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Shaping Shared Values: The Roles of Sociotechnical Agenda-setting in Technology Development

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Abstract In dynamic sociotechnical contexts, values evolve over time and diverge across stakeholder groups, complicating the coordination of innovation processes through individual and collective commitments. This paper argues that sociotechnical agendas, which are structured sets of technology-related issues that shape attention and guide decision-making, can be a helpful framework for examining the interplay between personal and shared values. We demonstrate how three levels of agenda-setting contribute to the recognition and institutionalization of values: issue salience that determines what values matter, attribute framing that shapes how values are interpreted, and network interconnection that establishes how values relate to each other. We examine sociotechnical agenda-setting as a process through which personal and institutional values are negotiated, aligned, and contested, often under conditions of tension and uncertainty. While sociotechnical agendas can foster consensus and support responsible technological development, they also pose challenges, including power imbalances, selective framing, and psychological influence. The study calls for further research into how transparent and inclusive agenda-setting processes can promote responsible value sharing in ways that advance broader societal goals.

Keywords Sociotechnical Systems · Sociotechnical Agenda · Agenda-setting · Shared Value · Technology Development

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Introduction

The role of moral values in technological developments and innovation processes is a topic of increasing scholarly attention. One of the motivations for this attention is the consideration that a well-considered identification of relevant values enables better – i.e. a more ethical and socially acceptable – design of new technologies [1]. While much of the existing literature examines shifts in individual moral beliefs or recognizes the aggregation of personal values into collective values, a growing body of work investigates how moral values change within sociotechnical systems as technologies develop and diffuse [2–4]. These studies indicate that the values embedded in sociotechnical systems can change across different times and contexts —especially in how they are identified, prioritized, and translated [5, 6]. For example, we can look at how the uptake of new battery technology in electronic devices and electric vehicles gives rise to new social concerns, such as mobility justice, broadening the value landscape of battery-related technologies. Meanwhile, efforts to enhance the safety

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and sustainability of energy storage batteries bring forth new risks and unforeseen accidents, compelling designers to prioritize and redefine values like safety and sustainability in new application contexts [7–9].

In technological contexts, values appear as practical guideposts that inform design decisions in ways that are both context-sensitive and shaped by lived experiences [4, 10]. In this sense, the values embedded in technology tend to reflect a degree of shared understanding among those involved in their development. By *shared*, we do not mean unanimous agreement but rather a partial convergence of assumptions and priorities that emerges from collective design processes [11, 12]. Yet critical scholarship shows that such understanding often privileges the perspectives of dominant actors over those of users or affected communities, rendering such understanding restricted and contestable [12].

To address these limitations, approaches such as Value Sensitive Design and Responsible Research and Innovation advocate for inclusive processes that enable diverse stakeholders to reflect on and negotiate embedded values [13, 14]. This is because values emerging from such processes are more likely to serve diverse needs and maintain legitimacy across stakeholder groups. Following this perspective, *shared understanding* in this paper refers to a procedurally achieved, revisable agreement on core value commitments: one that is open to challenge, can accommodate diverse reasons for endorsement, and evolves as circumstances and participants change.

These observations point to two interconnected questions that existing literature has not explicitly addressed in an integrated manner within technology development contexts. The first is conceptual: what does it mean to have shared values in technological contexts? The second is processual: how do values become shared, and through what mechanisms do agents come to endorse the same values?

To answer these two questions, we draw on the notion of *agenda-setting*, as it has been developed in media studies and policy sciences. Agenda setting facilitates the formation of a collective stance by fostering awareness, alignment, and commitment across diverse actors in coordinated yet contested ways [15, 16]. However, agenda-setting is not merely a structuring of priorities; framing, as a key mechanism within agenda-setting, can lead to the prioritization and interpretation of values in ways that conflict with individual moral beliefs. This discrepancy between public discourse and personal values frequently produces tension as individuals negotiate their beliefs within a broader societal narrative. Framing not only contributes to the institutionalization of emerging values by reinforcing established values but also strengthens the foundations of discursive communities—groups bound by *shared* understandings [17], allowing for the exchange of values and the coordination of activities.

Technology developers often rely on implicit expectations about future use that shape innovation processes [18]. Work on responsible and democratic innovation holds that such value-laden expectations should be critically examined against wider public concerns and democratic principles [14]. To understand how values become embedded through these expectations, and to identify where critical examination is needed, we introduce the idea of a *sociotechnical agenda*: a set of technology-related issues that receive consideration from actors across technical, governmental, commercial, and civil society spheres. This idea can be seen as an extension of this notion introduced by Sovacool et al. [19], who primarily map sociotechnical agendas as research domains to identify gaps in scholarly attention. Our approach builds on this by treating agenda-setting specifically as a process that structures, transmits, and institutionalizes values within technological development.

With that, our work is also an extension of the notion of technological frames introduced by Brey [20] and Bijker [21]. In these frames, agenda-setting plays an important role, as they shape the way in which particular social groups approach and understand technology. The framing process in agenda-setting not only shapes the designers' considerations but also influences how stakeholders perceive technology. When designers are developing new technologies, they often use frames that highlight potential, performance, and progress to set expectations and gain support. These frames, in turn, shape how individuals form beliefs about new innovations, influencing technology adoption by highlighting factors like social impact or ease of use. The notion of technological frames does not yet provide specific mechanisms that explain the establishment of shared values, though these are crucial for technology development [22]. To explain the relationship between personal and shared values, we will draw primarily on agenda-setting

theory as developed in communication studies, where agenda setting serves as an analytical tool for exploring how collective realities are represented and shaped through communication [23], which is essential for the development of shared values [24–26].

The following sections will further explore how agenda-setting helps us understand how values become shared in sociotechnical contexts and how individuals relate to these shared values. The next section will examine how values are embedded in agendas during agenda formation, as well as their specific role within the context of technology development. The section adapts the three levels of agenda-setting to sociotechnical systems, identifying key questions about how values are hierarchically embedded (value prioritization), contextually defined (value interpretation), and interrelated through communication (value relationships). We will also focus on network agenda-setting, which features values as embedded within a structured system. Section "Agenda Setting and Shared Value in Sociotechnical Systems" investigates the transmission pathways through which values migrate from sociotechnical agendas to individual actors. Finally, the paper will explore some of the ethical implications of agenda-setting in sociotechnical systems in Section "Ethical Considerations in the Impact of Agenda-Setting on Value Sharing" before turning to the concluding remarks in Section "Conclusions".

Agenda-Setting and Value Embedding in Sociotechnical Systems

Like public, political, and media agendas, sociotechnical agendas are shaped by real-world factors, diverse actors, and interpersonal communications [27]. The influential factors include quantitative performance metrics such as carbon footprints or reliability scores that frame technological assessment [28, 29], as well as significant events and accidents [30] that demand attention and response. These factors are co-constituted through the interpretive work of heterogeneous actors, such as research institutions, regulatory bodies, industry, civil society organizations, and media outlets. By allocating attention, framing interpretations, and communicating accounts, these actor groups determine which metrics and events become salient and how they are understood [31, 32]. While these actors pursue distinct interests, their functional interdependence within sociotechnical systems generates shared orientations toward coordination, even amid competing goals [33]. Actors engage through specialized communication channels, including scientific journals, conferences, expert discourse, and industry reports, which facilitate technical discussions that significantly impact technological trajectories. These discussions continuously frame technical knowledge, guide research and development priorities, promote emerging technologies, and mediate stakeholder engagement.

Although policy analysis offers valuable insights into how issues gain traction through formal power structures, our approach draws on agenda-setting theory from media studies for two reasons. First, while we do not ignore institutional authority, media agenda-setting theory reveals the more subtle communicative and cognitive mechanisms through which values circulate and take hold. Second, the frameworks of attribute framing and network agenda-setting provide concrete methodological tools for tracing how technological values are interpreted, linked, and clustered within complex discursive and psychological networks.

Sociotechnical agenda-setting and value development can be characterized as a *co-evolutionary process*, following studies that demonstrate how agenda-setting incorporates underlying values and shapes public perceptions by determining which topics are presented as significant or relevant [34–36]. The formulation of an agenda follows specific events related to technologies, which at the same time leads to the embedding of values into this sociotechnical agenda. This agenda then diffuses, sharing these values and ultimately generating sociotechnical responses through technology and policy development. Throughout this process, existing shared values serve as indicators that continually inform and shape the agenda-setting cycle.

Understanding how values become embedded in agendas reveals how agenda-setting influences which values become widely shared, how they evolve, and how they guide technological development. Therefore, this section focuses on agenda formulation and value embedding before exploring value sharing through agenda diffusion in the next section. We will show that agenda-setting not only prioritizes certain values in sociotechnical systems but also shapes

how these values are framed, interconnected, and institutionalized.

Values in The Three Levels of Agenda-setting

Agenda-setting theory offers a useful framework for analyzing how values become embedded in technology development. Based on previous work in agenda-setting [37, 38], we apply the three levels of agenda-setting to sociotechnical systems. At the first level, *issue agenda-setting* establishes which values are considered important by highlighting specific issues, setting a foundation similar to value hierarchies in value-sensitive design. This hierarchy deepens at the second level, *attribute agenda-setting*, where values are further refined through selected attributes, akin to how norms and design requirements are specified to capture different aspects of overarching values. Together, these levels provide a framework where values are not merely abstract concepts but are broken down into specific, actionable norms that reflect broader moral priorities. The third level, *network agenda-setting*, links these issues and attributes into a structured network, creating a space where values are interwoven and mutually reinforcing. Here, values are not only defined in relation to individual issues but also in relation to one another, forming a structured value system—a set of interconnected values and their interpretations that collectively express overlapping moral concerns.

In this framework, each level of agenda-setting operates along two dimensions. The first is empirical: which issues, attributes, or connections are actually emphasized. The second is socially normative: what actors come to expect should be emphasized. This use of "normative" follows Bicchieri's [39] analysis of social norms, referring to shared expectations about appropriate priorities rather than ethical claims about which values are correct.

These levels are outlined in Table 1 below.

Issue Agenda-Setting: Prioritizing Values through Issue Selection

The level of issue agenda-setting [23, 40] involves the prioritization of issues that are perceived as most important, thus implicitly emphasizing specific values. Media and decision-makers, by focusing attention on particular topics, convey what issues are deemed critical, thereby shaping public perceptions of which values are salient. Due to limited media resources, selective reporting not only elevates certain issues and values but also limits the visibility of others. This selective reporting process mirrors a pragmatist account introduced by John Dewey, which holds that values are not discovered but constantly (re)constructed and evaluated through inquiries. Aimed at problem-solving, values serve practical ends, such as managing public discourse or addressing pressing societal needs, rather than being abstract or purely moral choices.

For example, during the COVID-19 pandemic, Stoddart et al. [41] found that media coverage of climate change was significantly reduced, yet not entirely eliminated, maintaining a degree of visibility. This shift illustrates how major global events can diminish the prioritization of sustainability, reflecting how decision-makers adjust value emphasis. Such agenda-setting choices implicitly guide audiences toward prioritizing certain values, such as public health and political values, over others, potentially reinforcing a hierarchy of societal values.

Table 1 Applying the Three Levels of Agenda-Setting to Shared Values

Agenda Setting Level	Focus on Issues/Topics	Applying to Shared Values	Relevant concepts
First Level	What topics or issues are important	What is (/should be) collectively valued	Value hierarchy
Second Level	How specific attributes of an issue, person, or event are presented	How specific values are (/should be) framed	
Third Level	How different issues relate to each other. The media can connect issues, building a network of related topics	How values (/should) interrelate: This level explains the interconnectedness of values and helps form a collective value system	Value cluster/system

Attribute Agenda-Setting: Shaping Value Interpretation through Framing

The level of attribute agenda-setting goes beyond highlighting specific issues and focuses on the attributes or dimensions emphasized within those issues, subtly influencing how values are interpreted [23, 42]. Media coverage, for instance, may not only spotlight an issue like climate change but also emphasize particular aspects, such as economic impact or health consequences, shaping public perception of which values are most relevant. This level of agenda-setting promotes specific interpretations of values by contextualizing them in concrete, relatable ways, which can shift public understanding of how these values are regarded. Coverage of the Monsanto-Bayer merger in 2018, for example, highlighted concerns over sustainability in the food industry while focusing on the potential impacts of controversial insecticides and industry consolidation [43]. This framing underscored sustainability but from varied perspectives, revealing both social and economic dimensions of the value, thus shaping how the public interprets and prioritizes these aspects of sustainability.

Network Agenda-Setting: Connecting Value Relationships within a Structured Discourse

The third level, network agenda-setting, adds complexity by illustrating how various issues and attributes are interconnected [37, 44], thereby creating a cognitive network that shapes public understanding of the relationships among values. This level examines how topics are presented not in isolation but as part of a larger web, with each issue or attribute linked to others, thus promoting a holistic understanding of how values interrelate. For example, some media narratives may underscore the economic benefits of battery recycling, thereby linking economic value with environmental sustainability and encouraging a reevaluation of the relationship between economic and environmental values [45]. By foregrounding these connections, network agenda-setting promotes a nuanced understanding of how diverse values can coexist and inform one another within a comprehensive framework.

While all three levels of agenda-setting shape values in a structured way, the third level is especially important. Unlike the first and second levels, which determine what values gain attention and how they are framed, the third level not only establishes connections between values but also reinforces the agenda-setting process. Section "Network Agenda-Setting and Value Structuring" will further explore how third-level agenda-setting shapes value structuring in sociotechnical systems.

Network Agenda-Setting and Value Structuring

The values embedded within an agenda do not exist in isolation or as scattered elements. Instead, they are structured and interconnected through the agenda-setting process, which systematically organizes and assembles these values within a cohesive discourse. Network agenda-setting can operationalize what Latour [46] calls *sociotechnical assemblages*—dynamic networks where values, actors, and technologies co-constitute one another. Building on the three-tiered framework, this subsection examines how network agenda-setting bundles values into cognitive networks, reinforcing their salience and shaping how they are adopted within sociotechnical systems. We argue that network agenda-setting can bundle values into reinforcing clusters (2.2.1) and naturalize their translation into technical requirements (2.2.2). Through these processes, new values can be linked to existing normative frameworks, social amplification can strengthen the visibility and interconnectedness of issue networks, and actors can function as framing agents, influencing how values are understood and institutionalized in technology development.

Linking Values as Clusters for Reinforcement

One of the key characteristics of network agenda-setting is that it can introduce new linkages between values and reinforce existing ones by *amplifying* certain connections within public discourse. Third-level agenda-setting strengthens value structuring by embedding emerging values into established cognitive and institutional frameworks [44]. This process integrates new concerns into broader sociotechnical agendas while reinforcing existing ones, forming structured value clusters that shape how values are organized and prioritized.

For example, sustainability is rarely discussed in isolation. It is often framed alongside human well-being, public health, and economic stability, situating it within

a larger network of concerns. Discussions on environmental degradation frequently highlight its impact on air pollution, respiratory diseases, and food security, linking sustainability with public health and social stability. This structuring process ensures that sustainability is framed not only as an environmental goal but also as a regulatory and economic priority. In the European Union's 2023 lithium battery regulations, sustainability and safety were consistently linked [47, 48]. By integrating safety concerns into sustainability discussions, regulatory frameworks established safety as a core component of sustainable technological development. This illustrates how third-level agenda-setting not only connects values but also reinforces their structural relationships within sociotechnical systems.

Strengthening the Connection Between Values and Their Interpretations

Beyond linking values together, network agenda-setting also shapes how values are *interpreted* and *incorporated* into sociotechnical systems. The framing of a value and its association with specific attributes influence whether it is primarily understood within regulatory frameworks, technical standards, or institutional policies. These different modes of interpretation affect how values are structurally integrated into decision-making processes, governance structures, and technological implementations.

Network agenda-setting does not only influence discourse but also reinforces value structures at the social and institutional levels. When specific interpretations of sustainability, such as carbon footprint, circular economy, and clean energy, are consistently linked in discourse, they become embedded in institutional narratives and technological frameworks, solidifying sustainability as a systemic principle rather than a set of isolated concerns. By shaping these links between values and their interpretations, agenda-setting not only articulates values but also ensures their operationalization within technological systems, policy initiatives, and regulatory decisions.

Agenda-Setting and Shared Value in Sociotechnical Systems

Sociotechnical systems involve multiple actors—designers, users, policymakers, and those affected by technology—each playing a role in how values are interpreted and acted upon. For values to effectively guide technological development, they must be recognized and institutionalized beyond individual beliefs. In other words, they need to be shared by various stakeholders. This process requires not only the formulation of agendas but also their dissemination, alignment, and adaptation, shaping how values become widely accepted and embedded in practice.

While communication studies typically examine how individuals adapt their personal values to agendas, sociotechnical contexts present unique complexities that require a more nuanced approach. This complexity is particularly evident in the mediating function of technology. Beyond conventional media such as journals, reports, and online posts, technology itself serves as both a medium and a carrier of values [49]. As a result, actors within sociotechnical systems engage in agenda-setting through different modalities. Designers do more than implement technical specifications; their design choices can help shape *ways of being* [13], configurations with moral significance. Even so, they are not the only influence, and the normative character of technological systems emerges across a network of actors, including designers, managers, regulators, marketers, and users [50–52]. Designers' role within sociotechnical systems generates tension between implementing external value priorities and expressing personal ethical commitments.

To navigate these tensions, designers and developers rely on norms that come from their professional roles within institutions. When people join technical fields, they find established practices shaped by by formal institutions and community practices. Professional organizations, educational programs, and regulatory bodies codify and transmit these expectations through training, certification, and codes of conduct. These institutionally defined role expectations shape how practitioners understand what matters in technology work. Over time, this institutional framework gives rise to professional values that connect broader social goals with personal beliefs. However, the way individuals engage with these values is not uniform; rather, their dispositions toward shared values vary depending on personal experiences, institutional contexts, and professional cultures. Grounded in these institutional structures, these values guide how designers and developers interpret and implement societal concerns within technological systems.

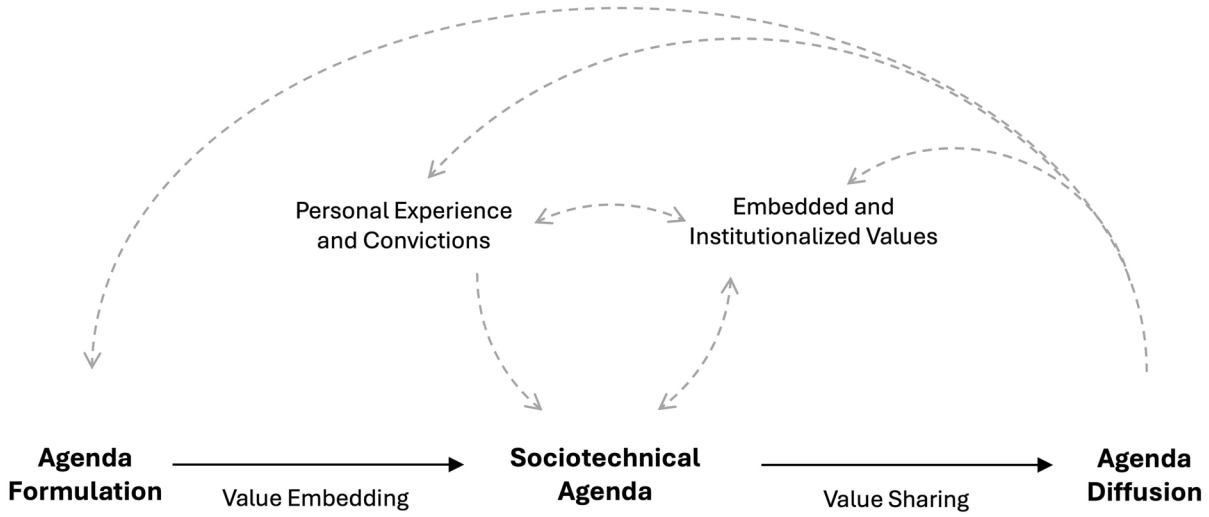

Fig. 1 Value Dynamics in Sociotechnical Agenda-Setting

In this institutional context, individuals are not passive recipients of predetermined value frameworks. They function as active agents who selectively engage with, critically evaluate, adaptively interpret, and strategically reconfigure normative priorities within specific institutional contexts. Figure 1 illustrates the dynamic relationships between sociotechnical agendas, personal convictions as well as existing values embedded within institutions and technologies.

This section explores how agenda-setting facilitates value sharing in sociotechnical systems. We begin by clarifying what "shared values" means in this analysis (3.1). Section "Institutionalized Professional Values as Mediating Structures" examines professional values as a bridge between sociotechnical agendas and personal convictions. Next, we discuss how agenda-setting mechanisms support the conditions for shared values: mutual awareness (3.3.1) and value adoption through cognitive, affective, and behavioral pathways (3.3.2). Finally, Section "Active Engagement in Value Sharing: Navigating Tensions and Conflicts" discusses how value tensions are navigated through individual engagement.

Conceptualizing Shared Values in Sociotechnical Contexts

Understanding how agenda-setting facilitates value sharing requires first clarifying what *shared values* means. If we understand values as "justified beliefs about what is valuable" [53], then shared values in technological development go beyond individually held beliefs that happen to coincide. As Tuomela [54] argues, a shared value requires mutual acknowledgment that others share this belief. Analogously, Lewis's [55] analysis of convention shows that mutual expectations, often modelled as common knowledge, are what stabilise individual attitudes into group-level patterns of coordination. We adopt a functional rather than aggregative conception: a value is shared not merely when individuals happen to hold it independently, but when it operates as a publicly recognized normative reference point that coordinates action across institutional boundaries.

In sociotechnical contexts, this functional conception of value sharing requires two conditions.

1) *Mutual awareness*: actors recognize that others in the relevant community also endorse the value, thereby transforming private endorsement into a publicly recognized commitment.
2) *Practical adoption*: the value actually guides decision-making, as shown by a willingness and commitment to act in accordance with it.

These conditions distinguish shared values from merely parallel individual beliefs: the awareness condition establishes mutual recognition, while the adoption condition ensures values actively guide technical decisions.

Such shared values typically operate at the meso-level, within professional communities, industry sectors, or regulatory domains, rather than at societal or individual levels. When we speak of values becoming widely shared, we refer to their institutionalization across multiple such communities, not universal adoption. This meso-level focus reflects the structure of technological development itself: innovations emerge from networks of specialized communities whose functional interdependence generates shared orientations toward coordination, even amid competing goals [33, 56].

Within such communities, shared values do not require unanimity. Following Gilbert's [57] analysis of collective commitment, a value functions as shared when it serves as the presumptive normative baseline in deliberations, such that those who reject it bear the burden of justification. This functional criterion avoids arbitrary quantitative thresholds while capturing the normative force that distinguishes shared values from mere statistical majorities. The approach aligns with Bicchieri's [39] analysis of social norms, which identifies two constitutive expectations: an empirical expectation that sufficiently many others conform, and a normative expectation that sufficiently many others think one ought to conform.

This functional account points to the practical significance of shared values. Value sharing enables coordination among diverse actors whose collaboration is necessary for complex sociotechnical systems; without some degree of alignment, the distributed decision-making that characterizes modern innovation would lack coherent direction. The adoption condition is particularly important here: values must be translated into concrete design choices, engineering specifications, and institutional practices, not merely acknowledged in principle. This coordinating function depends on institutional structures that cultivate shared normative orientations. Professional values, examined in the following section, provide precisely this infrastructure, establishing mutual reference points that enable collaborative problem-solving even when team members hold divergent personal convictions.

Institutionalized Professional Values as Mediating Structures

Sociotechnical systems operate within a complex landscape of pre-existing, institutionally established normative frameworks. These institutional frameworks shape research and development priorities directly [58] while simultaneously promoting specific values within professional communities [59, 60]. In technological development processes, various professional actors participate in distinct disciplinary roles, each with orientations rooted in personal and professional values. Personal values are individual subjective beliefs and priorities formed through personal experiences, upbringing, and cultural influences, while professional values, in this context, act as field-specific normative frameworks emerging from specialized practice communities and formally codified within established expert domains. These values vary across professional fields; for example, chemical engineers typically prioritize safety and environmental protection, whereas software engineers may emphasize reliability and security. Other stakeholders in technological ecosystems similarly adhere to discipline-specific value structures: policy analysts prioritize regulatory coherence and distributive justice; business analysts focus on efficiency and economic growth. Notably, a belief about what should be valued, such as safety or sustainability, may be held personally, institutionalized as a professional norm, or negotiated as a sociotechnical priority, with each context shaping its expression differently. When diverse professional communities converge in technological development projects, their differing value systems can generate tensions and potential incompatibilities. However, as these communities collaborate, they also create trading zones, spaces where professionals develop sufficient cross-disciplinary understanding to coordinate activities while maintaining their distinct value orientations [61].

The institutional grounding of professional values gives them unique characteristics that differentiate them from both abstract sociotechnical agendas and individual moral frameworks. Because professional values are established through formal mechanisms, such as ethical codes, professional standards, and specialized training, they provide a framework for coordination within a particular professional community rather than reflecting the broader, collectively negotiated priorities that define sociotechnical shared values across disciplines. Unlike personal values, professional values derive their legitimacy primarily from institutional authority, serving as structured

frameworks for coordination rather than mere aggregations of individual preferences.

This stable foundation is crucial in technological contexts, where complex systems demand coordinated responses to value-laden issues. In such settings, the interplay between distinct professional values and broader societal expectations ultimately fosters the development of shared sociotechnical values that guide collective action across different professions. When engineers, designers, and other specialists come together, they often bring different personal viewpoints that about which values should guide the work, which can generate friction [62]. Professional values provide specialized normative frameworks that, though not universally shared across all professions, establish sufficient communicative interfaces for coordinated action, creating communities of practice [63] with common understandings despite individual differences. Such shared professional frameworks establish the mutual reference points that enable coordinated technical decisions and collaborative problem-solving, even when team members hold divergent personal convictions.

Moreover, professional values like integrity and responsibility inform professional norms that guide how engineers translate abstract societal concerns into workable specifications [64, 65]. These values manifest through professional commitments such as responsibility to public welfare and technical competence. When translating privacy concerns, for instance, the professional value of respect for persons drives engineers to develop specific practices like data minimization and consent mechanisms [66]. While these professional frameworks aim to maintain both ethical standards and technical feasibility, this translation process often involves difficult trade-offs. Real-world constraints and competing priorities create tensions that professional values help navigate by offering structured guidance, though they cannot completely resolve all problems.

Pre-existing role-based values also connect personal moral convictions with emerging societal concerns in technological development. These professional frameworks help engineers and designers reconcile their individual ethical perspectives with new values that arise in evolving sociotechnical contexts. For example, when emerging privacy concerns in data-intensive technologies appear to conflict with a developer's focus on innovation, professional ethical principles provide structured ways to address both considerations [65]. This bridging function allows professionals to meaningfully engage with changing societal expectations even when these initially seem to challenge their personal value priorities.

From Awareness to Adoption: How Agenda-Setting Cultivates Shared Values

Through the mediating function of professional values described above, we can now examine how agenda-setting actively cultivates the conditions for values to become shared. While professional values establish the institutional infrastructure for value coordination, sociotechnical agenda-setting shapes which values gain prominence across multiple professions and disciplines. Through systematic prioritization and framing processes, agenda-setting cultivates the two conditions identified in Section "Conceptualizing Shared Values in Sociotechnical Contexts": mutual awareness and practical adoption.

These two conditions, as established above, distinguish shared values from merely parallel individual beliefs. The awareness condition establishes mutual recognition within sociotechnical systems, while the adoption condition ensures these values actively guide technical decisions across institutional boundaries. Professional values, shaped by institutional structures and practices, support both conditions by providing the frameworks through which diverse stakeholders can coordinate their understanding and implementation of values in technological development. Building on the previous discussion, we consider how agenda-setting helps translate abstract societal concerns into actionable priorities.

Mutual Awareness in Sociotechnical Agenda-Setting

Mutual awareness is essential for a value to function as a collective or normative force in sociotechnical development. While a group may accept a value in a distributed or emergent manner, with individuals independently adopting it, technological advancement typically requires structured coordination among multiple actors. Because innovation and infrastructure building involve collaboration across disciplines, institutions, and industries, the successful implementation and institutionalization of values in technology depend on achieving a shared understanding among

stakeholders. From the sociology of expectations [67, 68], one can infer that *beliefs* about the values embedded in future technologies serve as key drivers for shaping collective action and defining shared technological goals. In emerging fields such as artificial intelligence, biotechnology, and renewable energy, anticipatory discussions about ethical considerations shape research priorities, regulatory frameworks, and investment decisions.

Through the first level of agenda-setting, public and expert discourse can be directed toward specific values relevant to technology, increasing their visibility and salience. Through scientific journals, industry reports, policy papers, conferences, and digital platforms, stakeholders in technology ecosystems, such as researchers, engineers, and policymakers, can share perspectives, allowing concerns to gain institutional recognition and shape sociotechnical agendas. Institutional actors, such as government agencies, research institutions, and industry leaders, can further shape public attention by adjusting narratives about emerging technologies, influencing how certain values are framed and prioritized. Regardless of whether audiences fully agree with the rhetoric presented, repeated exposure to certain values within discussions on technological development reinforces their perceived importance. In this process, individuals rely on agenda-setting mechanisms to form an imaginative conception of the generalized other, aligning their perspectives with the perceived values guiding technological change.

Value Adoption and Sociotechnical Agenda-Setting

Technology developers and the broader public engage with sociotechnical agendas through similar cognitive, emotional, and behavioral processes. However, these processes take different forms depending on the institutional and knowledge contexts of technical communities. Understanding both the similarities and differences helps clarify how values are put into practice within specialized communities responsible for technological development, while also recognizing their ongoing connection to broader social processes.

The practical adoption condition identified in Section "Conceptualizing Shared Values in Sociotechnical Contexts" requires that individuals see a value as personally important, tied to their group identity, or crucial for their group's integrity; it also requires that they be willing and committed to act on it. Exposure to sociotechnical agendas can prompt individuals to either make or reaffirm such commitments. If their existing values differ from those emphasized in the agenda, they may reconsider their priorities and adopt new values. Conversely, if their current values align with those in the agenda, they may reaffirm their commitment. This section explores how the *cognitive*, *affective*, and *behavioral* effects of agenda-setting contribute to satisfying the adoption condition for shared values.

Cognitive Agenda-Setting: Shaping Perception

Scholars such as Wray [69] and Schmitt [70] argue that group justification for a belief emerges when members collectively accept rational reasons for it. However, as Lackey [71] notes, groups may sometimes accept flawed beliefs without sufficient justification. For shared values to be valid and stable, they must rely on a robust cognitive process based on evidence and collectively applicable reasoning.

The cognitive dimension of sociotechnical agenda-setting operates through two primary paths. The first is *cognitive salience*, which determines how frequently an issue is discussed and its perceived importance. The second is *cognitive perception*, which shapes how an issue is understood and how it influences decision-making [72]. Both processes can occur at explicit and implicit levels. Explicit cognition involves conscious reasoning and deliberate evaluation, while implicit cognition operates through automatic mental associations reinforced by repeated exposure. Individuals may internalize implicit biases about an issue without being fully aware of them, or they may consciously suppress their views due to social desirability bias [73].

Technology developers and the broader public exhibit both similarities and differences in how they cognitively process agendas. Both groups assess value salience through comparable mechanisms of attention allocation and frequency of exposure. However, technology developers typically employ additional cognitive frameworks derived from specialized training and professional experience. These frameworks constitute what has been termed "epistemic living spaces" [62] —socio-cognitive environments where particular approaches to understanding and evaluating technological issues achieve legitimacy

within professional communities. These specialized epistemic frameworks mediate how technical communities interpret and integrate values within development processes.

For example, when media coverage of lithium-ion battery failures systematically reconfigures cognitive salience across stakeholder groups, enhancing the accessibility of safety considerations within both public and professional discourse, technical practitioners typically contextualize these incidents within broader technical understandings of failure modes, industrial standards, and design parameters—cognitive frameworks less accessible to most non-specialists. This contextual integration demonstrates how shared cognitive concerns become differentially processed through specialized and general knowledge structures. Public trust in next-generation lithium battery research is largely shaped by media narratives that emphasize either breakthrough potential or environmental concerns. Technical communities, while not immune to these narrative influences, additionally engage with specialized literature that provides different contextual framing, creating potential cognitive divergences in how values are interpreted.

Lithium battery technologies occupy an environmentally advantageous position relative to mercury or lead-acid predecessors, while simultaneously holding strategic significance within global energy transition architectures and economic infrastructures. Policy discourse predominantly frames lithium technologies within circular economy paradigms and energy security considerations, effectively subordinating extraction-related environmental concerns through narrative construction. This strategic framing systematically restructures cognitive engagement with sustainability values across both technical and public domains, though with differentiated reception patterns reflecting distinctive epistemic positions and specialized knowledge structures.

Despite public concerns, researchers often express measured confidence in the sustainability of lithium batteries. In interviews conducted as part of a broader study still underway, several engineers involved in the development of these batteries noted that lithium reserves are still being explored and are expected to expand over time, particularly with the emergence of potential alternatives. One researcher cited the historical example of copper during the Industrial Revolution: at the time, there were widespread fears that rising demand for copper wiring would drive prices above those of gold. However, this concern never materialized, as alternative materials and technological innovations alleviated the pressure. Some researchers even pointed to current data suggesting that lithium supply is not yet a significant threat, emphasizing that the situation remains manageable in the near term.[1]

These expert perspectives illustrate how cognitive agenda-setting operates within technical communities. While public perception is often shaped by immediate media narratives and risk salience, experts tend to rely on long-term technological reasoning, economic models, and even historical analogies to assess sustainability. This cognitive differentiation stems not from fundamentally different psychological mechanisms but from the specialized knowledge frameworks and institutional positioning of technical practitioners. The resulting cognitive divergences create significant implications for how values become differentially interpreted and operationalized across technical and public domains.

Affective Agenda-Setting: Creating Emotional Resonance Despite the inclination of technology developers to rely on cognitive consideration, agenda-setting can also generate *emotional* relevance by establishing direct personal connections to an issue. When an event directly affects individuals through personal experience, social identity, or exposure to familiar contexts, this relevance intensifies a need for orientation [40]. For example, a fundamental value like safety can easily evoke emotional resonance between designers and those affected by the technology. When discussing battery risks, battery technology researchers express emotional concerns analogous to those articulated within public discourse, using vivid metaphorical language describing

[1] This analysis draws upon semi-structured interviews ($n = 15$) conducted with lithium battery researchers in China between May–August 2024. Participants were selected based on professional experience (minimum seven years in frontier research positions) and specializations including battery safety and recycling technologies. Interviews were conducted in Mandarin Chinese and subsequently translated by DeepL translator and the author(s). This research received ethical approval from the Human Research Ethics Committee at TU Delft. The paper based on the analysis remains under review at the time of this writing (Miao Y: Navigating Value Dynamics through Daily Work: Lithium-Ion Battery Developers in Energy Transition. Delft University of Technology. Manuscript under review).

batteries as potential "bombs" and emphasizing that they find certain risks "quite terrifying" (Miao Y: Navigating Value Dynamics through Daily Work: Lithium-Ion Battery Developers in Energy Transition. Delft University of Technology. Manuscript under review). While these concerns are articulated within technical discourse, they reflect fundamental human emotional responses to perceived danger that transcend the professional-public divide. These emotional responses function through similar social psychological mechanisms as a public concern, albeit expressed through the particular discursive conventions of technical communities.

Technology developers' emotional responses appear to parallel broader public concerns in significant ways. Both groups experience comparable psychological responses to perceived technological risks, particularly regarding safety issues. This commonality reflects shared human psychological mechanisms that transcend professional boundaries. However, important distinctions emerge in how these emotional responses are expressed and contextualized. Technical practitioners typically articulate their concerns through specialized discourse that simultaneously acknowledges emotional dimensions while situating them within technical problem-solving frameworks. Studies of lithium battery safety [74] document how safety engineers navigate the tension between acknowledging the catastrophic potential of thermal runaway events while methodically analyzing these phenomena through thermal abuse models and propagation control strategies. Their technical discourse explicitly acknowledges the "alarming" and "concerning" aspects of cell failure while simultaneously recasting these emotional responses within structured technical frameworks of analysis and mitigation.

Although technological communities access specialized information channels, they remain significantly influenced by broader media narratives that frame technological risks and benefits. As observed in [75], the boundaries between expert and public knowledge formation have become increasingly permeable, creating shared emotional landscapes around technological issues that transcend simplistic expert-public distinctions. Affective responses serve as a fundamental pathway through which values like safety acquire prominence and motivational force within sociotechnical systems, influencing how different stakeholders prioritize and respond to technological concerns.

Behavioral Agenda-Setting: Driving Actions As previously discussed, the integration of values within sociotechnical systems necessitates their translation into concrete behavioral manifestations, particularly within professional technological communities. While psychological acceptance constitutes a necessary precondition for value operationalization, the distinctive institutional positioning of technical practitioners creates specialized behavioral pathways through which values achieve *material* instantiation. Agenda-setting mechanisms enhance the cognitive accessibility of specific normative considerations, thereby increasing their behavioral salience within technical decision frameworks [76, 77]. The second-level agenda-setting further shapes behavioral outcomes by implicitly prescribing particular technological solutions, thereby structuring the action parameters available to professional communities.

Policy incentivization mechanisms systematically reconfigure professional attention frameworks toward specific normative priorities, functioning as what van Lente and Rip [78] identify as prospective structures—institutional arrangements that direct technical practice through both resource allocation and discursive legitimation. When emerging technologies receive consistent framing as "inevitable" or representing "the future," this narrative construction creates powerful professional expectations that restructure research priorities and technical specifications within practitioner communities. Tesla's strategic positioning of lithium battery electric vehicles as "luxury tech" exemplifies how market framing systematically reconfigures engineering design priorities across professional communities before affordability emerged as the central development imperative [79]. Additionally, professional technological practitioners respond to and reshape sociotechnical agendas through reciprocal exchanges between specialized technical domains and broader public discourse.

Active Engagement in Value Sharing: Navigating Tensions and Conflicts

The development of a sociotechnical agenda can be characterized as a process in which values come to be shared. This does not mean, however, that there is a consensus on values. In fact, individuals may be guided by a plurality of value sets that are not

necessarily aligned with each other. One of the underlying reasons is that people inhabit different spheres of life, and each of these spheres may have its own moral demands. The separation between these spheres of life is not absolute, so values from one sphere may easily spill over to another.

Most clearly, this can be observed in cases where professional values and personal values clash. But the situation may become more complicated, as has particularly been examined in political theory. Professionals working in the public sector, such as politicians and administrators, may face situations where they must make decisions that align with their professional obligations but conflict with their personal understanding of what constitutes public interest or public values [80, 81]. For instance, civil servants may need to follow rules that they think are in conflict with the public interest, because they are discriminatory or unfair. In general, professionals in public office are expected to sidestep their convictions as it is their democratically authorized role to act in line with demands imposed upon them, but with regard to their role conceptions, there may be occasions in which professionals are legitimized to be disobedient because bureaucratic orders conflict with the need to serve the public interest [82].

What we see here is that professionals working in the public sphere may have to cope with conflicts between values that are bestowed upon them in the form of commands, public perceptions or personal convictions. This sketch implies that the institutional context in which a person works may give rise to conflicting value sets. In the context of technology development, it can even be inferred that professionals have to deal with several institutionally grounded value sets. The reason for this is that technological developments cross the boundaries between the context of the market, the state, and science [83], in the sense that new technologies need to comply with societal well-being, economic competitiveness and standards of expert knowledge.

The institutionalization of values in sociotechnical systems is not a one-way process dictated by agenda-setters and passively received by audiences. Rather, it depends on how individuals engage with and mediate these values within their professional and institutional contexts. Even when institutional agendas promote specific values, their adoption and reinforcement rely on how individuals interpret, adapt, and integrate them into practice.

Rather than passively accepting institutional values, individual researchers and engineers actively mediate between personal convictions, ethical responsibilities, and organizational expectations. In this process, they function not only as interpreters of institutional value dynamics but also as agents of transformation. While they adopt sociotechnical agendas, they simultaneously influence institutional norms through their professional commitments.

Borup et al. [67] observe that technological practitioners frequently operate through expectations, which are future-oriented interpretations that shape research agendas and innovation trajectories. However, these expectations often remain unexamined, as practitioners do not always critically reflect on how their own projections mediate between scientific, political, and economic interests. Fisher and Mahajan [84] highlight how this can lead to implicit biases in decision-making. For example, battery researchers may unintentionally prioritize performance metrics over environmental considerations by embedding specific assumptions into their experimental designs and parameter specifications.

This mediation process not only affects how individuals reconcile their personal values with institutional commitments but also plays a key role in shaping the evolution of sociotechnical systems. Pinch and Bijker's [85] work on the social construction of technology illustrates how the way technical practitioners interpret technological artifacts also influences the normative frameworks through which these artifacts are evaluated.

As a result, individuals do not simply express personal values or conform to sociotechnical agendas. Instead, they strategically engage with institutional expectations, navigating sector-specific constraints while actively shaping the norms that define their professional environment.

Ethical Considerations in the Impact of Agenda-Setting on Value Sharing

The preceding analysis of how agenda-setting facilitates value sharing, however, presupposes that the values being shared are themselves worthy of coordination. On a Deweyan view, value judgments are

warranted only when they address problematic situations through disciplined inquiry into conditions and consequences [10]. By contrast, values that are merely inherited, imposed, or specified without regard for those affected may still sustain de facto value sharing, but they lack the contextual adequacy and transparent justification required for normatively legitimate coordination in design and governance [10, 86]. Shared values in sociotechnical systems should therefore remain open to challenge, revisable in light of new evidence, and responsive to those affected by technological outcomes.

With this precondition in view, this section examines challenges that emerge when agenda-setting processes shape technological trajectories in ethically problematic ways. While a comprehensive treatment of material dimensions would require further examination, this section emphasizes how agenda-setting shapes mental frameworks, perception, and value formation that guide technology development. These challenges have significant implications for how technological trajectories respond to diverse societal needs.

The theory of agenda-setting implies that there is no neutral way of framing issues. Agenda-setting always makes certain elements more salient while downplaying others, which means it is inherently value-laden. Simply describing an issue already implies an emphasis on its importance, not to mention that specific narratives often involve rhetorical choices, selected attributes, and particular frames that further reinforce certain perspectives.

Still, we cannot do without framing as information would otherwise fail to capture public attention, making it difficult for people to understand why an issue matters. As Lakoff [87] points out, "The facts must make sense in terms of their system of frames, or they will be ignored." Moreover, agenda-setting contributes to the establishment of shared values that allow the maintenance of social cohesion and stability. That said, there are still concerns about how sociotechnical agendas are shaped, which will be briefly examined here.

The Imbalance of Attention Distribution

One major concern is the uneven distribution of attention—both over-coverage and under-coverage of certain issues can distort development priorities and resource allocation. Agenda-setting highlights salient issues, which inevitably shape what the public focuses on. In the context of the attention economy, where attention has increasingly become a scarce resource, this becomes particularly important. While individuals may expand their own attention span by carefully selecting their media exposure, at a societal level, the total amount of attention available at any given time is limited. How attention is allocated directly influences how other social resources are distributed.

For example, media representations of emerging technological risks frequently exhibit asymmetrical patterns of attention. A case in point is synthetic biology applications. According to Frewer et al. [88], media coverage of synthetic biology risks exceeded that of comparable agricultural technologies, despite similar or lower objective risk profiles according to expert assessment panels. This representational asymmetry resulted in measurable distortions in public risk perception. Furthermore, public discourse often neglects chronic, distributed risks, such as the cumulative environmental impacts of resource extraction processes required for technological manufacturing [89, 90]. This pattern of attention allocation privileges certain normative considerations in technological governance while systematically marginalizing others, thereby shaping policy priorities and influencing the allocation of resources in technological development trajectories.

Problematic Justifications in Agenda-Setting

Values, understood as justified beliefs embedded within normative frameworks, require epistemic and social validation mechanisms to enable coordination across heterogeneous actors. As established above, legitimacy has two dimensions: the values themselves must be warranted in the relevant context, and the processes through which they become shared must meet appropriate normative criteria. Through selective emphasis and interpretive framing, agenda-setting can function as a justificatory mechanism that facilitates the transformation of contingent normative claims into shared values. When functioning optimally, these processes contribute to coherent sociotechnical value systems, enabling coordinated collective action. However, they become problematic when they systematically distort the epistemic conditions necessary for authentic value formation or undermine

legitimate deliberative processes. This section examines three concerning patterns: power imbalances that restrict legitimate value diversity, manipulative practices that bypass rational deliberation, and self-reinforcing misunderstandings that distort authentic preference formation.

Power and Coercion in Agenda-Setting

Some agenda-setters, such as funding organizations and regulatory bodies, may leverage their power, resources, or social status to push an agenda that limits public choice or suppresses alternative perspectives. While all agenda-setting inevitably prioritizes certain perspectives over others, ethical concerns arise when powerful actors intentionally restrict meaningful alternatives that should remain available or when they close down choices that serve the public interest but conflict with their objectives. This represents what Bozeman and Sarewitz [91] identify as "public value failures" in science and innovation policy.

For example, researchers may align with certain industry-driven research agendas not because they find them meaningful, but because funding structures leave them with little choice. While they appear to be making independent decisions, their choices are actually shaped by institutional pressures. Such dynamics do not just undermine personal freedom and autonomy; they can also lead to frustration, resentment, and even fear, ultimately eroding social trust and cooperation. Of course, in certain cases, legal and policy interventions with enforceable authority can be justified. Laws, regulations, and policies inherently have a degree of coercion, but this is sometimes necessary for public safety and social order. However, the key question remains: when does agenda-setting cross the line from necessary guidance to coercion?

Psychological Manipulation and Subliminal Influence

To ensure that an agenda goes as planned, some actors may intentionally manipulate perception in ways that can threaten autonomy as seriously as explicit coercion. Unlike overt pressure, psychological manipulation often works on a subconscious level, making it harder for individuals to recognize and resist. For our framework, such influence can weaken the connection between observed value sharing and genuine endorsement. If the cognitive, affective, and behavioral pathways through which values are adopted (Section "Value Adoption and Sociotechnical Agenda-setting") can be systematically exploited, then apparently "shared" values may reflect manufactured consent rather than genuine convergence. In what follows, we consider three examples from the psychology of judgment and decision-making that show how value adoption can be shaped without explicit coercion.

First, based on network agenda-setting, affective priming can pair technologies with emotional cues that shape attitudes before conscious deliberation occurs. Studies indicate that emotive responses can precede and impact cognitive judgements [92, 93]. Strategic communicators can take advantage of this by framing technological concerns in ways that evoke specific emotional responses, such as fear regarding competitors' technologies or enthusiasm for one's own, before substantive evaluation occurs.

Second, availability manipulation affects which events and outcomes stand out the most to stakeholders, because people assess risks partly based on how easily relevant cases come to mind [94]. This means that selective emphasis on certain outcomes, such as spectacular accidents, can alter or even distort value priorities. Intense media focus on lithium battery fires, for instance, can make that hazard appear central while diverting attention from less vivid but equally important risks [95].

Third, framing asymmetries occur when similar information is presented in ways that elicit different responses. Describing a technology as "95% safe" versus "5% failure rate" activates different frameworks despite conveying identical information [96]. Sophisticated actors can exploit such effects to influence how stakeholders weigh options without changing substantive facts.

These possibilities do not invalidate our framework but complicate its implementation. Analysts cannot simply observe what values are emphasized in sociotechnical discourse and conclude that these represent authentic stakeholder priorities. Critical evaluation must examine who benefits from certain framings, whether alternative framings have been marginalized, and whether value adoption reflects considered judgment or conditioned response. This implies that investigation should go

beyond discourse analysis to include direct engagement with diverse stakeholder groups, particularly those whose perspectives may have been excluded from dominant framings. The cognitive, affective, and behavioral paths discussed in Section "Value Adoption and Sociotechnical Agenda-setting" are thus not merely descriptive categories but sites of potential dispute that require normative scrutiny. More fundamentally, the possibility of manipulation blocks simple inference from "shared" values to legitimate values, suggesting that the processes through which sharing occurs are as normatively significant as the outcomes they produce.

Self-Reinforcing Misconceptions and Pluralistic Ignorance

Another issue is that misunderstandings between different parties can lead to unintended distortions, even when there is no deliberate manipulation. Similar to pluralistic ignorance, where individuals wrongly assume that others in their group hold different beliefs and adjust their behavior to conform, agenda-setting can sometimes amplify misunderstandings rather than resolve them.

For example, users may not actually prioritize having extremely large battery capacities in their electronic devices, but manufacturers still promote high-capacity batteries as a key selling point, assuming that this is what consumers value most. At the same time, users may accept this framing without questioning it, assuming that larger battery capacity must be an important feature because manufacturers consistently emphasize it. As a result, both sides misinterpret each other's stance, reinforcing market trends that may not truly reflect user needs.

In addition to failing to create a genuine shared understanding, these self-reinforcing misconceptions illustrate how agenda-setting processes can undermine individual autonomy and value authenticity. The processes can override people's authentic values and preferences, replacing them with externally imposed frameworks that do not reflect their genuine needs or experiences. This constitutes a form of disrespect for individuals as autonomous moral agents. Over time, such distortions can shape technological trajectories in ways that do not necessarily match actual user preferences or societal needs, making it even harder to identify and address genuine concerns in technology development.

Conclusions

Sociotechnical agenda-setting is a central mechanism through which values become embedded, transmitted, and institutionalized within sociotechnical systems. It operates across overlapping communities of practice that bring together technical, governmental, commercial, and civil society actors. The interactions among these groups generate complex and often indistinct institutional boundaries. Agenda-setting does not merely mirror existing normative frameworks; it shapes how shared values emerge, change, and are put to work in technological practice.

The framework developed here offers several contributions for researchers and practitioners:

First, as a descriptive instrument, it distinguishes three interrelated levels: elevating issue salience, framing attributes, and forging network connections. This three-level structure reveals how agenda-setting structures value systems through cognitive, affective, and behavioral mechanisms.

Second, as a diagnostic tool, the framework supports assessment of whether value-sharing processes meet normative criteria. The identified conditions for value sharing (mutual awareness and practical adoption) and the risks that undermine it (power imbalances, manipulation, and self-reinforcing misconceptions) stand alongside these descriptive mechanisms. Together, they provide a foundation for empirical investigation into whether observed value convergence reflects authentic endorsement or distorted consensus. In doing so, the framework provides analytical tools for examining how shared values are organized across institutional boundaries and for extending agenda-setting analysis beyond media and policy studies to knowledge-production contexts such as technical reports and research papers.

Third, as a guide for intervention, the framework identifies entry points at three levels. Communication can raise issue visibility and build mutual awareness through repeated reporting. Participation in indicator and metric design, reporting guidelines, and evaluation criteria can shape interpretive frames by defining

what is measured, compared, and treated as credible performance [32]. Cross-sector initiatives can reconfigure relationships across actor groups and strengthen network ties that stabilize shared expectations and support practical adoption. Together, these interventions reinforce one another and connect issues and beliefs into structured value systems. Further empirical work is needed to explain how value systems interact and influence one another.

Taken together, these contributions show that sociotechnical agenda-setting can both support and distort how values are shared and prioritized. In practice, different stakeholder groups, such as designers, policymakers, and user communities, often prioritize divergent agendas shaped by their institutional roles and social positions. Professional values, grounded in specific disciplines and institutional norms, play a key role in mediating these agendas, serving as shared frameworks that bridge individual convictions and broader sociotechnical priorities. Nonetheless, conflicts between distinct professional communities can emerge if their value frameworks diverge, and hidden tensions may persist between public values and technical priorities. Inclusive and transparent agenda-setting processes can help address such tensions. They can foster interdisciplinary collaboration across professional boundaries, thereby contributing to the development of shared values and supporting mutual understanding among societal actors.

Designers, users, and policymakers must actively navigate these tensions, ensuring that technological agendas respect both individual autonomy and collective well-being. Without this balance, technology development may fail to reflect the diverse needs of society. This leads to a key question: how should sociotechnical agenda-setting be better structured to serve shared societal goals? While agenda-setting can enhance group cohesion and guide technological progress, it also carries risks. Power imbalances, selective framing, and psychological influence can distort public perceptions and push certain values in ways that do not always serve broader ethical principles or public interests. To ensure responsible technology development, future research should focus on creating more transparent and inclusive agenda-setting processes that reflect diverse stakeholder perspectives.

Building on these insights, we call for future empirical research into the dynamics of value sharing and conflict across sectors, with a specific focus on the mechanisms through which interdisciplinary collaboration can mediate these tensions. Practitioners and policymakers, in turn, need to offer clear, evidence-based justifications for every agenda-setting choice, including criteria for issue selection, the rationale for framing decisions, and the processes for including diverse voices so as to guard against power imbalances and hidden value biases. By resisting closed-door decision-making and embedding transparency and stakeholder deliberation into agenda processes, we can better coordinate technical priorities with public values, produce more equitable and socially responsive innovations, and enrich our empirical understanding of how shared values take shape within complex sociotechnical systems.

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