

Improving Science Communication & Public Engagement with Science in Switzerland

Recommendations of the
Expert Group “Communicating
Sciences and Arts in Times
of Digital Media”



Background and Aim of the Recommendations

Science communication and public engagement with science have repeatedly been called for in recent years, particularly during the COVID-19 pandemic. The Swiss Academies of Arts and Sciences have set up the expert group “Communicating Sciences and Arts in Times of Digital Media”, consisting of researchers, communication specialists and science journalists, with a twofold mandate: First, the group was asked to assess the state of science communication and public communication in Switzerland broadly and systematically. Second, it was asked to identify potential improvements and make recommendations for how to realize those improvements.

These recommendations are compiled here. They are based on a comprehensive assessment report on the status quo of science communication and public engagement with science in Switzerland, on discussions in the expert group, on a stakeholder workshop on science journalism as well as on conversations with external stakeholders. Furthermore, the recommendations were inspired by similar expert groups in the US, in Germany, and on the European level.

The resulting recommendations focus on the role of individual scientists, on institutional science communication, on science journalism and other aspects. They address stakeholders and decision-makers from science and higher education over funding organizations to politicians and media houses. Some of the recommendations require long-term efforts for implementation. The expert group is convinced, however, that realizing them will benefit science communication and public engagement with science in Switzerland.



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Recommendations

1 Science communication and public engagement should become an accepted part of scientific culture and practice.

Many scholars in Switzerland are willing to engage in public communication and dialogue. The number of scholars actually engaging in such activities is considerably lower, however. Studies suggest that social and cultural factors in the scientific community – e.g. lacking incentives or critical perceptions of peers – hinder communication and engagement activities.

Therefore, higher education institutions, scientific organizations and research funders should improve the recognition and valorization of public communication among scholars. This should include symbolic incentives like awards. It should also include 'harder' incentives: While not all scientists should be forced to communicate to the public, communication activities should be taken into account positively when possible, e.g., in funding decisions, the recruitment of researchers or their evaluation.

2 Training in science communication and public engagement should be part of scholarly curricula, especially for young scientists.

The gap between many scholars' willingness to engage in public communication and their lack of actual engagement is also related to a lack of training in science communication. Such training – which should cover both the conceptual basis for science communication and the evidence underlying it as well as practical exercises in how to communicate with journalists or on social media – should be encouraged and intensified.

Higher education institutions, scientific organizations and disciplinary associations should offer and reward training in science communication and engagement, e.g. on dialogue formats, social media or stakeholder communication. Where possible, such training should be embedded in higher education curricula and in the education of young scholars. Higher education institutions, scientific organizations and disciplinary associations, potentially together with high-level organizations like the Academies of Arts and Sciences or swissuniversities, should also provide resources to train the trainers in the field of science communication. They should use communicating scientists as role-models and follow best practices in science communication and public engagement.

3 Scientists engaging in public communication should be offered professional as well as social, psychological and, if necessary, legal support.

Research shows a pluralization of public communication about science, science-related issues and technologies such as climate change, vaccination, animal experimentation, GMOs, or 5G. At times, this results in personal attacks on scholars communicating publicly on such issues, particularly on female scholars. In these situations, the respective scientists need to be supported by their organizations and by the scientific community. Currently, few such support systems are in place in Switzerland.

Higher education institutions, scientific organizations and disciplinary associations should build up capacities to assist communicating scientists. They should also build up capacities to support scholars, including whistleblowers, in critical and conflict situations. This pertains to professional support in communication (i.e. providing science communication toolkits for scientists, familiarizing them with social media and stakeholder communication, or assisting them in navigating crisis communication). It should also include social and psychological support from peers, mentors and supervisors. Importantly, it should include legal support if necessary.

4 Scientists' understanding of public perceptions of science and the role of science in society should be improved.

Research shows that scientists, the public, political decision-makers and stakeholders have different perspectives on what they consider important and of value to society. In order to facilitate a fruitful dialogue between science and society, scientists and scientific organizations need to be aware of differing perspectives on their work and results, and of the views, concerns, expertise and needs of the public, of decision-makers and stakeholders.

Higher education institutions, scientific organizations and disciplinary associations should organize trainings, workshops and forums involving scientists as well as stakeholders and representatives of the public in order to 'listen' to society's perceptions, visions, concerns, and priorities for research. Those should include, and be co-constructed with, social actors such as NGOs, patient organizations, interest groups, trade unions, social movements, etc.

5 Scientists and scientific organizations should understand and employ evidence-based science communication and public engagement.

Research on science communication and public engagement has existed for decades and has grown considerably in recent years. It has shown the strengths and weaknesses of different types of science communication, identified diverse audiences and the best ways to engage with them. This body of evidence should be taken into account in the planning and practice of science communication and public engagement activities.

Scientists engaging in public communication, science communicators and scientific organizations should be aware of research on science communication and its findings. Therefore, research on science communication, particularly on the Swiss context, should be regularly surveyed, compiled and communicated into the scientific community. Higher education institutions as well as scientific associations should offer courses on this research and embed them in their curricula. Connectedly, science communication activities should be evaluated systematically wherever possible, assessing both desired and detrimental effects. The results should be publicly accessible in order to broaden the evidence base of science communication.



6 A dialogue about the aims and norms of science communication and public engagement is necessary.

Science communication and public engagement can pursue different aims. For example, it may serve primarily to disseminate knowledge, to start a dialogue with the public, or to strategically heighten the reputation of individual scientists, disciplines or organizations. Some of these aims (like the primary orientation on individual or institutional reputation-building) and some of the means (like using strategic framing to persuade audiences) have been criticized, and their limits shown by empirical studies. Therefore, scholars as well as scientific associations have called for an ongoing dialogue within and beyond the scientific community about the aims and norms of science communication and public engagement.

High-level organizations in the scientific community – such as the Swiss Academies of Arts and Sciences or swissuniversities – should take charge on these questions. They should establish regular exchanges about the aims and norms of science communication and public engagement.

7 Scientists and scientific organizations should communicate how science works, including uncertainties, different perspectives, and relevance to society.

Scientific knowledge is constantly expanding and evolving. It is the process of discovery of what is known, under a specific set of conditions and time. There are limitations to studies and uncertainties in scientific findings that need to be communicated effectively to the public. Scientists and their institutions should provide a balanced view of the evidence and communicate what and why uncertainty exists. This requires acknowledging different perspectives and interpretations of scientific evidence.

Higher education institutions, scientific organizations and research funders should encourage scientists to communicate not only the findings of their work, but also the research processes, methods as well as the uncertainty of findings. In research applications, scientific publications and publicly, scientists, research organizations and funders should communicate the (potential) social relevance of science, including the relevance to taxpayers and beneficiaries of their work, without overstating it.

8 Encourage science communication and public engagement with underserved audiences.

Research shows that segments of the population have different degrees of access to science, and are not equally interested in or informed about science and research. Science communication and public engagement should specifically address publics who are not engaged in science-related discussions. This is also true for geographic regions in which fewer places to engage with science and research are available.

Science communication and engagement activities by individual researchers, scientific organizations and other science communicators should more strongly address underserved audiences and regions. Research funders should specifically encourage scientists to do so and provide funding programs for such activities.

9 Support participatory research initiatives.

Society not only benefits from science, but also from actively participating in science. Formats like citizen science, participatory (action) research, and community-based research are increasingly recognized as important for understanding research, but also for increasing the social impact of science. Involving publics in science, from planning studies through communicating their findings, should be of higher value in Switzerland, embracing a more equal instead of a top-down approach to understanding and solving problems.

Research funders should include participatory research as a legitimate option, and scholars should include citizens more in their research. This requires both prioritizing a stronger collaboration between science and society, but also providing training for researchers to better involve members of the public. Institutions and scientists should create efficient and effective structures for sharing opportunities for the public to be involved in science. Science journalists should be encouraged and incentivized to communicate outcomes and processes of such initiatives, highlighting the important role science and society have together in a democratic society.

10 Institutional and individual science communication should express the specific values of science.

Science communication and public engagement with science must develop strategies that enable individual researchers, but also institutions of higher education, research institutions and expert committees to be viewed by the public as fundamentally different institutions than companies and administrations. This may lead to a better understanding of science in politics and the larger public and preserve academic freedom, autonomy and its innovative power.

Scientific organizations and higher education institutions should have clear guidelines that define their specific values and communicative ethics, and describe how these values and principles translate into communication and engagement. In addition to internal guidelines within organizations, overarching guidelines for science communication and public engagement would be helpful. These should be jointly developed by high-level scientific organizations like the Swiss Academies of Arts and Sciences or swissuniversities, researchers, scientific organizations, research funders, communication experts and members of the public.

11 Institutional science communication should be carried out and coordinated in-house.

Institutional science communication should, whenever possible, be carried out in-house and not by private sector communication agencies, to ensure that communicators have sufficient knowledge of the specific conditions of scientific institutions and can establish trust with the researchers they support.

Communication departments of higher education and scientific institutions should offer in-house courses and provide best practices to get in touch with researchers internally. Social Media trainings and a monitoring and regular exchanges about the posts and tweets on social media could be organized in order to improve knowledge about social media and media activities.

12 Research on science communication in digital environments should be fostered through funding opportunities, data access and capacity building.

There is considerable research on science communication in digital environments, e.g. on social media communication about science, science journalism online, participatory online formats, or individual scientists' online communication. But there are still considerable gaps, e.g. about the consequences of science communication in digital environments for stakeholders like politicians, about the validity of available data on digital science communication or about the audiences of science communication in digital environments. These gaps are partly due to missing funding opportunities, problems with data access and a general lack of capacity building.

There should be more large-scale funding opportunities for projects tackling the above-mentioned research gaps, e.g. National Research Programs (NRPs). Capacity building can be addressed by establishing long-standing centers or "leading houses" for science communication research in Switzerland. Platform providers should establish clear standards and interfaces for publishing data or for giving access to researchers. This needs to be accompanied by the establishment of appropriate laws and regulations in the Swiss and European context.

13 Science communication needs to counteract mis- and disinformation.

Inaccurate information about science-related topics is prevalent online, in social media and messaging services, whether distributed strategically or inadvertently. The spread of mis- and disinformation is often enabled by uncertainty inherent in scientific results and public controversies which can open up room for faulty interpretations. This constitutes a problem for science communication.

Platform providers and legacy media should cooperate with researchers to implement findings on how to detect and counteract mis- and disinformation. Scientists should conduct interdisciplinary research, especially between computer science and social science, to develop tools, surveys or communicative strategies to identify and counteract mis- and disinformation. Research from the social and behavioral sciences on inoculating citizens against mis- and disinformation and on the pre- and debunking of false information should be included in science communication strategies.

14 Science communication and public engagement with science should consider and reflect the diversity of science.

Science is diverse in terms of disciplines and research fields, but also in the seniority of researchers, their age, gender and geographic origin, among other factors. Yet science communication and public engagement with science often do not reflect this diversity. Studies show that certain disciplines, senior scientists and men are most strongly represented. Where possible and appropriate, science communication and public engagement should be more diverse.

Scientific organizations and higher education institutions should train, encourage and incentivize researchers from disciplines or with sociodemographic characteristics who are less visible publicly to engage in communication and public engagement.

15 Communication between science and politics needs to be strengthened and institutionalized.

Scientific expertise and knowledge must be made available to federal, cantonal and local authorities and political decision-makers to help them make decisions based on scientific evidence. In doing so, the respective roles and responsibilities of science and politics needs to be mutually understood and accepted, which requires regular exchanges and trust. The Swiss research landscape should define a clear point of contact for authorities and policy-makers.

In times of crisis, a scientific committee should be established quickly and enable a consultation with top researchers in accordance with good governance rules. In normal times, there must be regular exchanges between national, cantonal and local policy-makers and science, so that trust can be established. For this, topics relevant to society must be covered as much as possible by scientists and scientific institutions in Switzerland. This should move Switzerland towards more evidence-based regulations, policies, and recommendations, and make the country even more innovative, efficient, and effective in all areas.

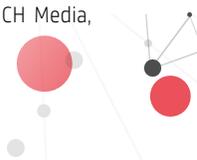
16 A new funding infrastructure for science journalism is needed, which should fund innovative projects and core infrastructures.

Research has documented the challenges science journalism is facing in Switzerland. The economic sustainability of science journalism in Switzerland is compromised and working conditions for science journalists have deteriorated. These challenges affect specialized science journalism in traditional media houses as well as freelancing science journalists. New organizational and business models in science journalism have emerged, but their economic sustainability is not yet clear.

Therefore, a new infrastructure is needed to support science journalism. It should pursue a twofold aim: Based on an application system and competitive decision-making by an independent board of peers, it should provide funding for innovative projects in science journalism, from individual journalistic products by individual journalists to start-up funding for science-related outlets. In addition, it should provide long-term funding for critical infrastructures that maintain core functions of science journalism in Switzerland. Institutionally, such a funding infrastructure could be organized as a foundation. It should be able to incorporate funding from different sources, including, but not limited to, funding from scientific organizations and corporations, public funding or philanthropic funding. Funding sources should be as diverse as possible, and the independence of decision-making from funders' influence should be secured.

17 Science journalism in public service broadcasting and established media houses should be strengthened, and networked across desks.

Science journalism has proven its value during the Covid-19 pandemic, but also with regard to other political, economic and societal issues (including, but not limited to 5G, climate change and biodiversity). But the number of science journalists and science desks in Swiss media houses is shrinking. Specialized science journalism only exists in a small number of media houses nowadays, e.g. at public service broadcaster SRG and commercial media houses CH Media,



NZZ or TX Group. Given its crucial role, science journalism needs to be strengthened in Swiss media houses. A base level of science journalistic expertise is also necessary for media houses to make optimal use of existing support infrastructures like the international Science Media Centers or aggregators of science-related media releases like EurekAlert.

Both public service and commercial media houses should refrain from (further) layoffs of science journalists, and maintain and strengthen the science journalistic expertise among their staff instead. Science journalists should be represented in newsrooms and editorial board meetings. Exchanges between science journalists and other journalists should be furthered, to provide science-related expertise for non-science desks and, in turn, inform science journalists about novel angles to report on science and to connect their reporting to political, economic and societal issues. Media houses without a dedicated science desk should integrate science journalists in other desks, and encourage them to work across desks as cross-sectional teams.

18 A national science news provider is needed to serve Swiss media houses.

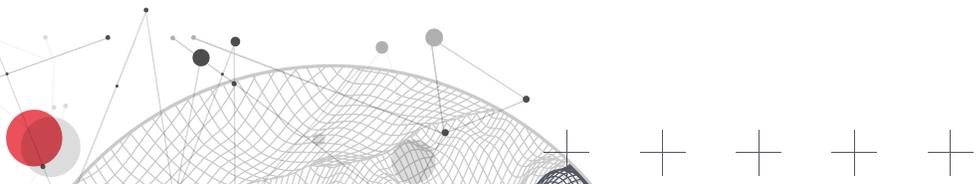
Few Swiss media houses have science desks anymore, and regional and local media in particular often lack science-related expertise. In addition, the working conditions of the remaining science journalists have worsened. Time constraints and an increasing in-house demand for short science-related news are making it more difficult for many science journalists to engage in comprehensive background reporting.

Switzerland needs a provider that offers science-related news to media houses to remedy these problems. Such a provider should be staffed with science journalists and focus particularly on the production of short news, e.g. about new scientific findings, which are often produced independently in various media houses yet show little variety with regard to content across these media. The existing science news channel at Keystone-SDA could function as such a provider, as it is already set up, works multilingually and has established channels for content distribution. Its service should be maintained, ideally strengthened, and if necessary, its funding model should be modified to ensure economic sustainability. In case Keystone-SDA is no longer able to fulfil its function in the future, the creation of an alternative science news service as a successor is mandatory.

19 Financially support and foster the independence of freelancers.

Freelancers are particularly important in science journalism – because science is a highly specialized, expert system that requires specialized journalists to report on it, and because fewer such journalists exist in traditional media houses. But the situation of many freelancing science journalists has become precarious in recent years. The fees for their work have dropped, as has the number of media being able to finance their services. Many freelancers have to produce more content to accumulate a decent monthly income, leaving them less time per story.

The work of freelancing science journalists should be incentivized and valorized more. Both public service and commercial media houses should pay adequate fees, keeping in



mind that the published length of commissioned articles or pieces may not represent the amount of work that went into them. Finding suitable freelancers should be simplified for media houses, e.g. via a database that allows media houses to book freelancers with experience on certain scientific topics. Financial support should be provided for freelancers, for example by using a novel funding infrastructure to provide additional fees for freelancers' work.

20 Innovation in science journalism in Switzerland should be furthered.

In Switzerland, only few examples of innovative digital formats in science journalism exist – like interactive multimedia stories, visual storytelling or specialized social media formats. A stronger emphasis on innovation in Swiss science journalism is necessary to optimize its appeal to audiences, particularly to young audiences.

Science journalism, both when focusing on basic science and when providing input on societal issues, has a strong potential for innovative content, narratives and formats. Such innovative forms could lend themselves particularly well to attracting younger audiences. Therefore, science journalists should be encouraged to use this potential. Journalism schools should offer training in such formats, and media houses should encourage and enable their journalists to attend them. Additional incentives like awards for innovative science journalism are needed. Funding opportunities should be established to support innovative approaches and formats of science journalism, and media legislation should aim to foster digital formats in (science) journalism as well.

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