referenced the history of STS and
underscored their continuing inspiration from goals central to the Society’s founding, including the: “original aims to make a difference in the world, not just in academia.” [vii] Respondees further expressed particular interest in STS research developments related to:

**Furthering the Policy Implications of STS research.** Policy areas that implicate global socio-technical systems—including environmental issues and global warming, nuclear arms and energy management, or the governance of varied emerging technologies (whether involving biomedical technologies or artificial intelligence and machine learning applications) and their impacts on diverse publics and democratic institutions are involved here. Responses further noted the continuing importance of interdisciplinary collaborations with STEM and non-STEM researchers alike to advance the policy-related impacts of research. As one respondee wrote: “I’ve been involved in policy oriented research in recent years and found the connection between STS and some more traditional theoretical and methodological approaches rather crucial, including statistics, organizational studies, management studies, ethics and economy.” [viii]

**Advancing Conversations on Interdisciplinary Research Methods.** Responses reflected the value gained from drawing out scholarly conversations on research methods and methodologies in a dynamically changing landscape of contemporary research practice (i.e. where, for instance, we now see among other changes, new and expanded fields of corporate-funded research and data ecologies that impact scholarly claims to empiricism). Responses underscored value gained from bridging interdisciplinary research audiences—across STEM and non-STEM fields who are similarly impacted by the changing context of knowledge practice and data economies—to explore shared questions around epistemology and methodology. As one respondee reported on a “Data Then and Now” speakers series’ launched as a collaboration between STS and data science on their campus: “Speakers are always STS (broadly construed) but are enjoined to pitch their talks to be able to 'be heard' by data science folk... [and there is a] focus on history, 'strong' epistemological issues, and making connections central to STS *and* data science topics (reproducibility, data provenance, consequences, standards, and classifications, etc).” [ix] The centrality of discussions and exchanges on methods was seen as so important that one respondee suggested a dedicated section in the Society’s newsletter for exchanges about methods. Others suggested a specific Handbook be developed to “focus on the use and adaptation of these non-standard—at least in STS—methods to study science, technology and society.” [x]

**Continuing valuation of qualitative methods.** Responses underscored the varied importance of qualitative methods for research on socio-technical systems, spanning visual and narrative analysis for STS research, multi-sited and multi-species research, participant observation, situational analysis, and speculative design. A wide variety of related innovative methods—including transmedia storyboarding, object-centered epistemologies, post-phenomenology, media archeology, sensory ethnography, netnographies for activisms, prototyping and participatory design methods—were also recognized as drawing interest and
investment from members. Responses also noted growing interest in exploring the relevance of quantitative methods for STS research, with one respondee suggesting the provision of: “more balance on the quantitative side, perhaps providing space for a mixed method or quant methods workshops prior to the annual meetings.” [xi]

**Furthering collaborative research practice and research communities.** Responses noted the importance of STS scholars’ involvement with novel interdisciplinary and multi-sited research communities and experimental collaborations (addressing concerns around environmental data, feminist digital practice and publishing, and multi-sited civic science research, for instance), and the centrality of STS work in advancing initiatives. Responders noted not only the importance of lending support for such networks, but stressed the importance of their practice of self-reflexive research design as an exploration of ethics and their possibilities. The importance of support for multi-generational research experiences and collaborations between undergraduates, graduate students, postdocs, and faculty (at various stages of their career) as a means to forster research communities was strongly noted by responses. Responders expressed positive feedback on the 2019 annual conference’s being “so welcoming to undergraduate students,” [xii] and wrote of their support to see 4S continue that, and expressed support for seeing more outlets for STS publications authored by undergraduates.

**Connecting the History of STS Research and 4S to Research Presents and Futures.** Aside from referencing the value of connecting with goals central to the Society’s founding, such as “original aims to make a difference in the world, not just in academia,” respondees also expressed the importance of connecting the past, present and future of STS research on topics from “lab studies” to “biomedical” research. Others underscored the benefit that drawing in historical frames to varied “new” experimental formats and research sharing practices would add (including to the practice of even the annual conference’s own organizing of Making and Doing). As one respondee wrote: “these techniques have long histories in participatory design, action research, community-based modeling etc… One thing 4S could do is find ways of supporting long term commitments of STS scholars with the communities in which they engage, particularly around ‘making and doing’ kinds of activities. Emphasize that there is something to be learned from these non-STS design communities.” [xiii]

Finally, it was notable that responses underscored a growing sense of urgency to bring STS research into visibility and dialogue with wider publics. As one respondee noted: “the stakes for STS-inflected scholarship is all-too important in the present moment… Finding ways for a newer generation of STSers to take on the many challenges of the present will be key in generating a sense of community.” [xiv]
Communication Summary/Findings:

Responses reflected an urgency of communicating STS research to broad publics. They underscored the core valuation of translating STS work to broad interdisciplinary researchers and audiences—both within academia and beyond—as an ever more important function of the field and society alike. The importance of existing resources—from the 4S website to the Backchannels blog—was also noted. Work in translation and communication of STS was recognized as being so central, that it was suggested that a Science Communication award be launched by the society. Relatedly, responses noted the insufficient support of universities in making STS legible or visible to scholarly colleagues on a single campus, and to broader publics beyond, and suggested value in supporting discrete and dedicated institutes for doing policy or society oriented STS that might provide “policy briefs, participatory events with stakeholders, public engagement with science events/activities, Science Cafes, exhibitions,” etc. Respondees further expressed particular interest in STS communication developments related to:

Public facing scholarship that responds to broad public needs and educational ends. As one respondee wrote: “We need to consider the different audiences that we should be engaging. There is definitely a role for STS to take up as a public intellectual resource. But we should also be thinking about engaging especially with educational communities at various levels as well as policy makers.” Respondees noted the importance of participation of scholars and researchers in public and political debate, and in distributing findings in non-scholarly publications (i.e., *New York Times*, *Slate*, news outlets). Contemporary topics including AI and ethics, social media and data mining (particularly on vulnerable populations), health and environmental controversies, biotech and ethics, and global warming and policy were noted as especially rich terrain on which to build collaborative relationships. This includes exchanges, dialogue and support for/with journalists and news outlets, community activists, scientists/STEM practitioners with whom STS researchers engage, and even school-age youth.
Responses offered multiple suggestions for workshops ranging from designing social media campaigns on Twitter or Instagram, to The Op Ed Project as potential sponsored activities of 4S.

**Advancement of non-traditional and experimental scholarly formats that can engage diverse audiences and offer more rapid response.** Members mentioned the value of short forms of blog writing on Backchannels and Twitter that afford faster publication and wide public outreach for STS research. Responses also recognized a diverse range of events and new formats for scholarly outreach they take inspiration from. Among those mentioned were: “Latour’s curate ZKM exhibitions and following catalogues,” [xvii] Museum installations and art collaborations, “Everything that has a cyborg” [xviii], urban interventions, as well as various online, and social media content platforms. Of note too were the benefits and high visibility of content shared on Twitter, TedX and Wikipedia. As one respondee wrote:

> “Wikipedia is nowadays the most important and used channel in the public communication of science - and the only website among the 100 most visited which is not owned by a big corporation. As an organization we should encourage and promote that (some) of our members improve those entries on STS related-concepts, theories and authors - and the one devoted to the 4S society... This should be done in all the language versions of Wikipedia in which 4S has got members.” [xix]

**Vibrancy and quality of STS work circulated in alternative publication formats.** Respondees were keen to note the importance they saw in Open Knowledge and Open Science movements, and underscored concerns for a “closure of the communication of knowledges behind the fences of a large publishing market organization.” [xx] They expressed support for experimental journals (such as Catalyst and Limn) and open access and short book presses (such as Mattering Press). Responses voiced support for investments in open access scholarly publishing, and noted interest in models such as the Libraria-proposed model for Research Funders and Libraries support. Similarly, respondees reported interest in STS scholars’ growing participation in publishing data on open data platforms, and how "open data" practices might be undertaken “in ways that enable interviews or other research products to be shared while taking into account human subject research and other ethical concerns.” [xxi] Among the impacts respondees noted that new support for such alternative publications might yield would be to “push evaluations agencies to value new kinds of scientific communication and publishing.” [xxii]

**Opportunity to connect with Global STS Communities.** Respondees noted the value of experiments with new modes of scholarly communication such as STS Across Borders as engaging key questions of archiving, collaborative analysis, open-ended digital publication, as well as public staging of such digital exhibitions for global research communities and publics. Responses underscored the value of such interfacings given concerns of 4S as “still perceived as too dominated by Western scholars and scholarship... [such that] established STS scholars simply do not see 4S as a community that they want to participate in.” [xxiii]
international STS engagements—whether conferences, workshops, exhibits or other novel formats were stressed as a needed means to connect 4S with established scholars in diverse global sites, particularly outside the US, Canada, and Western Europe. Prioritizing the creation of links between 4S and other STS associations in different countries and regions, and signalling this across 4S communication channels (from the website to newsletter) was also underscored as an added benefit. Committee members in discussion further underscored how this might form an association of associations that could gradually strengthen a sense of belonging to a planetary STS community.

To this end, there were calls for stronger support of virtual presentations at 4S meetings, as one respondent stated “As 4S becomes increasingly transnational, the total cost of member travel to annual meetings grows more than proportionally, perhaps exponentially. The highest costs tend to fall on those members least able to pay” [xxiv]. Also suggested was the testing of a pilot program at 4SNOLA to permit a limited number of virtual presentations of accepted papers for a reduced registration fee. While the logistical difficulties present a significant challenge, especially in terms of managing wifi contracts and coordination by session chairs, the need to accommodate such requests outweighed the difficulties. In a global context of volatile governments and punitive border policies, anxieties over border-crossing are legitimate concerns that the society must contend with. Obtaining adequate funding, acquiring visas, ensuring safe passage are in doubt for many 4S members. This affects not only the well-being of members but the quality of scholarship of the community overall. In the words of the respondent: “To grow as a transnational society, 4S must find a way or ways to integrate participation at a distance without diminishing the scholarly quality of the meeting.” [xxv]

Conference Summary/Findings:

![Voyant visualization of all responses to survey Question 15 “What aspect of the 4S Annual Conference have you found to be especially memorable/impression-making in recent years?”](image)

*Image 4: Voyant visualization of all responses to survey Question 15 “What aspect of the 4S Annual Conference have you found to be especially memorable/impression-making in recent years?”*
Participants shared multiple aspects the 4S conference that they regard as innovative and exciting. Multiple respondees provided positive feedback on recent conference efforts, particularly on efforts in the 2018 Sydney conference to better reflect STSer’s worldwide. Respondees noted that they were “very happy to see the interest in transnational STS grow and become visible in the last 4S conference in Sydney. This, in my experience, was the first conference that I felt I could be more aware of the similarities and differences between STS communities worldwide—as well as feeling more like a part of the conversation.” [xxvi]

Support for Making and Doing and inclusive/experimental presentation formats. 16 participants mentioned 4S's Making and Doing Program as particularly memorable. One described it as “epic.” [xxvii] Another specified that Making and Doing was so successful that STS would benefit from “encouraging more ‘Making and Doing’ modes of scholarly communication in the STS community.” [xxviii] Additionally, efforts to diversify the conference keynotes was appreciated by respondees along with the mentorship program, which helped foster a welcoming environment particularly for junior scholars and new members. Efforts to connect with STS related groups in the conference locations were also highlighted, such as with the Hangar art and research collective in Barcelona. Diverse social activities such as Yoga sessions at EASST in Lancaster were also encouraged by participants. Overall, responses reflected positive reaction to the inclusivity of the conference planning and programming, and offered ideas to enhance engagement among membership. As one respondee noted: “I love that 4S is so inclusive and that there is one time where I reconnect with people from all over, but could also imagine really benefiting from smaller meetings maybe focused on various subtopics to better get to know new people within the subtopic area. This could alternatively be smaller regional meetings… Maybe the big annual 4S meeting is complemented by a series of small 4S meetings?” [xxix]

Focus on Process. Respondees also made numerous suggestions on how to improve the conference by focusing on the process of teaching, research, fundraising, and job searching rather than solely on research outcomes. Feedback suggested these could take the form of dedicated sessions or lunchtime workshops.

Support for Undergraduate Engagement. Responses also reflected opportunities to offer support and incentives for growing undergraduate engagement in STS via targeting communications to support undergraduate STS scholarship and conference attendance, as well as support for teaching-related workshops as part of or in addition to the annual meeting. Discussion among the Futuring STS committee raised the idea of online conversations, or small working groups that meet over video chat working on STS pedagogy throughout the year. The committee also discussed the suggestions of possible funding to support undergraduate conference attendance, but stressed that this should not impact/compete with travel support and funding for existing 4S members who are disproportionately burdened by travel to annual meetings in Europe/North America. Discussion underscored the importance of protecting
support for current global 4S members of varied generations to attend meetings. Conference attendance for academic staff and postgraduate students outside Europe and North America was especially noted as a challenge that should not be further exacerbated.

The Need for Virtual and Remote Conferences. Logistically, multiple respondees suggested a need to support virtual and remote STS conferences. Many underscored the added value of relieving burdens for the many who regularly have to travel from outside the US/Canada and Western Europe for conference attendance: “As 4S becomes increasingly transnational, the total cost of member travel to annual meetings grows more than proportionally, perhaps exponentially. The highest costs tend to fall on those members least able to pay…. To grow as a transnational society, 4S must find a way or ways to integrate participation at a distance without diminishing the scholarly quality of the meeting.” [xxx] Others underscored resonance with STS core values: “Let’s try an invent an STS take on conferences across locations so that we can be at the forefront of reducing carbon emissions from flights.” [xxxi] Conference timing was also addressed by respondees, who noted that holding the conference in the first or second week of the U.S. fall semester makes it nearly impossible for scholars with heavy teaching loads (i.e. 3-3) and no graduate TA’s to attend.

More Experiments with Conference Formats and Outreach. Varied responses from participants positively recognized efforts in 4S to experiment with conference formats (via such efforts as the Making and Doing or STS Across Borders during the annual conference), and encouraged greater support to experiment with new conference formats and forms as means that effectively engage diverse publics. Drawing from observations on the positive reception of the Making and Doing exhibit format, for instance, respondees suggested “data set” show and tells, data methods workshops, and more online representations of the conference work (including perhaps an Online Exhibition as a collaborative research infrastructure) organized during the conference. The Making and Doing online exhibit was also recognized, with the committee noting it could be better maintained, circulated and expanded. Another respondee suggested an STS games session that could be designed “kind of like making and doing, but each submission is a game and there is a time for people to play the different games.” [xxxii]

Others offered ideas for ways grow means to connect beyond known networks at the conference and for guidance in orienting participants to the conferences, via such means as designatting “space, time, activities (workshops? theater? unconventional) to meet and engage with people we don’t already know.” [xxxiii] Others mentioned orientation sessions on “Entering ST&MS as a Field: A Guidebook Orientation Session’ [that] would ideally be tailored to fit the location of the annual meeting... since many folks new to STS come to 4S meetings to see what it’s about and how it feels” [xxxiv] and suggested that conference organizers might also offer means to better “identify themes, so that as one peruses the program there are different thematic pathways.” [xxxv] Responses also offered suggestions to enhance engagement and impact of conference attendees. They noted value of formats that focus group efforts on specific themes, and applying means to better involve STS’ers world-wide, to have
more focused engagement around specific themes of shared interest and import, such as “climate change, post-truth, etc.” [xxxvi] Finally, the Futuring STS committee underscored the importance of increasing STS’s presence in policy and STEM communities would be to increase the STS presence in Science and Technology events by creating an inventory of key stem conferences in dialogue with/friendly to sts perspectives, offering funding for STS ambassadors to travel to conferences outside of the field, present STS research relevant to that field and inform the STS community of research and developments in that field.

Long/Short term Priority Areas:

Based on survey feedback and committee discussion, the committee identified the below short (1-2 years) and long term (2-10 years) priority areas for the society.

**Short Term Priority Areas (next 1-2 years):**

- **Continuing to expand efforts to support undergraduate involvement in STS and intergenerational connections to STS.** This could take place via expanding communication to undergraduates in STS and related fields of 4S conference opportunities, expanding the mentorship network, connecting with pedagogy developments, recognition and support for undergraduate research efforts, and considering the benefits and costs of supporting funding for conference attending. This
could also be supported via fostering engagement between the most senior and most junior STSers as colleagues and collaborators on panels, and generally thinking more consistently about means to visibilize the contributions of young and emerging scholars.

- **Increase STS Pedagogy Resources and Collaboration** This could be done through featuring key panels, workshops, online resources (e.g. shared syllabi) and supporting or organizing other year-long activities—such as crowd-sourcing effective pedagogy materials for STS, or revitalizing practices of syllabus banking.

- **Actively address and support the growth of global STS networks.** This could involve prioritizing the creation of links between 4S and other STS associations in different countries and regions. For starters, this could become a visible goal on the 4S website and could eventually move in the direction of forming an association of associations. This could gradually strengthen a sense of belonging to a planetary STS community. It might also involve elevating and featuring the leadership from regional groups in advancing STS research on key and/or urgent topics of global interest (i.e. global warming, resource depletion, post-truth, etc.), an “active discussion of the formation of privileged and marginalized STS sites/topics/methods/interpretive frames,” and an “Active discussion of the role and responsibilities of global scholarly organizations, including funding; note vast regional differences in customs.” [xxxvii] The committee also echoed the suggestions from multiple responses who noted the importance of hosting more conferences in the global South, to “meet more in Africa, South America and Asia” [xxxix] or (at the very least) expanding financial support for regional communities to host their own 4S events that create pathways towards inclusion in the annual meeting. Finally, the committee notes how this might also be done under low-cost strategies such as providing better means for news circulation of urgent/key controversies and contemporary developments in regional STS programs. As one response noted: “Tsinghua University dismissed the STS Institute in 2018. I have been wondering what I can do to keep a STS concentration within a sociology department. One urgent problem is that after the current STS professors in sociology retire, we may not be able to find enough young STS scholars to replace them. Tsinghua University now only hires assistant professors from elite universities, and it has been very difficult for us to find a Chinese candidate. I would appreciate any information and suggestions on this issue.”[xxxviii]

- **Actively address ageism, ableism, classism, nationalism, racism, regionalism, sexism, etc, in academia as both topics for STS and for equity in academic organizations.** This could be accomplished via creating discussion spaces on such themes at the 4S conference, and enabling active discussions of the formation of privileged and marginalized STS sites/topics/methods/interpretive frames. This might also be done via efforts to organize a co-created 4S code of conduct.

- **Experiment with 4S outreach to policy and scientific societies and collaborative work.** This could be supported through small project grants in cycles (for conferences and travel), support for the development of more regional STS chapters, creating external outlets for STS research, and building collaborations with STEM and data fields on such urgent/key contemporary public-facing topics as data ethics, data policy, and
research ethics that celebrate and help realize STS informed approaches to research in a “post-truth” era.

Long Term Priority Areas (next 2-10 years):

- **Support for/creation of virtual and remote STS conferences and formats that support participation** from “those of us who have extremely limited funds and would need to travel from the Global South,” [xl] and who report having to cancel plans to attend the 4S annual meeting due to lack of funding, and general concerns that “We need more virtual participation at conferences.” [xli] This could be gradually implemented and tested under various design formats, as suggested by respondents. It was suggested by one respondent that a pilot project might be announced in advance of an annual meeting that would inform members that a limited number of virtual presentations of accepted papers would be permitted. “Those who cannot attend the meeting could stay on the program in exchange for a for a reduced registration fee; panels could accommodate up to one virtual presentation per session and would schedule it to be the final paper in the session in case physical attendees do not want to remain present).” [xlii] To accommodate 4S wifi support at currently-contracted levels, session chairs would be responsible for coordinating virtual presentations as either live presentations (if wifi capacity is there) or pre-recorded presentations. This might also be complemented via creating traveling formats such as an “4S itinerant exhibit.” As one respondent described the suggestion: “If you can't come to 4S, 4S comes to you. [It could] travel to underrepresented parts of the US and the world [and] could be done in collaboration with state universities, community colleges, local museums, etc.” [xliii]

- **Develop more year-long engagement across the STS community.** This could be done via support for regional meetings, smaller or virtual workshops hosted across multiple sites, and traveling exhibits that could connect audiences across multiple sites. As noted above, this would importantly respond to respondents’ feedback that while the annual meeting is valued by members, more forms of engagement that enable forms of interaction with members (particularly given the multi-disciplinarity of STS) would be valued by members.

- **Modifying the Society’s governance structure to make it more inclusive and diversify representation.** This could be undertaken in various ways, as reflected by respondents’ feedback. For instance, priority to “Create a council with gender parity and regional representation (like 1/2 by regional quota and 1/2 at large)” [xliv] could be asserted. Aims to incorporate grad and undergrad students in the board was also suggested, as well as open calls to participate in committees, with opportunities to be involved in year-long processes, such as conference design/shaping in early stages.

- **Develop more recognition and visibility of STS as a field in policy and STEM arenas.** This could be undertaken by prioritizing strategies to incorporate STS into STEM and policy pedagogy, via publication in science text-books, support for STS in engineering, science and medical pedagogy from high-school to professional degree work, and positioning STS in national academies and policy discussion at national and
international scales. As one respondee noted, there exists ample need and opportunity for STS researcher to support “creating new governance arrangements between citizens, governments and experts, and ultimately, increasing community resilience relative to particular problems in cases of vulnerability.” [xlv]

- **Build collaborations and visibility among top STEM practitioners in areas like data ethics, data policy, biotechnology, environmental issues, etc.** to assert visions and champion models of interdisciplinary and collaborative STS “engaged in the world.” As one respondee noted, “The problem of difficulties in interdisciplinary endeavors is real in programs. Presenting that there is a respectful vision of STS future that recognizes disciplinary diversity is important.” [xlvi] Other responses noted the urgent value of STS work that encourages researchers and scholarly communities “To get more involved, to be more daring and more precisely positioned as a community in questions that relate resource exhaustion and climate change to unbounded capitalist individual accumulation.” [xlvii] This could be done, as feedback suggested, via means to “Expand awareness of STS in others professions, offering the opportunity to engage with research relevant to them [and] participation in major trans-national events in professional societies, motivating and empowering local communities to participate on behalf of 4S. Development of regular webinars (weekly) to share research results (Ex. American Chemical Society).” [xlviii]

- **Support for STS engagement in Open Science publications.** This could be done via support, as survey respondees note, for open access publications, open access data, and citizen science practice. Notably, one respondee suggested that 4S and EASST start a program on Open Science. Ways forward have further identified the importance of maintaining a critical perspective against private journal companies, moving towards open publication modalities in all the journals linked to 4S, and fortifying alliances with recognized schools, research centers, experimental laboratories in social sciences, etc.

**Conclusion/Implications:**

Since its founding in 1975, 4S remains an interdisciplinary and international scholarly organization uniquely “open to anyone interested in understanding developments in science, technology, or medicine in relation to their social contexts.” [xlix] From the early years of 4S, it has been documented that members included scholars from many disciplines across the sciences, social sciences, and humanities. This report summarizes feedback and findings from the 2019 survey of 4S members, highlighting several recommendations to guide both long-and short-term planning.

A survey of this kind, as noted earlier, has not been undertaken in the recent history of 4S, and the Committee underscored the importance of 4S conducting such surveys on a regular basis to enable members to openly provide feedback on participation in the scholarly field and Society. The Committee positively received a wide diversity of responses from survey participants, coming from diverse generations across a range of global institutions. The Committee was also
pleased by the detail, care and level of engagement reflected in responses and noted that continued visibility of future survey launches in coming years could help expand responses further. The Committee further noted the explicit expression of gratitude and thanks for gathering feedback from members from multiple survey participants. As one member wrote: “Thanks for seeking suggestions and feedback. The increasing openness of 4S over the past decade or so has been deeply impressive.” [i] Another member similarly linked the survey to 4S’s overall efforts to broaden inclusion: “I would like to thank everyone serving in the 4S organization for their work and efforts to include participation.” [ii]

Relatedly, the Committee notes the challenge of an organization with such a complex membership and global distribution to continue to rely to a large degree on volunteer labor and service work of members to support the general operations of the Society. This might partly explain why a survey or feedback of this kind hasn’t been undertaken in recent years by the Society. It might also explain in part the considerable obligation in time and labor called for by current Committee member to organize, process and analyse results for a survey, and establish a process and body for such work. In the future, it would strengthen 4S to have more staff support for conducting surveys of this sort. The Committee noted the explicit value and leadership that 4S’ professional staff currently provide, and their knowledge should continue to be institutionalized with paid and formalized staff roles.

Finally, the Committee unanimously underscored the considerable learning and insight that was gathered from the survey respondees’ input and feedback. Even as scholars with considerable commitments and engagements with transnational STS communities, Committee members underscored the enormous value and learning gained from receiving feedback from survey participants on STS developments and growth across a diversity of sites and regions. We hope the membership has time to engage with the survey results and feedback from colleagues, and we hope to see growth in engagement in future undertakings.

Acknowledgments and Thank You’s:

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References:
[i] See the 4S Website – What is 4S?: http://www.4sonline.org/
[iii] Response from Ivan da Costa Marques, Professor, Universidade Federal do Rio de Janeiro.
[vi] Response from Wei Hong, Associate Professor, Tsinghua University.
[vii] Response from Barend van der Meulen, Head of Research, Rathenau Instituut.
[viii] Response from Barend van der Meulen, Head of Research, Rathenau Instituut.
[ix] Response from David Ribes, Associate Professor, University of Washington.
[x] Response from Anonymous Survey Participant.
[xii] Response from Anonymous Survey Participant.
[xiii] Response from David Ribes, Associate Professor, University of Washington.
[xv] Response from Ana Delicado, Research Fellow, Institute of Social Sciences University of Lisbon.
[xvi] Response from Anonymous Survey Participant.
[xvii] Response from Alvise Mattozzi, Research Fellow, Free University of Bozen-Bolzano.
[xviii] Response from Martin Perez Comisso, PhD student, Human and Social Dimensions of Science and Technology, Arizona State University.
[xix] Response from Eduard Aibar, Professor, Universitat Oberta de Catalunya.
[xx] Response from Ivan da Costa Marques, Professor, Universidade Federal do Rio de Janeiro.
[xxii] Response from Alvise Mattozzi, Research Fellow, Free University of Bozen-Bolzano.
[xxiv] Response from Gary Downey, Alumni Distinguished Professor of Science, Technology, and Society, Virginia Tech.
[xxv] Response from Gary Downey, Alumni Distinguished Professor of Science, Technology, and Society, Virginia Tech.
[xxvi] Response from Maral Erol, Associate Professor, Işık University, Istanbul.
[xxvii] Response from Martin Perez Comisso, PhD student, Human and Social Dimensions of Science and Technology, Arizona State University.
[xxviii] Response from Rey Tiquia, PhD, University of Melbourne.
[xxx] Response from Gary Downey, Alumni Distinguished Professor of Science, Technology, and Society, Virginia Tech.
[xxxi] Andreas Birkbak, Assistant Professor, Aalborg University.
[xxxiv] Adele Clarke, Professor Emerita, Sociology & History of Health Sciences, UC San Francisco.
[xxxvi] Response from Maral Erol, Associate Professor, Işık University, Istanbul.
[xxxvii] Response from Sharon Traweek, Associate Professor, Gender Studies, UCLA.
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Response from Martin Perez Comisso, PhD student, Human and Social Dimensions of Science and Technology, Arizona State University.
Hebe Vessuri, Emeritus Researcher, Venezuelan Institute of Scientific Research and Institute of Environmental Geography, UNAM, Mexico.
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Response from Martin Perez Comisso, PhD student, Human and Social Dimensions of Science and Technology, Arizona State University.
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