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**The Role of Hybrid Spaces**

# From Secrecy to Public Containment: The Role of Hybrid Spaces in the Governance of Nuclear Crises in France

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How do some large-scale adverse events receive major media coverage and become crises for public actors while others are treated as routine events? This article reinvestigates this question based on a case study of the media treatment in France of the Chernobyl and Fukushima nuclear accidents. Drawing on an original set of media data and an ethnographic study, the article shows how both accidents were subject to forms of opacity that limit their effects on nuclear institutions: Chernobyl has been treated through secrecy that leads to contestation of nuclear institutions, whereas Fukushima has been characterized by "public containment," relying on extensive publication but low-priority and uncontroversial narratives that do not reflect the stakes of a given policy field. This paper explains the role of Fukushima in France through institutional transformations that public actors engaged in following Chernobyl to reestablish the credibility of public information sources and to monitor public debates over nuclear accidents by developing "hybrid" spaces, located at the interface of organizational frontstages and backstages. This case shows how responding to transparency demands may sometimes create new forms of opacity by reducing the epistemic quality of public debates while containing political crises.

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Government and institutional actors attempt to gain and maintain control over adverse outcomes and crises through diverse strategies. They sometimes strategically fuel short-term crises and enact symbolic politics, which ultimately preserves long-term government patterns of a specific policy area (Allan, Adam, and Carter 2000). Most often, such strategies aim to reduce the public importance and political relevance of events to avoid turning them into crises for public officials (Alexander 2018; Gunter 2005; Ungar 1998). Public communication and disclosure or withholding "uncomfortable" information (Rayner 2012) are key components of such strategies. Although transparency and accountability demands have increasingly challenged the withholding of information during crises as well as in "normal" times (Castells 1996), secrecy has not disappeared from public action (Cohen 2010; Lester and Hutchins 2012). However, the precise relationship between government crises and different forms of secrecy in public action remains understudied. This paper shows how public actors may respond to transparency demands as a means of addressing crises and limiting their effects on existing institutions while creating new forms of opacities[1] on public action.

The nuclear sector is particularly relevant for studying the role of different forms of opacity in politics and their interactions with crises. Nuclear accidents such as Three Mile Island in the US (1979), Chernobyl in the Ukrainian Soviet Socialist Republic (1986), and Fukushima in Japan (2011) have repeatedly led to political controversy, policy changes, and institutional reform. In some countries, nuclear accidents played a major role in the disappearance of the nuclear sector. France, which has the highest share of nuclear energy in electricity production in the world (roughly 70% against 20% in the US) and the third largest producer of nuclear energy after the US and China, is highly dependent on nuclear energy. Despite large-scale anti-nuclear protests in the 1970s and enduring contestation from civil society actors (Topçu 2013), French governments have shown continued political support for nuclear energy. In this context, large-scale nuclear accidents are seen as a political threat to nuclear energy and its institutions (Arnhold 2021).

This interpretation of nuclear disasters is also grounded in the historical experience of the Chernobyl disaster and its aftermath in France. Chernobyl was managed by a "government through secrecy" (Topçu 2013) over causes and consequences of the accident. This strategy arguably helped to prevent more far-reaching contestation of nuclear energy by focusing protest mainly on institutional questions of transparency and democratic participation (Topçu 2013). Chernobyl also gave rise to a crisis of the governance of nuclear energy in this context, portrayed as "opaque" and "undemocratic" and challenged based on the motive of a "State lie" in France of hiding and minimizing the effects of Chernobyl (Kalmbach 2014; Liberatore 1999; Topçu 2013). In contrast, the public debate in France following the Fukushima accident did not lead to a comparable political controversy nor governmental crisis (Brouard and Guinaudeau 2017; Arnhold 2019, 2021). Public authorities remain dominant and legitimate information sources for the accident, and their narratives on Fukushima have not been challenged.

This paper examines the particular role of Fukushima in France through the lens of the long-term institutional transformations that public actors employed after Chernobyl, attempting to reestablish the credibility of public information sources and monitor public debates over nuclear accidents to address potential future crises. These strategies required coping with a changing geopolitical context of nuclear energy as well as a changing media environment that led to attempts to manage it differently than Chernobyl. This paper also investigates the effects of these strategies on media debates in Fukushima. Regarding data collection, this study relies on archival research and an ethnographic study of the governance of nuclear accidents in France, composed of semi-structured interviews and direct observation. In addition, it presents an original set of media data of the Chernobyl and Fukushima coverage, stemming from two dominant French media formats for nuclear energy coverage: the newspaper *Le Monde* and the public TV evening news from *France 2*.

Crises are both discursive and organizational phenomena, which may lead to reputational damage, claims for policy change by challenging actors such as social movement organizations (SMO), and to the break-up of ordinary structures regulating the division of labor and boundaries separating differentiated sectors of society (Dobry 2009[1986]). The media are a specifically important actor in crises because they not only "interpret" events, but "produce" them together with non-media actors (Molotch and Lester 1974). Media organizations have the power to amplify or reduce crises by relating adverse outcomes to the specific institutional logics of the "public sphere" (Alexander 2018), where accidents may become a matter for broader social and political principles and values (Gilbert and Henry 2012).

This perspective fails to account for the ways in which some large-scale adverse events that become public and receive extensive media attention do not become crises for public actors. This paper shows that this is partly due to the binary view between "publicness" and "privateness" on which most crisis studies rely, regarding both relevant discourses and organized spaces that participate in their emergence. Regarding public discourse, recent public problems and media studies have shown that the public sphere is not a homogenous space but one in which multiple types of discourses coexist, ranging, for example, in the case of media coverage from political, salient coverage directed to general audiences to highly specialized or "technicized" forms of coverage (Best 2010; Johnston and Bartels 2010).

On the subject of organized spaces, most studies on crises and government action distinguish between public spaces (public official meetings, declarations to the press) and private spaces (government cabinets, informal secret meetings), according to a theoretical perspective that can be understood in terms of a Goffmanian boundary between a frontstage and a backstage of public action (Alexander 2018; Baumgartner and Jones 1993; Cohen 2010; Elster 1998; Goffman 1990[1956]; Jay 2012; Mallard 2014). This paper aims to broaden this view by considering wider actor configurations and a more comprehensive set of organized spaces that participate in the publicization of information on adverse outcomes. This requires examining the production (government and industry actors) and the reception-side of public discourses (journalists, alternative claims'

makers), as well as their interactions, studied in the sociology of journalism under the lens of relationships to sources (Gans 2005).

Revisiting the Goffmanian distinction between the frontstage and backstage in public action allows for theorizing a broader range of intermediary spaces according to their different degrees and forms of "publicness." Organized spaces can be conceptualized according to the ways in which they allow different front- and/or backstages to interact. "Definition struggles" in public or media spaces (Gusfield 1996) refer to interactions between actors' frontstages; secret negotiations can be defined as interactions between backstages. In addition, this framework defines a range of "hybrid" spaces in which the front- and backstages interact. Government agencies' non-public information commissions are one example. They bring together agency frontstages (e.g., communication by public relations departments) with SMO's and journalists' backstages (collection of information to be used in public reports and articles).

Based on this theoretical framework, the paper describes French government actors' strategies to regain trust in official information sources and monitor public debates in reaction to Chernobyl. They invested in the development of hybrid spaces as a means of reducing political controversy about adverse events and preventing similar government crises in the future. Hybrid spaces allow public actors to maintain control over the conditions of communication and reception of information on "uncomfortable" matters and to establish interdependencies with journalists and alternative claims' makers. This paper also finds that these strategies, aiming to respond to transparency demands, contribute to the production of a new form of opacity on nuclear matters, which can be described as a public containment, referring to the existence of public information and narratives, but which do not reflect the stakes, conflicts, and problems faced by public actors.

## Secrecy and transparency in crisis: Conceptualizing public containment and hybrid spaces

Secrecy has been described as one of the central ways in which government actors address adverse outcomes and attempt to reduce their potentially critical effects on policies and government institutions (Lester and Hutchins 2012). In the nuclear energy sector, the prevalent role of secrecy has been described as part of a wider "containment culture" (Jasanoff and Kim 2009), referring to a government paradigm of adverse outcomes relying on non-public spaces with restricted access. Radioactive particles, information, discourses, expert judgments, and political choices must be contained in order not to "leak" into the public sphere and reveal the dangers and sometimes catastrophic health and environmental consequences related to nuclear activities (Brown 2017; Kinsella 2001; Kuchinskaya 2014). Historically, the origins and persistence of secrecy in the governance of nuclear energy can be explained by its central state relevance for geopolitical and military reasons (Roehrlich 2016; Arnhold 2021). Chernobyl took place during the Cold War, and at a time in which geopolitical competition and anxiety over nuclear technologies were central. Nevertheless, the degree to

which government actors attempted to hide uncomfortable information related to Chernobyl as well as the effects of these strategies vary greatly across different countries (Topçu 2013).

With rising transparency demands across different sectors and in nuclear energy specifically (Castells 1996, Barthe 2006), the changing context of operating civil nuclear energy on a global level, as well as changing media landscapes, have constrained government and industry actors to reform the modes of governance of nuclear energy. In the context of the diversification of energy policies in Europe in the 1990s and the global backlash to newly built nuclear facilities in the aftermath of Chernobyl, the maintenance of nuclear energy had to be publicly justified. In addition, media formats and spaces started diversifying, regarding both the types of discourses propagated in the "public sphere" and the actors who participated in their production (Boczkowski 2010). These transformations question some of the foundational mechanisms of public problem studies and media sociology, such as the "elite bias" hypothesis (Best, 2010). Particularly in crises, government officials may be confronted with an increasing diversity of media formats, as well as alternative claims' makers, and compete with both traditional and new media actors to gain dominance in definition struggles (Glazier and Boydstun 2012; Gonen 2018; Gunter 2005; Ungar 1998). Complete withholding of information has become difficult in many cases.

In this context, the literature on public policy and political communication in nuclear energy has moved toward studying a broader range of nuclear opacities. The term opacity is used here in relation to diverse mechanisms, including unintentional institutional outcomes that lead to the non-disclosure of information, narratives, or problems related to public action in a particular policy field. Many studies have focused on the characteristics of public discourses on nuclear energy, going beyond concealment toward a greater attention to the control over public meanings of contested issues through the construction of rhetorical boundaries as in the case of "discursive containment" (Kinsella 2001), or the presence of minimizing discourses on Fukushima and the risks related to nuclear energy in public and media spaces (Kepplinger and Lemke 2016; Pascale 2017; Schweitzer and Mix 2018, 2021).

Apart from one study on the public debates following Fukushima in Japan, where forms of "institutional capture" that have contributed to silence alternative claims makers on the accident in public are investigated (Dreiling, Lougee and Nakamura 2017), previous studies have largely failed to elucidate the conditions under which minimizing discourses become prominent in the public sphere and remain relatively uncontested even in the face of a major adverse event. Indeed, they are restricted to the analysis of public discourse, without investigating the backstage production and trajectories of these narratives. Looking at non-public spaces allows us to show that minimizing discourses cannot be explained only by the general tendencies of the media to reproduce narratives that resonate with cultural contexts or dominant organized interests in France, as many previous studies claim (Kepplinger and Lemke 2016; Schweitzer and Mix 2018; Pascale 2017), but are the result of longer term processes of social learning of dominant government actors and sometimes strategic investments in

new institutional solutions that aim to reduce the threat of political crises in the aftermath of adverse events.

Previous studies on nuclear weapons diplomacy take negotiations in non-public spaces into account and investigate the conditions under which different forms of nuclear opacities prevail over time (Cohen 2010; Mallard 2014). Opacity here refers to the existence of shared understandings of an issue in non-public spaces that differ from public versions of the story. These dual discourses facilitate agreements between negotiators backstage while attempting to construct acceptable public narratives on the same issue in the face of controversy and evolving public demands. Such forms of opacity tend to show that although ambiguous discourses can be a long-term resource, maintaining secret understandings and preserving "open secrets" or outward lies may also be costly strategies in the long run, as they require multiple resources to preserve boundaries between inside and outside discourses and actors. Interestingly, these studies conceptualize opacities based on a Goffmanian distinction between a public frontstage and a non-public backstage of nuclear diplomacy. These authors do not directly study interactions between producers of discourses and their "audiences" (Hilgartner 2000). These relations may alter the durability conditions of different forms of opacity by anchoring their principles in institutional arrangements that span across public and private spaces.

Studying a wider spectrum of degrees and forms of publicness and privateness can enhance our knowledge of patterns of continued nuclear opacities but also contribute to understanding the conditions in which adverse events may turn into crises for government actors. Beyond the dual models of crises resulting from public outbreak or attention to an event, this paper shows how the extent to which an adverse event of a specific policy area spills over into a more general government crisis depends centrally on the organization of the interface between sector-specific non-public spaces of government and institutions of the public sphere. By institutions of the public sphere, we mean both alternative claims' makers mobilized on a specific policy sector with access to public spaces (SMO, scientists, industry organizations) and actors who produce content in public and media spaces (e.g., journalists). All these actors operate as central relays, intermediaries, or contestants of official information in the case of an adverse event.

Hybrid spaces may be diverse formal and informal *non-public* spaces allowing for official government actors' frontstages to interact with SMO and alternative claims' makers, as well as media actors' backstages. One example is regulatory and information commissions, bringing together public safety authorities, ministerial representatives, and industry actors with SMO, independent experts, and occasionally journalists. These organized spaces are mainly studied in the literature under the lens of interactions between experts and laypeople (Callon, Lascoumes and Barthe 2001). Studies on the nuclear sector often show how social movement actors become coopted or "governed" through participatory or transparency mechanisms (Kimura 2018; Polleri 2020; Topçu 2013).

Following a complementary approach, this article investigates the role of hybrid spaces in how adverse events turn into crises, which requires investigating

their hybrid publicness, both in terms of the actors who participate in them, and the status of information exchanged. Although this exchange takes place in a non-public space, all actors are aware that the information is likely to be made public. Their non-public character and continued direct interactions lead to the establishment of interdependencies between official information sources and their audiences and to the development of institutional arrangements on the ways in which the exchanged information may be used in public. Public actors rely on these spaces to reduce the potential costs related to the enactment of transparency demands and greater publication of information by exerting some control over meanings that may be attached to uncomfortable information in public.

Because of this mechanism, crises may be enhanced in configurations where public policies in a specific sector rely mainly on backstage and frontstage spaces without intermediation, because alternative claims' makers may benefit from adverse events as a political opportunity to contest how to govern a specific sector. In contrast, the existence of hybrid spaces and related interdependencies between organized actors in a specific policy area is likely to reduce the scope of crises related to adverse events and favor routine coverage in public.

This article contributes to the study of mechanisms through which investments in transparency enactment create new forms of opacity on public action. Beyond the generally optimistic view of transparency (Favotto and Kollman 2021; Mizrahi, Vigoda-Gadot, and Cohen 2021), it is important to further investigate empirically how powerful institutional actors invest in transparency as an opportunity to develop new ways of monitoring public debates (Ruijer et al. 2020). Public containment is one way in which such strategies may play out, relying on the flooding of the public space with low-key and expert-based narratives, accompanied by investment in hybrid spaces to contextualize public discourses. Studying such mechanisms requires investigating public debates based on qualitative indicators in addition to mere public availability of information (Benson and Saguy 2005; Best 2010) and being attentive to the ways in which more information may lead to a reduction in the epistemic quality of public debates, similar to the approach adopted in studies in the sociology of ignorance (Frickel and Moore 2006; Proctor and Schiebinger 2008). More specifically, several authors have highlighted the tensions that may exist between the willingness to develop "better-informed" public debates and the political process that also requires the availability of political alternatives and may arguably benefit from diversity of claims surrounding a particular issue (Elster 1998; Jay 2012).

## Methods: Jointly investigating public and non-public spaces

Owing to a state-funded research project bringing together researchers and nuclear safety actors, the author was able to undertake ethnographic fieldwork (2013–2017) and participate in non-public regulatory spaces. The author conducted 100 semi-structured interviews with public authorities (safety authority ASN, expert organization IRSN[2], government departments), industry (operating company electricité de France (EDF) and Areva), critical experts

and SMO, and journalists from the press and television. Interviews lasted between 90 and 120 minutes. Questions asked concerned both the direct implication of interviewees in the aftermath of the Fukushima accident and longer term transformations of the nuclear sector. Many interviewees had first-hand experience from their work in the nuclear field in the aftermath of Chernobyl. Interviews were conducted in French and transcribed. This work was completed through the analysis of institutional documentation and archival research on both accidents. Twenty days of direct observation allowed the author to study backstage relations and negotiation practices. The local and national information commissions locales d'informations and association nationale des comités et commissions nationales d'informations (CLI and ANCCLI) of the regulatory bodies that bring together representatives of operating companies, and regulators with local politicians and NGOs are particularly relevant for this study. Moreover, regular exchanges between researchers and field actors in project meetings allowed for basic familiarity and informal information-sharing on backstage processes. The fieldwork was, however, always non-participant and for research purposes only. The analysis of the interview and observation data was done in an iterative process, until reaching saturation. Quotes in this article are the author's translations.

A targeted media analysis allowed us to investigate two events that lie nearly thirty years apart. Datasets comprising multiple media formats were not suitable because they would mainly reflect the transformations of the French media. The newspaper *Le Monde* and TV evening news of the public channel *France 2* were chosen because their format and carrying capacity remained constant over time. *Le Monde* has an agenda-setting role in the journalistic field. Its content on nuclear energy is systematically taken up by other press and TV news providers (Blanchard 2010). The sample comprises all news stories (April 26, 1986—May 31, 1988; March 11, 2011–April 30, 2013) that contained the words "Chernobyl" or "Fukushima" in the headlines or full text. Data collection for *Le Monde* drew on the Europress database, controlled by a systematic verification with the printed newspaper (1700 articles). For *France 2*, data were obtained from the INA[3] database (277 TV sequences), which contains headlines and descriptions of all sequences, including topics covered, names and affiliations of the individuals who participated in the program, statements of journalists and guests, and descriptions of the images.

## Analysis and coding

Our media analysis relies on indicators from public problem research (Gusfield 1989; Kitsuse and Spector 1973) to qualify the coverage and assess the degree to which both accidents were treated as crises rather than routine events (see Table 1). The degree of available information (*abundant/scarce*) and the importance given to an issue (*high significance/low significance*) indicate the extent to which the media covers an event as an extraordinary occurrence by dedicating space and importance to it. Scope is measured through the count of words or minutes compared with the total carrying capacity of the respective

**Table 1. Indicators of crisis versus routine coverage of problems in the news media**

| Forms of problem coverage | Mechanism | Indicator |
|---|---|---|
| Abundant/scarce | Renders public | Scope of coverage |
| High/low significance | Attracts attention | Salience of coverage |
| Engaging/non-engaging | Expresses criticism | Tone (critical/fact-based) |
| General/issue-specific | Shows alternative interpretations | Variety and types of problem definitions |

media format. Salience refers to the number of articles or sequences placed on the front page or in an opening sequence.

Two additional indicators relate to the ways in which journalistic practices contribute to questioning the established order. The tone of coverage may appeal to normative judgment and insist on the unacceptable nature of issues, or argue for fact-based neutrality, operationalized by two mutually exclusive codes, *fact-based* and *critical coverage*. Critical coverage is used for news stories that contain disagreements or conflicting points of view. These are based on explicit markers of the authors' attitude, such as personal judgment, irony, and direct criticism/support.

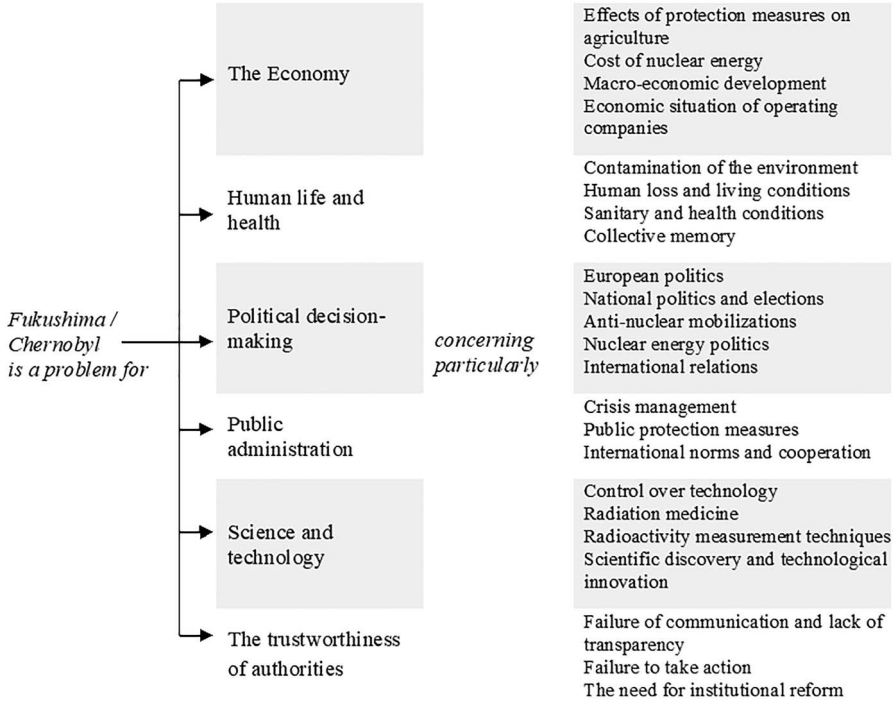
The last indicator focuses on the extent to which an issue relates to general problem categories likely to contain value conflicts and provide space to alternative narratives about problem definition and policy solutions. Problem categories rely on an inductive coding scheme, answering the question: how is the "problematic" nature of the accident defined? Figure 1 shows the six categories that were identified.

Finally, problem ownership was investigated based on the identities of the individuals interviewed. For TV news, all individuals quoted on both accidents in any format were included. In *Le Monde*, the analysis was restricted to article-length interviews.

## The development of hybrid spaces in reaction to the Chernobyl crisis

The Chernobyl catastrophe in April 1986 was characterized by secrecy: First, the absence of communication from Soviet authorities in the Cold War context led to the discovery of the accident due to radiation measurements in Sweden. Second, the withholding of available information by French industry and government authorities aimed to avoid raising concern in the population and nourishing anti-nuclear protests. According to some analysts, this strategy helped to avoid a profound questioning of nuclear energy in response to Chernobyl (Topçu 2013), as critical actors invested in the opaque way of governing nuclear energy as a main vector of criticism. Once French public actors felt compelled to communicate on possible adverse effects of Chernobyl and the passage of the nuclear "cloud," their discourses were marked by contradictions that accelerated the

**Figure 1. Broad and detailed codes for problem definitions used in relation to Chernobyl and Fukushima, for *France 2* and *Le Monde***




loss of trust of journalists and challenging actors in information communicated by government actors (Kalmbach 2014; Liberatore 1999). This, in turn, fueled a crisis that directly challenged the organizational configuration, credibility, and legitimacy of institutions responsible for the governance of nuclear energy, especially nuclear oversight and radiation protection authorities. In response to this episode, new civil society organizations emerged as alternative information sources to the French government. Overall, the "management" of Chernobyl and its effects were considered as a disaster by French government authorities (Interview, ministry official, 2017).

As a means of avoiding similar crises in the future, two central propositions emerged in the years following the accident: First, industry and government officials claimed a more "proactive" publication strategy on nuclear matters (Barthe 2006, Blanchard 2010) to re-legitimate nuclear activities and gain dominance in public debates on nuclear energy. Second, the creation of a safety agency was discussed as a means of reforming organizations and modes of governing nuclear energy[4]. The EDF opposed this institutional solution in the direct aftermath of the catastrophe, fearing too constraining regulations and a loss of control over the information published on the nuclear program. At the end of the 1990s, a decade in which greater information disclosure on nuclear incidents in France accentuated political conflict over nuclear energy, the EDF

started supporting the creation of safety organizations that came into existence formally in a "law on nuclear transparency" adopted in 2006 (Interview, former president of ASN, 2016)[5].

This support can also be explained by a shared understanding that developed between safety organizations and industry regarding the necessary organizational separation between safety regulations and nuclear energy politics, a discursive and organizational evolution of the previous "techno-political regime" (Hecht 2009[1998]). This shift must also be understood as an attempt by safety agencies to strengthen their autonomy toward ministerial oversight. The rise of a regulatory approach to environmental and health risks, nascent international cooperation on nuclear accidents, as well as the end of the Cold War and its political polarization at the international level, facilitated this shift toward a distancing of central executive decisions on the nuclear program from the everyday regulation of nuclear operations (Arnhold 2021).

While communicating more extensively in public, safety authorities invested in parallel extended backstage negotiations with other institutional actors aiming to coordinate official voices. As a result, the EDF and the Ministry of Industry gradually refrained from communicating on safety issues and from publicly contradicting the safety agency. This support to safety agencies, even in the face of criticism about operating practices, relied on a mutual understanding, as explained by an EDF official in an interview in 2016:

> Although they are our spoilsports, they help explain to the public that our power plants are safe, controlled not by us, but by an independent agency. This is an image guarantee for us. They need to have this authority, but also to exert it in a reasonable way.

The role of the French industry switches from withholding information to the support for safety organizations for the purpose of rendering nuclear oversight credible. These arrangements, while rendering some criticism of operational practices in the French power plants public, ultimately facilitated the containment of conflicts. Controversial positions, as well as the power imbalance between industry and agencies in the ongoing backstage negotiations, are harder to read for journalists, despite nuclear oversight being a source of continuous controversy.

Safety agencies also invested in the development of hybrid spaces with different audiences of official information sharing to construct their reputation and credibility and reduce uncertainties related to the use of this information by challenging actors and professionals in the public sphere. Different audiences of official discourses became targets of the agencies' strategies of establishing organizational spaces that accompanied transparency efforts. "Local information commissions" (CLI) were developed from the 1980s onwards as a communication tool for industry to mitigate conflict over the construction of power plants at the local level by bringing together environmental organizations, local councilors, trade unions, and non-institutional experts. Government agencies progressively invested in these commissions to critically evaluate the industry's safety record and communicate incidents and environmental contamination

levels on a routine basis. In 2002, the IRSN set up a "department to promote the opening towards society," which established regular contact with the CLI, as well as with their national association (ANCCLI), that started organizing its own seminars with the agencies on diverse topics of the regulatory process.

These spaces are non-public and subject to considerable entry barriers. They are often studied as vectors of a "government of critics" of nuclear energy (Topçu 2013; Kimura 2018; Polleri 2020), as critics internalize the view of institutional actors, making them unable to challenge dominant positions. French SMO are wary of the risk of being "captured" by the institutions, especially those created in the aftermath of Chernobyl as *alternative* sources of data and expertise compared with official sources. Some choose to stay outside of information commissions[6], but most of them participate as they see the agencies as allies in their criticism of the nuclear industry. The unfavorable power balance and limited resources to fund anti-nuclear work in France have led many organizations to see the strengthening of public agencies as their main purpose (Interview, environmental organization 2017).

Information commissions bring together SMO backstages with agency frontstages. Official presentations are supplemented by informal exchanges with public officials that help understanding issues seen as "technical" and facilitate their packaging in campaigns or public reports. Agencies send staff from the "opening up towards society" departments together with experts on the topics discussed. This allows SMO to access information, including on "sensitive" problems in power plants. However, the agency staff control the situation in which the information is shared and establish direct relations with accredited members.

Members are expected to intervene in the role of "experts" rather than political opponents, to embrace the language and adhere to the vision of "safety as a common interest beyond political opposition" (Interview, ASN official 2017). In addition, parts of the information shared in hybrid spaces cannot be made public. This leads to tensions for individuals who see themselves as challengers of both industry and regulators, such as this "critical expert":

> Interviewee: Our job was to criticize the secrecy and lack of information. Now, we provide critical expertise on topics on which information is available. We highlight things that the authorities do not think of or cannot say in public.
> Author: You also have the opportunity to talk directly to ASN and IRSN staff?
> Interviewee: We meet regularly for technical discussions at IRSN and in commissions and working groups organized with ASN. Since we meet more frequently, the discussions have become more fluid. But the question is: When can we use the information? The proximity is useful, but it harms our capacity to think critically. The more you know the people, the more difficult it becomes to have a conflict, especially in front of a third party.

Members of hybrid spaces continuously manage this tension and learn which information is "useable" in public and how it can be used. Criticism of public authorities has not disappeared but is partially contained in hybrid spaces, as government agencies establish interdependencies that discourage audiences from directly challenging them in public.

Government agencies also establish direct relations with journalists. Since their foundation, agencies have become key sources for Parisian journalists covering nuclear issues who perceive the "decoding of nuclear risks" (Interview, *Le Monde* journalist 2016) as a complex matter. The challenge lies not only in obtaining sound information but also in gaining access to understandable narratives. Agencies provide these and secure the opportunity to construct their reputations and regain trust. Although journalists still feel the need to verify sources such as the EDF or the Ministry of Industry, they consider safety authorities to be reliable.

Journalists are generally not part of information commissions, apart from exceptional cases where some have particularly good relations with agency staff (Interview, coordinator of a CLI 2017). Nevertheless, interviews reveal the existence of informal spaces where journalists from the dominant media, including *Le Monde* and *France 2*, interact with government agencies on a regular basis, such as press briefings, private plant visits, and press trips. Like information commissions, such spaces constitute a backstage for media actors but a frontstage for agency personnel, while remaining non-public (contrary to an interview or official agency statement). This has facilitated establishing lasting relationships, mostly with environmental journalists:

> I talk a lot with the safety experts, I have their personal phone number. The journey to Fukushima strengthened the ties between us. As did the journey to Chernobyl last year. By working together regularly you end up having good relations. We're not friends yet, but maybe we'll be one day! I trust them. This is convenient when we have sensitive news in France, such as a radioactive cloud or a release in France. I can call them directly, even on a Sunday. (Interview, *Le Monde* journalist, 2017)

Journalists used their privileged access to information based on safety agencies' local contacts in Ukraine and Japan, and in turn provided preferential media access to agencies.

In parallel, safety organizations developed a new frontstage discourse on nuclear accidents, aiming to be more "open" but remaining highly ambiguous. The key message is that accidents cannot be completely excluded, as highlighted by the director-general of the ASN in 2008, with claims for a greater investment in safety and crisis management, alerting the public on the need to develop a "scientific and unemotional debate on the issue. We work with reduced accident scenarios compared to Chernobyl, which are too reassuring for the authorities" (*Le Monde*, February 20, 2008). Understanding this new discourse requires examining the diverse organizational arrangements described previously. It is directed simultaneously to different audiences and reflects the agencies' regulatory and communication stakes in backstage and hybrid spaces. It aims to rebalance the power relations in backstage spaces, using the frontstage to put additional pressure on the EDF and persuade the industry to invest in nuclear safety. It also calls for a strengthening of the formal mandate of agencies in crisis management, which generates tensions with the executive

(Borraz and Gisquet 2019). Finally, it aims to develop a more credible discourse on nuclear accidents toward SMO, journalists, and mobilized citizens. The agencies demonstrate that they no longer deny the possibility of accidents, which is interpreted as a proof of "openness" by several French SMO. Other risk issues (e.g., health effects) remain subject to secrecy, and the non-political discourse on nuclear accidents avoids fueling criticism by insisting on the possibility of controlling a nuclear accident.

For diverse reasons, all different actors have found an interest in co-constructing the independence and trustworthiness of government agencies in frontstage discourses. This is a result of long-term containment work in hybrid and backstage spaces, which established interdependency relationships that are continuously maintained through direct interactions. Their robustness was tested during the Fukushima accident.

## Activating institutional arrangements after Fukushima

After the Fukushima accident on March 11, 2011, French government officials, not willing to reproduce "errors of the past" (Interview, civil servant, 2016), activated now existing institutional arrangements on public communication on nuclear accidents. These comprised proactive communication strategies, coordination between official information sources, and hybrid spaces with audiences and professionals in the public sphere. Although Fukushima occurred in a more distant country compared with Chernobyl and in a changed geopolitical context of nuclear energy, nevertheless it was perceived as a potentially catastrophic occurrence of nuclear energy. Before Fukushima, professionals in the nuclear sector were convinced that "another major accident after Chernobyl would mean the end of nuclear energy" (Interview with French industry official, 2016). It was also a political opportunity for challenging actors at a moment when nuclear power plants were already aging and energy policies in Europe had diversified.

In this context, representatives of the relevant ministries, EDF, and agencies gathered in an inter-ministerial crisis unit and discussed communication strategy. It had two aims that referred directly to the experience of Chernobyl. First, all available information needed to be published and contextualized immediately. As the media landscape had changed and multiple information sources were available to French citizens, it was impossible to select publishable information. Second, government officials decided to coordinate, with the aim of avoiding contradictions. Safety agencies ASN and IRSN needed to be responsible for media communication.

> To avoid any formerly experienced pitfalls, we decided very quickly that it should be the authorities who communicate with the public. They receive the information first, they publish it. This was very clear for us. (Interview, civil servant, Fukushima Crisis Management Team, 2016)

The retreat of government officials as well as industry actors provided ASN and IRSN with a near communication monopoly, an opportunity to construct

their reputation, and interpret Fukushima in a way that was compatible with their mandate. As agencies seized this opportunity and invested considerable resources in the communication with all mobilized actors, putting them "at the limit of [their] capacities" (Interview with IRSN crisis management team, 2017), this situation produced an "information-glut" on Fukushima. Setting up public communication teams inside the crisis management centers, daily "update reports," and press briefings allowed IRSN and ASN to produce narratives on Fukushima compatible with their ordinary regulatory activities.

Nevertheless, the complete avoidance of contradictions proved difficult given the scope and international character of the event. French public officials criticized foreign decisions behind the scenes but refrained from making this criticism public. They attempted to explain differences without challenging other information sources, as in the case of the US decision to evacuate its nationals in Japan unilaterally in a range of 80 km around Fukushima.

> That was really a problem, you cannot say for the Japanese it is 20 km, but for Americans it will be 80 km… But well, they took this decision and the best thing to do is to explain the differences. Paradoxically, the public understands if you explain. The most important thing is not to hide anything. (Interview, civil servant, Fukushima Crisis Management Team, 2016).

This strategy reduced frontstage contradictions and conflict in the aftermath of Fukushima.

Leading Parisian journalists on nuclear energy issues seized the opportunity of regular press points and continuous information sharing to organize their daily coverage of Fukushima around these central information sources, feeling that there were "no other interlocutors available":

> In the morning, I had my update on the situation with the IRSN experts. Was there a nuclear meltdown? What is the situation of the reactors? What does it mean? (Interview, *Le Monde* journalist, 2017)

They did not consider this reliance on safety agencies to be problematic, as official narratives resonated with the already established problem definitions of nuclear accidents. Journalists also mobilized their personal contacts with safety experts to contextualize and interpret technical information on the state of Fukushima reactors and contamination levels.

The activation of hybrid spaces gathering safety agencies, industry, and their constituted audiences played a central role in French public action on Fukushima. In addition to the regular meetings of the CLI and ANCCLI where the implications of Fukushima were discussed, ASN and IRSN organized specific seminars on topics of post-Fukushima "lesson-learning procedures." Critical experts and SMO were associated with the declination of the European "stress-test" procedures in France—as audiences, not as experts participating in the evaluations. Large parts of conflicts and critical questioning of public actors in Fukushima were displaced into these hybrid spaces that accompanied the regulatory procedures on the accident aimed at understanding its causes and effects for France.

This specific set-up and organization of the work on Fukushima also led to define the accident mainly as a problem for nuclear safety. French SMO published reports on safety reevaluations and "stress-tests", which critically engaged with the scope of the exercise, while supporting it in principle regarding both organization and content[7]. The predominance of safety issues corresponds to routine work on nuclear accidents and reduces alternative views on the accident. Using Fukushima to problematize the danger related to nuclear energy, for example, was no longer considered legitimate. Environmental organizations considered that they cannot campaign on these issues by fear of "being seen as an accident exploiter" (Interview, SMO, 2014). At the same time, remaining in the framework of nuclear safety not only reduces access points for nuclear energy critics nonaffiliated with hybrid spaces but also accentuates the dependence of affiliated SMO and independent experts on safety agencies, who are the sole providers of information on these issues.

Because of existing interdependencies and institutional arrangements that "hold" even in the face of this major accident, SMO and independent experts refrain from openly criticizing public authorities. Rather, they see safety agencies predominantly as allies to favor a strong response to Fukushima, which must be negotiated against the resistance of the French industry and certain ministries promoting nuclear energy. Therefore, they consider that the legitimacy of safety agencies should not be questioned and co-construct their credibility and trustworthiness in the public. In addition, the representatives of CLI and ANCCLI also started engaging increasingly in media work themselves, responding to journalists who attempted to identify alternative voices to safety agencies, in the name of the French "civil society":

> That is one of my jobs, indeed, to do this media work. It has started to work quite well in these last few years. Before, when there was a news topic on nuclear energy, the media went to see ASN and IRSN, sometimes Greenpeace, but they did not really know the CLI and ANCCLI. Now, we are really identified as interlocutors by the media. (Interview, coordinator of ANCCLI, 2017)

This public recognition led to a multiplication of actors who diffused remarkably similar messages on Fukushima in public spaces.

Despite large-scale public communication, Fukushima is therefore subject to a new form of opacity that we qualify as public containment, referring to—in this case extensive—coverage of nuclear issues, whereas related stakes, conflict, and criticism do not become visible. This last part of the argument is further demonstrated based on an analysis of the media coverage of Fukushima in France.

## The public containment of Fukushima in French media spaces

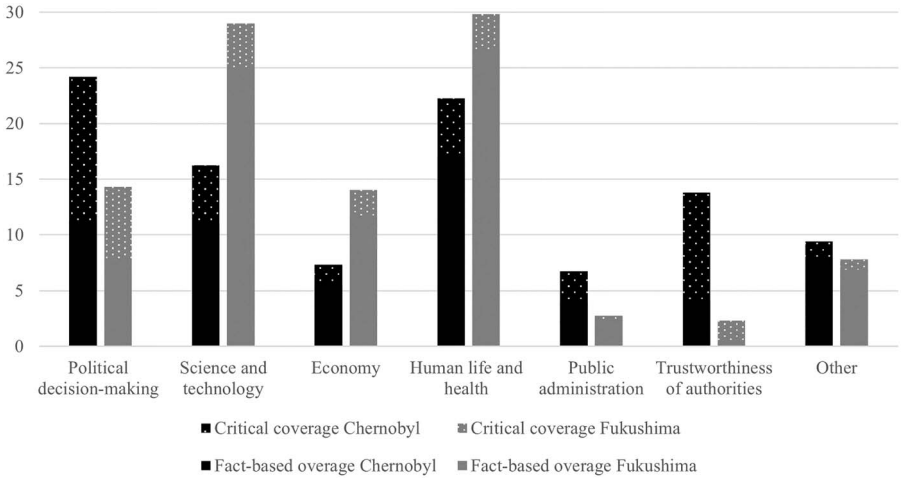
The different indicators of crisis versus routine coverage in the media analysis of Fukushima show how this accident was extensively and continuously covered,

but not in a critical way. This becomes even more visible when taking Chernobyl as a historical point of comparison. Although both accidents were covered similarly in terms of scope in the different media formats under study[8], the Fukushima coverage had limited salience. Articles mentioning the accident were placed only half as often on the front page of the newspaper compared with Chernobyl[9].

In addition, Figure 2 shows how, across both media formats, Fukushima was covered considerably less in problem definitions that were likely to question existing policies and institutions responsible for the government of nuclear energy than Chernobyl. Although Chernobyl was predominantly a matter for political decision-making (24%) but also matched other categories, including the trustworthiness of authorities questioning public actors most directly (13.8%), Fukushima was covered with regard to less political and less critical problem categories. It was presented predominantly an issue for human life and health in *France 2* (42.6%), followed by Science and Technology (34.2%), which is also the dominant problem definition in *Le Monde* (23.7%), followed by the Economy (22%). This difference can be related to the specific format of TV news, where the visual component requires the personalization of news stories to a greater extent (Bourdieu 2011[1996])[10]. The ways in which this personalization occurs, however, changed: although news stories in human life and health led to interviews with both USSR residents and French populations living close to French power plants after Chernobyl, the articles and sequences after Fukushima almost exclusively referred to the situation of populations in Japan (Arnhold 2020). It is striking to note the relatively small share of news stories referring to political decision-making, as Fukushima occurred a few months before the beginning of the French presidential election campaigns in which nuclear energy was a subject.

The strong presence of the Science and Technology definition in the Fukushima coverage can also be seen as surprising, especially in TV news, because its narratives are in tension with the dynamics of news story selection in this format[11]. After Chernobyl, this category referred to different issues, including radiation health research, medical practices, and the question of whether nuclear technology could be controlled. Reminiscent of the "runaway package" of Gamson and Modigliani (1989), one narrative highlighted the occurrence of incidents in France as potential precursors of a similar accident. After Fukushima, this problem definition contains a central storyline that describes the accident as a matter of control over technology by nuclear operators, experts, and regulators. Using the "runaway" motive in an opposite sense, news stories framed Fukushima not in terms of a general difficulty to control nuclear technology, but as a result of the specific conditions in which it took place in Japan, thus stressing the effective possibility of control elsewhere. French safety measures and risk management strategies were discussed in much detail. Journalists sometimes call into question the adequate level of protection of French power plants, but without challenging the definition of Fukushima as a problem for nuclear oversight.

**Figure 2. Chernobyl and Fukushima problem definitions and tone of coverage (average between *Le Monde* and *France 2*, in percentages).**




Note: N refers to the number of articles/TV sequences for problem definitions and coverage tones. Total number of articles: N = 611 for Chernobyl, N = 995 for Fukushima; total number of TV sequences: N = 88 for Chernobyl, N = 190 for Fukushima. For problem definitions, owing to multiple mentions, the total exceeds 100%. Statistical tests for problem definitions: $\chi^2 = 380.1$, df = 18, *p*-value < 2.2e-16. For tone of coverage: $\chi^2 = 179.75$, df = 9, *p*-value < 2.2e-16

These findings can be confirmed when looking at the tone of coverage, which is considerably less critical in the case of Fukushima, with about half as many articles and sequences expressing criticism and conflict compared with Chernobyl. This is true not only in the category Trustworthiness of Authorities, but across all problem categories. Overall, these different elements are consistent with previous media studies on Chernobyl, which found that the accident was a turning point that led to "strong and structured oppositions" on nuclear energy in the news media, to a more controversial tone and an increasingly general debate for more than a decade after the accident (Blanchard 2010: 259). In contrast, the Fukushima coverage can be described as more routine and low-key, with more specialized content and largely devoid of any vectors that questioned energy policies, institutional boundaries of public action, or responsibilities of public authorities.

Our findings also confirm a reduction in diversity in the case of Fukushima regarding problem ownership. Although after Chernobyl, no clear problem owner was identifiable (see Table 2), as journalists confronted with a lack of information consulted industry, public authorities, but also elected officials, international organizations, or academic scientists, the type of actors who intervened on Fukushima were considerably narrower. Nuclear experts working in safety agencies, IRSN and ASN, are central in the coverage in both formats. In *France 2*, one-third of the coverage of Fukushima in the period under study was presented by a single person, IRSN safety director Thierry Charles. Together with

two other IRSN colleagues and the ASN president, André-Claude Lacoste, four French nuclear experts represented more than half of the viewpoints discussed on TV and nearly half in *Le Monde*. Other experts quoted in *Le Monde* were mostly economists, discussing the negative impact of Fukushima on the economy. Alternative information sources on nuclear energy, such as commission de recherche et d'information indépendantes sur la radioactivité (CRIIRAD) and association pour le contrôle de la radioactivité dans l'Ouest (ACRO) founded in response to Chernobyl, played a very minor role in *Le Monde*. They were invited to comment on the accident together with other independent experts, such as World Information Service on Energy (WISE) Paris, who participated in hybrid spaces and largely co-constructed official narratives on the accident. On TV, experts other than public authorities completely disappeared.

In the former literature on the Chernobyl media coverage in the US, media content produced by a diversity of actors (often laypeople on nuclear energy issues) was sometimes normatively challenged for its "sensationalist" character or lack of "technical richness" (Dunwoody and Peters 1992). An increase in expert narratives on media coverage may have increased the accuracy of technical information on nuclear reactors but also led to the disappearance of political alternatives regarding the interpretation of the accident, underlying energy policies, or institutions responsible for the protection of the population. The epistemic quality of public debates on nuclear accidents has decreased as a result of greater information-sharing by public authorities and the long-term investment in transparency enactment accompanied by the establishment of hybrid spaces.

The role of hybrid spaces and their effects on the meaning attached to public information about Fukushima and its aftermath becomes even more evident when looking at the ways in which alternative claims carried by actors nonaffiliated with French actor configurations and interdependencies are treated in the French media. For example, the European commissioner Öttinger and anti-nuclear governments attempted using the "stress-test" procedure to demand permanent reactor shutdowns in Europe and mobilized alternative problem definitions on Fukushima, referring to the prospects of renewable energy or concerns about crisis management. In the media spaces under study, journalists did not quote these publicly available reports, and critical interventions of the European Commission were presented from the point of view of French government agencies:

> At ASN, people are irritated by the European Commission's method that aims to create opacity in a process conducted until now in a transparent manner, as the recommendations of the ASN are available online. (*Le Monde*, October 3, 2012).

The Commission's "method" aimed for greater comparability of stress-test results and exposed French power plants to potential criticism or shutdown demands. Conflicts about nuclear energy and safety regulations became intense in the EU after Fukushima, including the case of the German phase-out decision,

**Table 2. Individuals quoted in news stories mentioning Chernobyl and Fukushima**

| | CHERNOBYL | | | FUKUSHIMA | | |
|---|---|---|---|---|---|---|
| | Examples | TV (whole period) | Press (first month) | Examples | TV (whole period) | Press (first month) |
| Industry | EDF | 3 | 5 | Tepco, Areva, EDF | 2 | 2 |
| Public authorities | CEA, IPSN, SCPRI | 4 | 3 | IRSN, ASN, CLI | 7 | 20 |
| Politicians | Ministers, MOPs, diplomats, local politicians | 4 | 7 | Ministers, former president, ambassador, mayor | 3 | 4 |
| Nuclear experts (other than public authorities) | IAEA, Radiation measurement center | 4 | 4 | French "independent" experts CRIIRAD, WISE, ACRO, GSIEN | – | 5 |
| Non-nuclear experts | Doctors<br>Social scientists<br>Physicists | 5 | 6 | Economists<br>Political consultants<br>Social scientists | – | 10 |
| SMOs | Nature protection organization, Greenpeace | – | 3 | *Réseau Sortir du nucléaire*, Stop Fessenheim, Nuclear victims association Japan | – | 4 |
| Total | | 20 | 28 | | 12 | 45 |

Note: On TV, journalists are sometimes invited to comment on accidents. They are not included in this table, which focuses on individuals outside the media field. The category "Public authorities" includes nuclear experts who are generally engineers from the French state Corps, specialized in reactor design, operation, and/or radiation protection. "Nuclear experts other than public authorities" is a more diverse category comprising engineers, but also, especially in the case of "independent experts," university physicists or other professionals mostly with a background in natural sciences, who have specialized on nuclear issues after their education.

strongly criticized by French public officials and the industry in hybrid and backstage spaces but barely covered in the French media. Page-long interviews with the ASN president conveyed ambiguous official narratives on nuclear accidents ("A nuclear accident in France is not excluded," March 31, 2011) and were quoted as proof of the trustworthiness of authorities.

> The question of the independence between the regulator and regulated was difficult to solve. A "long way" that many in the environmentalist sector considered as window-dressing. However, even they would not deny the indisputable efforts for transparency of the ASN, who publish all their "follow-up letters" after their multiple inspections in nuclear plants. (*Le Monde*, January 4, 2012).

These examples show how the co-construction of transparency contributes directly to discarding political conflict and alternative claims not only institutionally but also in the media coverage of Fukushima.

## Discussion and conclusion

Contrary to expectations in the literature on crises that are based on a front- versus backstage model of public action (Alexander 2018; Callon 1998; Gilbert and Henry 2012), public disclosure is insufficient to understand the ways in which crises develop. This paper shows how some adverse events may be widely publicized and attract significant attention while being treated as routine events that do not question existing policies and public institutions. Understanding how different forms of nuclear opacities, such as secrecy or minimizing discourses, lead to a reduction or amplification of crises also requires not only looking at media discourses (Kepplinger and Lemke 2016; Pascale 2017; Schweitzer and Mix 2018, 2021), but at the social conditions that ensure their reception and credibility by relevant audiences and professionals in the public sphere. Crises arise not only from challenging discourses but also from the break-up of ordinary institutional boundaries and practices (Dobry 2009[1986]). Organizational configurations and interdependencies between sector-specific organized actors and actors of the public sphere are key to understanding to what extent existing institutional arrangements contain an unacceptable public event.

Although public communication strategies such as secrecy or "info-glut" may lead to different effects depending on the relations with audiences and journalists, links between organizational configurations and the development of government crises are likely to constitute generic mechanisms. An organizational configuration relying on a separation between front- and backstage spaces of public action is likely to lead to more confrontational mobilizations in the public sphere, whereas an increase in hybrid spaces allowing for front- and backstage interactions favors routine coverage and reduces conflict in the public sphere. This is due to direct interdependencies, but also to the fact that a growing complexity between front- and backstage interactions at the periphery of regulatory activities brings into play the ability of actors to navigate between

organized spaces with differential publicness, which requires learning the norms of how sensitive information can be used in diverse organized spaces and in public, mastering different levels of often-ambiguous discourses.

The article also shows how opacities continue to structure public responses on adverse events, although the ways in which they operate change over time. This case may complement previous accounts that have highlighted the costs of maintaining (open) secrets on a long-term basis (Cohen 2010; Mallard 2014). Based on our theoretical model, it is possible to show how such costs can be reduced once nuclear opacities no longer rely on the maintenance of a boundary between public and non-public spaces, but rather on a transformation of the institutional logics of hybrid and public spaces in ways that durably anchor the stakes and interests of powerful organized actors pertaining to a specific policy sector in the institutional arrangements and norms that are used to interpret information in public on a routine basis.

Regarding nuclear accidents, this transformation is the result of the creation of regulatory organizations that invested transparency demands in strategic ways, as organizational resources that allowed articulating sometimes conflicting demands regarding greater publication of information but also a re-legitimation of nuclear energy. Transparency enactment and containment work in hybrid spaces are used to keep potentially critical audiences close and, increasingly, to keep central government actors at a distance as a way of avoiding potential future organizational reforms in response to adverse events. Transparency enactment becomes a vector of preservation of sector-specific expert authority over the collective problem of nuclear accidents by controlling the relations between sector-specific government of this issue and its representation in public spaces. Continuous interactions in hybrid spaces prevent crises in multiple ways, including by an adjustment of public communication to narratives that are acceptable for multiple audiences and, in turn, by monitoring expectations of these audiences regarding potential future adverse outcomes and their (political) relevancy.

These findings can be related to wider questions of contemporary social theory regarding the changing ontological status of "crises" for public policy and institutions (Koselleck 1988; Roitman 2013). These works have highlighted how the notion "crisis" denotes phenomena which in fact are not always "critical" periods for contemporary institutions nor for the great narratives through which we interpret adverse outcome, but occurrences that may often maintain or even consolidate existing institutions. This article shows how this evolution may not only be due to the rise of an expanding "crisis discourse" (Roitman 2013), but also to the ways in which public actors have learned how to render institutions robust against challenging in the aftermath of unexpected events. Transparency may be one of the carriers of these strategies, because it configures a particular relation to the political process, which often refers to knowledge claims as a main basis for decision-making rather than potentially less "informed" value-conflict (Jay 2012).

It seems heuristic to link the insights of a growing literature on crises, often described as a depoliticizing framework of public action (King and Le Galès 2017) to the sociology of ignorance, which has shown multiple mechanisms

through which such knowledge-based decision-making can be put to the systematic benefit of organized interests (McGoey 2012; Proctor and Schiebinger 2008). This article may be relevant to this last strand of scholarship because it points to the understudied question of the political relevancy of contemporary knowledge claims, going beyond an analytical focus on the "known" and the "unknown" toward the question of the ways in which different social groups can question contemporary politics in meaningful ways based on publicly available information. This also requires focusing on the ways in which knowledge claims allow delineating political alternatives and contribute to expanding or narrowing the horizon of possibilities in the political process.

## Notes

1. Sometimes, the terms *secrecy* and *opacity* are used in the literature with diverging definitions. For our purpose, secrecy refers to conscious withholding of information, whereas opacity refers more broadly to organizational mechanisms that lead to the non-disclosure of problems, stakes, or conflict in a certain policy field.
2. ASN: *Autorité de sûreté nucléaire*; IRSN: *Institut de Radioprotection et de Sûreté Nucléaire*.
3. *Institut national de l'audiovisuel*.
4. Philippe Colson and Jean-Paul Schapira. Les enjeux d'une loi nucléaire en France. Octobre 1994. Fonds ministère de l'environnement: Direction de la prévention des pollutions et des risques, 20150632/1–20150632/11.
5. This will to demonstrate transparency is restricted to the civil use of nuclear energy: A law adopted in 2008 restricts the access to public archives concerning nuclear weapons in France (Pelopidas 2022).
6. Such as *Réseau Sortir du Nucléaire* or the *CRIIRAD*.
7. See for instance this report ordered by Greenpeace: https://secured-static.greenpeace.org/france/PageFiles/300718/120217RapportECS-IEER-WISE-Paris.pdf.
8. The scope of coverage of both accidents is very similar in both media formats. The average share of coverage per edition was 2.6% for Chernobyl and 2.8% for Fukushima in *Le Monde*, and 8.9% for Chernobyl and 9.1% for Fukushima in the TV news for the respective time periods.
9. TV sequences referring to Fukushima are also placed less often in the opening sequence of the *France 2* evening news than Chernobyl.
10. For Chernobyl, a similar tendency can be observed: Human Life and Health ranks first for *France 2* (30.5%), but only third for *Le Monde* (14.1%).
11. It can also be seen as surprising in the case of *Le Monde*, which has been shown to become less "elitist" and more "sensationalist" over time, especially after the economic crisis it experienced in the 1990s (Champagne 2000).

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