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Towards a Deliberative Framework for Systemic Risk Communication

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This paper presents a framework for the communication of systemic risk. The framework is termed 'deliberative' to highlight two qualities the article argues are necessary for robust systemic risk communication: its participatory nature, which draws in diverse actors across disciplines and communities, and its reciprocal nature, which ensures that communication is ongoing rather than one-directional. Systemic risks pose an existential threat to the functioning of vital societal systems, e.g. through climate disruption and environmental degradation, financial instability, grave inequality, and democratic backsliding. Tackling these risks requires effective communication that takes various challenges into account. These range from dynamic changes of circumstance, complexity and uncertainty, spatio-temporal dispersion, to public (dis)trust These challenges arise precisely because systemic risks, by definition, cut across multiple systems and sectors, drawing in actors from different disciplines, institutions, and communities who do not share a common framework for understanding or responding to them. Specifically, systemic risk communication needs to operate across multiple actors and different communities, due to the boundary-crossing nature of systemic risks. Accordingly, the communication framework presented here is explicitly deliberative, building on meaningful participation between researchers, the people affected, and decision-makers, while also ensuring robust and reflective information-sharing.

1. Introduction: Why Systemic Risk Communication?

As complex, interdependent, and potential existential threats, systemic risks (Schweizer and Renn 2019) pose a particular hurdle for risk communication. Understanding how to navigate ambiguity, uncertainty, and a lack of information in the policy and research context is key when it comes to communicating systemic risks among experts, practitioners, researchers, and the public. Importantly, while there is growing scholarly and policy concern regarding the conceptualization and handling of systemic risks, the challenge of how to communicate them effectively between researchers, practitioners, and the public at large has so far received little

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attention. In order to meet this challenge, this article presents the main tenets of what a deliberative framework for systemic risk communication could look like.

Contemporary society faces mounting uncertainty across multiple domains – artificial intelligence, infectious diseases, climate disruption and accompanying environmental degradation, financial instability, among others – compelling researchers and policymakers alike to make consequential decisions despite incomplete information. Climate change exemplifies this challenge: Humanity must develop long-term strategies, and mitigation plans for potential futures, without definitive knowledge of how these futures will unfold (Hallegatte 2009, ISC-UNDRR 2022).

In dealing with this uncertainty, scientists occupy a pivotal position. They are expected to generate and disseminate knowledge about emerging risks – pandemics, climate hazards, and similar threats – and to translate these findings into actionable information for policymakers and the broader public (Liu and Renn 2025; Schweizer et al. 2022). Yet this role carries inherent tensions. Scientists must communicate hazards while acknowledging the limits of their knowledge, navigating the expectations of multiple audiences with competing interests, varying levels of scientific literacy, and different experiences and contexts (Fischhoff and Davis 2014, Keohane et al. 2014, Spiegelhalter 2017, Gustafson and Rice 2020).

While risk communication itself is well-established as a field of study (Bostrom 2014; Slovic 1987; Fischhoff 1995; Morgan et al., 2002; Balog-Way et al. 2020), the intensifying interconnection of environmental, economic, technological, and social systems poses a challenge for traditional risk communication frameworks. This is because contemporary hazards rarely operate in isolation. Instead, they cascade and amplify through complex networks of dependencies, demanding a fundamental shift toward communicating *systemic risks* rather than discrete threats (Renn et al. 2022; Schweizer and Juhola 2024). This shift poses new conceptual and practical challenges for both scientists and the institutions tasked with translating their findings into actionable knowledge for the public and for decision-makers.

Systemic risks refer to conditions or processes that disrupt the functioning of vital societal systems, producing interconnected effects that can spread beyond their original source and influence multiple sectors (Hochrainer-Stigler et al. 2024). Systemic risks represent interconnected challenges affecting systems critical to society – challenges that extend across time and space, often transcending single domains. Understanding and managing these risks effectively requires integrated assessment methods, cooperative governance structures, inclusive stakeholder participation, and adaptive resilience strategies that strengthen our capacity to anticipate, prepare for, and recover from complex disruptions (Liu and Renn 2025).

To account for these challenges, we propose in this paper a deliberative framework for systemic risk communication that serves as a baseline for enhanced interdisciplinary collaboration, improved disaster risk preparedness, and more responsive governance at both policy and community levels. Despite the growing literature on both systemic risk and risk communication, no framework has yet been proposed that addresses the distinctive communicative demands that systemic risks place on researchers, practitioners, and the public. This paper takes a first step toward filling that gap. Specifically, we adopt deliberation as an organizing concept because it encompasses both the process and the objective, we envision for systemic risk communication. As a process, deliberation emphasizes the reflexive and participatory dimensions essential to engaging with systemic risks. The focus on reflexivity and participation acknowledges that no single actor possesses complete understanding, thus emphasizing epistemic limitations of all actors, and that decisions surrounding systemic risks

should be geared by the communities and the affected people. As a goal, deliberation establishes an inclusive space where diverse actors can engage with one another on the basis of a shared framework of interdependent systems. This deliberative space ensures mutual respect and recognition, underscoring the need for an equitable decision-making space.

2. Challenges and Complexities of Systemic Risk Communication

While there may be other challenges not recognized here, we have identified four key challenges we believe to be specific to communicating systemic risks. The first challenge is based on the dynamic nature of systemic risks. Oftentimes risk communication reinforces instrumental behaviors, which focus on compliance or immediate benefits (Gifford, 2011). Instrumental approaches aimed at changing individual behavior are limited in their effectiveness as they tend to focus on surface-level symptoms instead of tackling the deeper, systemic causes of risk (Gambhir et al. 2025). Therefore, instrumental behavior hinders the fostering of more reflective kinds of behavior that take into account the complexity of interactions which exist between interventions and their outcome. The so-called “levee-effect" provides a valuable insight for the challenge of communicating beyond singular risks towards systemic thinking (Hutton et al. 2019; Tobin 1995). The construction of a levee might give a false sense of security, encouraging investments in flood-prone areas, which in turn starkly increases damages and harm in the case of a levee-breaking event. Thus, ensuring that risk communication, and the resulting proposal for solutions and risk mitigation, accounts for the dynamic contextual nature of systemic risks, would help frame risks as ongoing challenges rather than isolated and singular phenomena.

The second challenge is rooted in the highly complex and uncertain context, in which systemic risks usually operate (Renn 2020), which may defy intuitive understandings and ‘common sense’ reasoning. In conventional risks, cause and effect are usually proximate in time and space, and simple explanations help convey the need to mitigate them (Schweizer et al. 2022; Renn et al. 2022; Liu and Renn, 2025). By contrast, when dealing with systemic risks one finds that causality is often obfuscated by multiple intermediary factors, disconnecting causes and effects both spatially and temporally, as is the case when local behavior may have global consequences or vice versa (Schweizer et al. 2022; Renn 2020). The relationship between the spread of emerging zoonotic diseases (such as COVID-19), and environmental ecosystem degradation (Castelli et al. 2023) can further help illustrate this challenge. Intuitively, there may at first seem to be no relationship between the healthcare system and ecosystems health. Yet, as numerous studies have found (before and after the COVID-19 pandemic), there is a clear relationship between how well ecosystems are flourishing and human health (Refisch et al. 2020; Calistri et al. 2013; Kenyon 2020). How and why those two seemingly separate systems are connected, and why damaging one of them may pose a vital threat to another is due to the complex interplay of those systems that are at times hidden and not immediately obvious. Communicating this risk, accordingly, may require thinking outside conventional frames of reference that might defy common sense reasoning at first.

The third challenge that systemic risk communication needs to overcome is the spatio-temporal distance of its implications, and the capacity to act. Regarding the temporal aspect, it is impossible to extrapolate the impact of an unprecedented event down to every outcome. This, in turn, may lead to a kind of optimism bias, wherein potentially affected people tend to downplay the risks they face (Ommer et al., 2024). On the flipside, the communities who have been made vulnerable through unjust socio-economic structures often lack the resources to act in a resilient manner (Rufat and Kuhlicke 2025). The assumption that any potential extreme weather event

would not turn out to be as bad as, e.g. the authorities or scientists make it out to be, then might just be a form of purposeful optimism in the light of little to no capacity to change something about one's situation. The challenge of acting in accordance with a given piece of systemic risk information is further exacerbated in the case of sudden systemic breakdowns due to the breaching of a given "tipping point" (Lenton et al. 2008). The anticipation required to both understand and eventually handle a climate tipping point, for example, is challenging since humans primarily learn from experience through a trial-and-error process, which is an ill-suited process for dealing with tipping points wherein anticipation prior to experience is key (Schweizer et al. 2022). Once the system has tipped into another state, it is close to impossible to reverse it (Buhr et al. 2024).

The fourth challenge is maintaining public trust in the face of communicating uncertainty and battling misinformation. Depending on its form, communicating uncertainty can lead to an erosion of public trust, leading people to believe scientists are ignorant or that the claims they make are arbitrary. Direct statistical uncertainties tend to be well understood and accepted, having no negative impacts on public trust (van der Bles et al. 2020; Joslyn & LeClerc 2012; Kerr et al. 2023). At the same time, while relaying the potentially ambiguous quality of evidence may be encouraged for reasons of transparency, it may also lead to more general skepticism (Schneider et al. 2022). Perceived or actual incoherence, or contradictory messages from different institutions and disciplines may further exacerbate this erosion of trust into public and research institutions (Twyman et al. 2008). Contradictory messages may increase distrust due to the transboundary nature of systemic risks, as two neighboring jurisdictions may have two opposing means of mitigating a given risk, for example. While some studies have found that communicating uncertainty actually helped maintain trust in the face of a shifting information landscape (Batteaux et al. 2022), communicating complexity in a multi-hazard context remains a challenge for risk communication (Padilla et al. 2021). A salient example of how uncertainty and misinformation can lead to slow reactions towards major threats is the handling of the climate crisis. Misinformation in the climate change discourse has confused the public, increased political polarization, and stalled support for mitigation policies (Treen et al. 2020). While the potential impacts of increasing greenhouse gas emissions have been highlighted as existentially harmful since at least the early 1990s, having to communicate the fact that there is empirical uncertainty (Walker et al. 2003) about how exactly climate change will develop, gives climate change deniers the appearance of reasonable disagreement. While there are legitimate disagreements about the exact impacts and scenarios of a warming world, these disagreements may be instrumentalized to further vested economic interests (e.g., from fossil fuel companies who played a major role in sowing doubt about the reality of climate change) Similar to the third challenge, denying the existence of or downplaying a given systemic risk may also be the result of purposeful optimism in the face of fear, dread, and guilt. Climate change, as an example, may lead to feelings of human failure and ultimately shame, which might stifle effective action because it invites mockery and denial as an easy way out (Aaltola 2021).

In sum, the inherent complexity and uncertainty of systemic risks, alongside structural challenges in governance and the influence of the modern information environment, may lead to risk attenuation – where the risk is downplayed or disregarded – rather than amplification, despite the risks potential devastating impacts (Schweizer et al. 2022). Accordingly, the challenges arising in the context of communicating systemic risks - one-off solutionism, complexity, cross-boundary issues and capacity to react, as well as public trust - require thorough interdisciplinary analysis.

3. Identifying the Functions of Systemic Risk Communication

In order to account for the above-mentioned challenges, any framework for systemic risk communication needs to focus on various, interrelated functions that can address them. We present here a number of core functions which seek to address these challenges, divided into a theoretical and practical dimension.

The theoretical dimension of systemic risk communication's function pertains to a shared conceptual language to overcome disciplinary silos. These silos are constitutive of the challenges surrounding complexity and uncertainty, as well as cross-boundary effects presented in the previous section. Due to the highly inter- and transdisciplinary nature of systemic risks, various strands of research, kinds of science, and forms of knowledge are necessary to understand and potentially deal with a given systemic risk. However, the high specialization and necessary narrow focus of the scientific process, the more generalized, and reactive modus operandi of policy and decision-makers, and the contextual and varied interests and claims of local communities and individuals, together often prove difficult to integrate or even align. Alignment of interests and values becomes especially difficult to achieve when complex, non-linear cause-and-effect relationships make tracking the various risks increasingly unruly.

While a difference in goals may be part of this difficulty, lacking a shared language and conceptual landscape is also a central hurdle to collaboration and mutual understanding, oftentimes leading to gaps between available information and action (Schröter et al. 2025). In this sense, systemic risk communication needs to function as a shared language to engage various stakeholders and avoid siloed approaches. By establishing common concepts, it may further facilitate inter- and transdisciplinary learning and sensitize different communities towards the challenges they face together. Such a shared language of concepts may further facilitate inter- and transdisciplinary learning and sensitize different communities towards overlapping challenges. This shared conceptual language will also allow for more synergies and mutual understanding within the scientific community, facilitating inter- and transdisciplinary research endeavors across disciplines, and thus accounting for the boundary-crossing challenges that systemic risks carry.

The practical dimension of systemic risk communication function consists of two aspects. One, systemic risk communication needs to aim at sharing information in a way that facilitates adequate public interaction across scale. This may be achieved through innovative approaches and tools, such as Bayesian belief networks, to represent complex interdependencies and help stakeholders update beliefs and actions based on evolving risk information (Uusitalo 2007). This entails that communicating systemic risks necessitates going beyond mere information sharing and interdisciplinary coordination, particularly when dealing with situations of high complexity, uncertainty, and ambiguity (Renn et al. 2022; Klinke and Renn 2006; Liu and Renn 2025). Fostering adequate public interaction across scales that highlight complexity, subsequently also avoids the challenge of the public impression that complex risks can be handled with one-off solutions.

The second practical aspect is that systemic risk communication needs to aim at enabling and supporting stakeholder communication. This allows for consultation and co-design, based on a shared understanding of the complexities and interconnectedness of the risks at hand. Further, such a form of collaborative consultation and co-design helps unveil potential conflicts of interest or synergies. Building on collaboration also supports governance and policy practices, facilitating informed decision-making by ensuring that diverse actors - from policymakers to citizens - can

understand and evaluate risks in ways that align with their own interests and values (Craig et al. 2025; Schweizer and Juhola 2024; Fischhoff and Davis 2014).

Additionally, through transparent and participatory processes, systemic risk communication enhances the legitimacy and public acceptance of decisions, empowering communities and reinforcing trust between institutions and society (Liu and Renn 2025; Keohane et al. 2014; Kasperson 2014). This is especially salient when it comes to fostering public trust and combatting misinformation in the context of uncertainty. Misinformation and rumors spread rapidly in crises, a time when people seek to have their questions answered (Liu and Renn 2025; Treen et al. 2020). Importantly, the risk of misinformation can increase through participatory processes, for example, when grassroots movements are instrumentalized by powerful lobbying groups to undermine or stall the decision-making process. Systemic risk communication therefore needs to provide accurate and understandable information, as well as be built on a transparent process, which forms the cognitive and emotional foundation necessary to make sound judgments, respond appropriately and prevent confusion, inaction, and detrimental psychological outcomes (Wachinger et al. 2013; Shaffer et al. 2018; Schweizer et al. 2022; Schneider et al. 2024; Bastland et al. 2020). Crucially, digital communication needs to be accounted for, wherein echo chambers are created, enabling individuals to select information supporting existing beliefs and avoid cognitive dissonance, leading to increased polarization (Liu and Renn 2025, Schweizer et al. 2022, van der Linden, 2017, Treen et al. 2020).

4. Towards a Deliberative Framework for Systemic Risk Communication

In order to deal with the challenges that systemic risk communication carries, while also serving the aforementioned functions, a deliberative framework for systemic risk communication should be built on two main pillars. First, the process needs to be guided by participation that is transboundary, inclusive and reflective, as well as recognitional. Second, the information that is being shared needs to adequately deal with misinformation, and clearly account for and delineate uncertainty, ambiguity and changing contexts.

The first pillar is focused on the participatory aspects of systemic risk communication. While participatory frameworks exist in the risk governance literature (for an overview, see Renn 2008), it is important to specify what this participation should look like and what the participatory process ought to account for in the context of systemic risk communication. A central element of participation is the need to account for transboundary issues. This entails moving from transboundary risks to transboundary communities (Renn and Schweizer, 2009). What this boils down to is that deliberation surrounding systemic risks must involve diverse stakeholders and affected people across organizational silos within science, policy, and public spaces (Liu and Renn, 2025). Focusing on transboundary communities builds on the assumption that while systemic risks affect all groups within a given society, the impacts might be different depending on socioeconomic status, historical context, geographical location, etc. The highly interrelated and complex nature of modern societal structures can be considered a new paradigm in disaster studies (Alexander and Pescaroli 2019) and requires an adjusted mode of communication that accounts for differences in capacities to respond to a given systemic risk. Ultimately, this entails providing information that is sensitive to the context and situation of a given community. At the same time, this differentiation should not distract from the fact that all communities are affected in some way, and that these effects may interact across boundaries (Schweizer et al. 2022). Thus in order to deal with the complex and cross-boundary nature of systemic risks, a framework for their communication needs to anticipate communal differences

in context and capacity, while also highlighting the ways in which those communities are entangled with one another.

Further, participation within a deliberative systemic risk communications framework needs to be guided by inclusivity and reflection. This means enabling broad participation and engagement beyond the traditional experts and decision-makers, such as community leaders, agents of change, citizen assemblies, and others (Renn et al. in print). Such an inclusive and collaborative governance process enhances public knowledge, increases trust in authorities, while also ensuring that risk management measures are accepted and reflect community values (Wachinger et al., 2013, Liu and Renn, 2025, Renn and Schweizer 2009). In terms of reflectivity, deliberative systemic risk communication needs to go beyond one-way information dissemination. Deliberation entails seeking engagement and collaboration by design, and avoiding one-off, unilateral solutionist thinking. Instead, it privileges dialogue, collective reflection, and the co-production of understanding among participants with divergent perspectives, knowledge bases, and interests. Such an approach consequently meets the challenge of purely instrumental communication head-on, as the cascading and propagating effects across systems and sectors can be observed and dealt with via reflection and iteration.

Finally, the participatory process needs to be recognitional. This entails the understanding that systemic risks do not affect all communities equally. Rather, they intersect with existing social, economic, and historical inequalities, concentrating harm among already marginalized populations. Therefore, a deliberative framework for systemic risk communication must account for issues of structural and historical forms of injustice and marginalization (Young 2011). A deliberative framework must be applied to recognition justice (Fraser and Honneth 2003) and procedural equity (Habermas 2004) in risk governance, ensuring that all affected communities have a voice in systemic risk assessment and management decisions, not just technical experts (Bostrom 2014). Furthermore, deliberative risk communication should address distributional inequities that result in certain communities bearing disproportionate exposure to systemic risks, an issue highlighted in systemic risk research that emphasizes unequal risk burdens, justice considerations, and the need for analytical–deliberative processes in transformational risk management (Hochrainer-Stigler et al., 2023).

Both the recognition of existing injustices, as well as a sensitivity towards distributive inequities is necessary to anticipate potential conflicts and disagreement that can arise in deliberation. Responding to systemic risks, e.g., in the form of resilience building or adaptation planning, is always also a value-driven process. Who is put at risk, and why and how that risk ought to be dealt with, inevitably also requires evaluative statements that are implicitly or explicitly ethical (Byskov et al. 2021), which in turn will always produce potential for contestation and conflict. While inclusive and recognitional modes of communication cannot (and perhaps should not) avoid invoking conflict, they can serve as means to unearth underlying value-judgements of participants and decision-makers. This will lead to a more transparent decision-making process and make room for justice concerns of those who are often structurally excluded when it comes to systemic resilience and adaptation (Henrique and Tschakert 2021). [1]

The second pillar of systemic risk communication is focused on the way information is shared, and misinformation handled. One way of dealing with misinformation is by ensuring that communication is designed to pre-emptively anticipate false or misleading output, for example, by using inoculation techniques (Simchon et al. 2026; van der Linden et al., 2017). Since the

[1] We would like to thank an anonymous reviewer for highlighting the need to account for potential conflict, as well as guiding us towards additional literature on the matter.

introduction of counter-information (misinformation) can completely negate the positive effect of accurate risk communication, specific methods are needed to protect public understanding (van der Linden 2017, 2023; Gigerenzer 2007; Todd and Gigerenzer 1999). It is important to note that such processes of "prebunking", i.e. preventing the uptake and spread of misinformation through anticipatory action (van der Linden 2023), puts the onus of prevention on the individual rather than the inclusiveness of the process. Accordingly, such inoculation techniques are only one part of the puzzle when it comes to dealing with misinformation.

In this vein, another important aspect of systemic risk communication is the ability to account for uncertainty and changing contexts in the decision-making process. While complexity is a key characteristic of systemic risk and thus needs to be dealt with in every instance of systemic risk communication, it also proves a critical challenge for information sharing. Complexity and non-linear casualties can lead to unforeseeable changes in the status quo, challenging previous assumptions and potential solutions that framed the decision-making process. A sense of humility in policy making is thus necessary, to ensure that uncertainty can be met with adaptivity and flexibility. Importantly, this sense of humility should also be translated into the communication of systemic risks and become part and parcel of a deliberative communications framework. Emphasizing the limitations of what one can know about a given risk provides the necessary space to change course in each situation depending on how the phenomenon develops. For example, a newly discovered virus may at first be dealt with in a way that later turns out to be counterproductive. Perhaps even the goal of, e.g., eradicating the virus turns out to be unfeasible, which in turn requires rethinking of both how the virus is dealt with and what the outcome of a given virus-related policy should ensure. Adaptive governance approaches and decision-making under deep uncertainty (Haasnoot et al. 2013; Kwakkel et al. 2016; Kwakkel and Haasnoot 2019), provide valuable insights here to guide the dynamism necessary in a deliberative systemic risk communication framework.

In conclusion, deliberative systemic risk communication needs to both account for participation and shared decision-making in a just manner, while also allowing for reflection, iteration, and dynamism when information is being processed and mitigation measures are chosen. Since the complex and uncertain nature of systemic risks leave communication attempts especially vulnerable to misinformation, pre-emptive methods to inoculate decision-makers and the public should also be part of a deliberative systemic risk communication process.

Discussion: Potential Uses and Limits to Deliberation

With the conceptual outline of a deliberative framework for systemic risk communication laid out, the question now arises where and how this can be implemented in practical decision-making processes. In tandem with these use cases, we also consider some of the limitations and challenges that come with the application and requirements of a deliberative framework

One context in which such a framework could support decision-making is within local governance structures. Complex, cascading, and systemic risks often pose a challenge for local decision-makers, given the diversity of affected people and uncertainty of outcomes. Differences in roles, data availability, and authority can lead to gaps in the information exchange and disrupt the decision-making process or make it less aligned (Schröter et al. 2025; Hochrainer-Stigler 2025). While collaboration and co-creation can aid in closing these gaps (Bharwani et al. 2024; Cumiskey et al. 2025), ensuring that these forms of engagement are guided by deliberation can sensitize the participants to issues of systemic risk. Importantly, deliberative processes need to account for the polycentricity and multi-level decision-framework within which local policy

decisions are often made, understanding the limitations, institutional barriers, and action space of each actor (Ostrom 2011). With this in mind, some clear preliminary limitations of such a framework need to be highlighted. In the context of broad and inclusive participation, the participatory process itself needs to account for non-ideal forms of participation that require normative decisions. While having a broadly inclusive outlook towards deliberation is prima facie laudable and useful, challenges might arise when participants seek to hijack the process for undisclosed reasons or ulterior motives. It may be reasonable then to qualify the participatory process and ensure that some kind of guardrails are in place when deciding who is and is not part of the deliberation process and defining criteria for who should and should not be involved.

Another context in which a deliberative framework for systemic risk communication could be implemented is among inter- and transdisciplinary research groups. Here, a shared conceptual language that inherently accounts for complexity, transboundary impacts, and uncertainty may support a more coherent exchange between researchers and facilitate the creation of a conceptual common ground for the problem at hand. At the same time, it is important to highlight that some researchers might consider forced transdisciplinarity a potential hurdle for the precision and efficiency of their scientific goals. Accordingly, the degree to which interdisciplinarity should be part of the scientific endeavor in understanding a given systemic risk, needs to be weighed in each context. While interdisciplinary thinking, and the opening up of scientific silos is paramount when it comes to understanding and dealing with systemic risks, there may be levels to the engagement that allows for the necessary independence of each discipline.

These use cases and their limitations are purposefully chosen to be broad and slightly ambiguous, allowing for further refinement and precision down the line. So far, this exploration of systemic risk communication should merely serve to identify the core challenges that such a framework might face and stake out why it is necessary and where it could be applied. Importantly, there may be further limitations to deliberation that are not accounted for here.

Conclusion

So far there have been no risk communication approaches that focus specifically on systemic risks, a gap that this paper seeks to explore and take the first step towards filling. As was laid out throughout this article, systemic risks require communication strategies that go beyond existent risk communication. Namely, systemic risk communication needs to fulfil a practical function, supporting behavioral adaptation and stakeholder communication, as well as a theoretical function, supplying a shared conceptual language, to account for the inter- and transdisciplinary challenges of systemic risks. A deliberative approach towards systemic risk communication, which was outlined here, can serve as a first step to fulfil these functions. It may be implemented in the context of local decision-making processes, in inter- and transdisciplinary research groups, and potentially other communities that require dealing with complex, interrelated risks. At the same time, deliberative systemic risk communication is not a panacea. Without clear ethical guardrails, it may fall short when taking justice considerations into account and it requires a genuine interest in participants towards problem solving (e.g., rather than simply wanting to stall the process). In short, the deliberative approach explored here is a first step towards systematically dealing with systemic risk communication, but may still require refinement, revision, and testing.

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