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## Experts in crisis: The wide spectrum of advisors for coping with extreme events

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### ABSTRACT

This paper offers a typology of different groups of “experts” in relation to crisis. While decision-making and leadership are frequently analysed in crisis research, the role of experts who offer advice in crisis is widely underexplored in social scientific research. Based on qualitative interviews, we distinguish between the *trouble shooter*, the *emergency expert*, the *situative expert*, the *accidental expert* and the *trusted advisor*. Each of the respective types differs with respect to the specific contribution in dealing with crisis (in terms of expertise *in or for* crisis), the point in crisis when they are usually called for assistance, as well as their relationship to decision-makers. The proposed typology provides insights into the diversity of experts involved in crisis response and demonstrates the influence expert advisors have on decision-makers during, but also before and after a crisis.

### 1. Introduction

The COVID-19 pandemic raised the public attention on the increasingly important role of experts in handling complex crises. For instance, on December 4, 2021 the German BILD newspaper called three scientific experts who advise the federal government on its corona policy “the lockdown makers” [1]. Such rather populist headlines refer to a topical question in social scientific analyses, namely the influence of experts and scientific knowledge on policy makers and decisions in the specific context of crisis [2–5]. While there is already much known on the role of experts in political decision-making processes under ordinary circumstances, the particularities of crisis as a distinct context for expert consultancy remains widely unexplored, until today. Furthermore, in the present debates, the term “expert” is applied to a wide array of different actors [6] and brushes over systematic distinctions. Before COVID-19 as a major crisis occurred, crisis management literature has focused strongly on the role of decision-makers and political leaders but has extensively neglected experts as a particular type of actor in crisis response [6–10]. The COVID-19 crises can be regarded as a major turning point leading to intensified scientific interest in the role of experts during crisis [2,4].

Unlike decision-makers, experts do not have official responsibility to manage crises. Yet, it is highly plausible to assume they have much to offer to crisis management and there is first evidence that external experts are frequently consulted by crisis management teams [2,6]. In its basic understanding, crisis can be defined as a “threat to core-values of life-sustaining systems, which requires an urgent response under conditions of high uncertainty” [11]. This definition highlights “the consciousness that the known means for doing things will no longer do – that whatever is to be tried must be tried experimentally” [12]. Experts might provide valuable insights to specify knowledge gaps and to determine different qualities and levels of uncertainty in such endeavours. Decision-makers, in turn, increasingly depend on external expertise to come to well-grounded decisions [3,8]. Descriptions of crisis as a “turning point

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for better or worse” [13] emphasise the inherent contingency which is distinctive in comparison to other dramatic events such as catastrophes or emergencies. Crises mark situations in which the correct action can still make a difference. And the correct action may depend on good advice.

The aim of this paper is to emphasise the role of experts in times of crisis. More specifically, we seek to unpack and systematise the magnitude of different types of experts that might be involved in crisis and to explore their influence on decision-making during, but also before and after a crisis. We analyse qualitative data from fifteen semi-structured interviews with experienced advisors obtained between 2018 and 2019 as well as data generated during three science-practitioners workshops and a panel discussion organised by the co-authors between 2015 and 2021. With one exception, interviews were conducted in Germany, while the mentioned interactive formats also included international participants. This empirical material is used to answer the following research questions: (1) What are the different types of experts that become influential during a crisis? (2) What are the systematic differences between these types? (3) What are the temporal dynamics of advice giving in the course of a crisis? (4) What is each type's influence on decision-makers? (5) And to which extent can the crisis be understood as a window of opportunity for advice giving?

We use different sources of qualitative data to differentiate between five types of experts that can become relevant in crisis: trouble shooters, emergency experts, situative experts, accidental experts and trusted advisors. In the next section, we specify the state of the art on experts as advisors in crisis situations before we introduce our data and methods. Subsequently, section four presents our empirical findings. It introduces each of the mentioned types of expertise along the dimensions “type of knowledge”, “entering and leaving the scene” and “relationship to decision-makers”. Against this background, we eventually discuss the particularities of expert advice before, after and during crisis.

## 2. The neglected role of expert advice in crisis

In the face of multiple global threats to humanity's natural livelihoods, the scientific community has evolved into a “post-normal” state, in which the role of applied sciences and classical scientific advice is expanded into a growing sphere of highly uncertain and value-laden issues [14]. “Where facts are uncertain, values in dispute, stakes high and decisions urgent” [14], Funtowicz & Ravetz identify additional challenges for decision-makers, experts and society as a whole to come to ‘the right’ choices [14].

The COVID-19 pandemic has particularly refreshed the thinking about the function and limitations of expertise informing policy and decision-makers under pressure [15]. By framing the pandemic as a “crisis” it has highlighted the fact that post-normal science frequently includes advice-giving under circumstances that deviate from everyday practices. When values shared by a large part of society are under serious threat, scientific expertise is likely to be followed by policy makers. Pielke calls such sudden shifts to technocratic decision modes “tornado politics” [16]. Reflecting the experiences gained during the COVID-19 pandemic, Bogner concludes: “In acute crises, we want to know from experts what we should do without debating it at length. In acute crisis situations, it can be concluded, expertocracy is legitimate” [4]. However, when the acute crisis is over, “dissent takes place at the normative level (value pluralism), at the political level (the will to oppose awakens), in the public arena (protests) and at the scientific level” [4]. Similar insights on the shifting dynamics during a crisis (however, without focussing on experts) have been provided by Villodre and Criado: By conducting a twitter analysis of the flash floods in Majorca 2018, the authors find that twitter users having an immediate connection to the critical event (e.g. affected citizens or crisis-relevant authority), gain more attention at the acute crisis stage (“voices of the crisis”), while those users who do not embody specific crisis-relevant expertise, receive more attention in the post-crisis stage (e.g. politicians expressing emotional support; “outside voices”) [17].

This paper focuses on this so far understudied aspect of the “post-normal age” [14]. Expert advice increasingly takes place under the particular conditions of “crisis” or even multiple and overlapping crises. This topic leads us to the intersection of two strands of debate that both, so far, have extensively missed this point. The first strand primarily focuses on expertise and expert advice, the second on crisis management. So far, there has been little correspondence between both strands, however. While experts are largely absent in crisis management literature, crisis as a particular context for advisory practices has hardly been reflected upon in the social scientific enquiry of expertise and experts.

### 2.1. The strange absence of crisis in literature on expertise

Expertise is usually grounded in an academic education and/or years of practical experiences acquired in a particular field or knowledge domain. Furthermore, expertise is a relational category. It is ascribed to someone by advice seekers [18]. As such, expertise comes to the fore only if enacted in a relationship of advice seeking and advice giving [19,20]. Thus, the notion of expert differs from, for instance, notions such as “specialist” or “master” since the expert only comes into existence in the process of imparting knowledge to less educated people in a particular field. Moreover, it is a situational category, as the distribution of roles between requesting and giving advice can change swiftly in the course of time [18]. Finally, it is an asymmetric relationship.

The first asymmetry is that between the supply and demand sides of advice. This asymmetry translates into the metaphor of a “market” for advice, on which political decision-makers represent the demand side and researchers and self-proclaimed specialists the supply side [21]. Consultancy markets are inherently uncertain. For instance, decision-makers may have different motivations to seek for advice. It may be a lack of knowledge, the desire to create additional legitimacy for decisions [18] or openness to get inspiration from outside perspectives. Typically, these motivations remain obscure for advisors and can surface unexpectedly during the consultancy process. On the supply side, experts seek to increase their market share by signalling competence and by addressing topics that are assumed to be “relevant” for decision-makers. However, decision-makers will learn about the real quality of the service only during the consultancy. They can hardly assess competence in advance. Hence, trust on consultancy markets needs to structure the overwhelming complexity and reduce uncertainty: personal trust relies on prior experiences with an individual consultant, networked

trust is based upon the reputation a consultant has acquired within their own peer group, and institutional trust relies on competences that are certified and acknowledged by external authorities [22]. Usually, trust needs a long time to develop. In a crisis situation, however, it may be necessary for participants to develop trust on the fly, as it were. Hence, the advisors' ability to enact "rapid relationality" [20] and use short windows of opportunity to develop influential relationships with decision-makers quickly, becomes of key importance.

The second asymmetry is based on the distinction between knowledge and power. Decision-makers have power in the sense that they have acquired institutional authority or democratic legitimation to make decisions and have control over collective resources. As authority comes with accountability, they bear the risk of being made responsible for the consequences of their decisions. They might, for instance, be forced to resign from their position when things go wrong or be held liable for financial losses resulting from negligent decisions. Experts, in contrast, derive their authority from the reputation they enjoy within their specialist community and from the status of the respective knowledge domain in society [18]. For experts, giving advice entails certain reputational risks as they engage in a practical field with all its pitfalls, while they still need to respect the standards of their respective knowledge domains to remain credible within their group of peers. Advisors, in other words, occupy central positions within their knowledge domain, but peripheral positions in the fields of practice in which they offer advice [20]. As outsiders, they enjoy the freedom to challenge dominant views and think outside the box. At the same time, they lack any formal authority over decision-makers and have no access to institutional resources. It is therefore difficult to precisely specify the share they bring in a decision. Yet, they do have some "influence" [20] which is exerted relationally.

In an attempt to specify advisors' influence, Pielke differentiates between various types of advisors [16]. The "science arbiter" represents weak forms of involvement, in which advisors provide facts and evidence-based assessments for decision-makers, but clearly refrain from suggesting any decision. "Issue advocates" on the other end of the spectrum are fully immersed in the political process as they have a political agenda and use science-based knowledge to prioritise certain decisions over others. "The honest broker" resides somewhere in the middle of the spectrum [16]. This type of expert presents alternatives and explains their consequences to decision-makers, but decidedly leaves the final decision to those in charge. In any of these cases the asymmetry between knowledge and power remains in place.

## 2.2. *The strange absence of experts in crisis management literature*

Today there is a broad consensus that decision-making during crisis is a collective endeavour that is socially and spatially widely dispersed and even "fragmented" [23]. The range of actors that becomes relevant during crises is, of course, diverse and can shift surprisingly depending on the escalating dynamics of the specific crisis [24]. Yet, there are usual suspects. A first broad differentiation can be drawn between actors who are regularly involved in emergency situations such as police or fire brigade (the so called "blue light organisations") and those who are not familiar with such extreme situations. Within the latter group, strategic decision-makers (e.g. political leaders or executive managers) have gained much attention in crisis management literature. These actors are responsible to manage crises due to the rank they occupy in the respective organisations or the mandate they acquired from political processes. Decision-makers in the political and corporate world have to demonstrate "leadership" [25] in situations of crisis because they are "in charge". Yet they often lack the necessary skills, which makes them not only interesting actors to study in crisis management literature, but also important addressees for the knowledge generated by crisis management scholars.

Experts as a particular group have been addressed only rarely in crisis management literature. Rosenthal & 't Hart were the first who raised the awareness on experts as an important type of actors and studied the interrelation between experts and decision-makers during crisis [7]. They highlight improvisation, emotional stress and information uncertainty as critical circumstances that experts have to deal with during crisis. Following on this, there are rare findings that shed additional light on crisis as a particular context for advice. For instance, the different logics of crisis and expert communication to the public could collide [8].

More recently, however, the topic has gained momentum. Donovan starts her analysis of "experts in emergencies" by clearly distinguishing crisis situations (time pressure, high stake decisions) from long-term contexts of scientific advice such as membership in committees [2]. In the uncertain and urgent situation of a crisis, decision-makers feel a strong dependence on scientific expertise, as the COVID-19 pandemic illustrates [2,3]. Yet, compared to normal times, it is highly challenging to identify all of the necessary expertise and the best qualified experts, and to assemble inter-disciplinary groups of advisors that reflect multiple perspective on the issue due to time constraints [2].

As knowledge itself can be inherently uncertain, the inclusion of experts might even increase uncertainty, rather than diminishing it. For instance, the required knowledge can still be in an immature state or scientific data might still be sparse. Furthermore, experts might introduce new aspects of uncertainty, for instance, when different experts come to contradictory assessments of similar situations [10]. During the COVID-19 pandemic, some intra-scientific debates have been carried out in public forums or even talk shows on TV. Critique and disagreement used to be normal ingredients in scientific practice; however, when carried out in public, they enhance uncertainty for all participants. Baekkeskov & Öberg outline this as a dilemma: On one hand, public expert consensus can be important for crisis governance. On the other hand, the "freezing of deliberation" is problematic in democracies [26].

The rise of social media during the last 20 years further complicated the position and impact of experts in manifold ways as well as extending the range of actors relevant in crisis response. First, experts increasingly become public persons who do not only reach decision-makers but also citizens via digital platforms such as twitter [27]. Second, citizens are by no means only passive consumers of crisis-relevant information [28]. Rather on the contrary, recent studies demonstrate that social media users and volunteers can even take an advisory role without having formal qualification in the particular field [29,30]. Thus, the boundary between experts and lay persons become increasingly blurred in the digital age.

Due to the high dependency on expert advice, experts often find themselves in uncomfortable situations. When they are obviously the most competent person in the room, decision-makers have little choice than to follow their instructions [9]. This creates a situation in which advisors feel a pressure to make ‘quasi decisions’ [31]. Especially, during the acute crisis, there is an inherent risk that actors suspend for a while useful political practices of negotiating consensus to open up room for technocratic [5] or “expertocratic” [4] decision-making. Against this background, Donovan recommends that both, decision-makers and experts should be aware of the differences of their respective roles despite blurring boundaries [2]. In crisis, issues of accountability and mutual expectations should be clarified at an early stage [31].

A first, more comprehensive empirical study by Broekema et al. covered 114 reports on 60 crises in the Netherlands from 2000 to 2013 [6]. The results confirm that experts were involved in almost every crisis included in the sample (56 of 60), with an average of seven experts per crisis. 10% of all studied cases even involved 15 or more experts. Furthermore, the findings evoke an impression on the diversity of institutional affiliations of experts, ranging from the public sector to private enterprises, civil society organisations and scientific institutions. It becomes clear that experts may cover a magnitude of different knowledge and practice domains, ranging from fire brigades to medical experts. Moreover, experts differ with regard to the depth and length of involvement [6].

However, the category of the expert still covers a very broad range of actors. It thus tends to brush over important distinctions that structure the field and does not allow a more systematic assessment of the different types of experts involved in crisis and their respective contributions to respond to crisis. In a first step towards a more differentiated understanding of the role of experts during crisis, we suggested the analytical distinction between experts *for* crisis and experts *in* crisis [21]. The first type represents a rather general expertise on the procedural dynamics that all crises have in common [13]. These experts are usually called in to support less experienced decision-makers in situations of acute crisis, or in more ordinary times to prepare their customers for crisis. The latter category represents in-depth knowledge about a particular field or domain affected by crisis. These actors might have a long-lasting track record as scientific advisors in the respective domain, but they possess no superior skills that allow them to manage crises. They have, in other words, rich technical knowledge related to the field, but lack the procedural knowledge that constitute the crisis manager’s skillset. This tentative first distinction of experts provides a starting point for our analysis. We regard it as an important analytical distinction that can be used to structure the wider field, yet one that still needs to be substantiated and refined empirically, which is what we are doing in the next sections of this paper.

### 2.3. Contributions

With this paper, we seek to contribute to two strands of literature (on crisis management and expertise) by differentiating the diverse forms of expertise that might become influential during a crisis. Literature lacks a differentiated view of expertise during crisis. The term expert is applied to wide array of different actors and brushes over systematic distinctions. The difference between experts *for* and *in* crisis is only a first step and the starting point of this paper. But, as it stands, it is still insufficient to cover the magnitude of forms and types and needs empirical substantiation. In addition, the impact of the advice on decision-making is never static; it has been described as a complex process in which windows of opportunity open up [20]. In terms of crises, it has already been acknowledged that experts can be consulted at different stages [6]. The prevailing idea in the literature is that an acute crisis can be a window of opportunity for experts to influence political decision-makers, whereas the usual mechanisms of political negotiation take effect again after a crisis [4,5].

Starting from these conceptual gaps, we seek to provide an empirically grounded attempt to systematise the role of experts and their influence on decision-makers in the course of a crisis. In the following sections we try to decipher the concept of ‘expert’ and examine the systematic differences between different types of actors.

## 3. Data and methodology

The paper is based on insights gained from qualitative research conducted in Germany between 2018 and 2021 (see Table 1). At the core of our analysis are 15 semi-structured interviews with experienced advisors, conducted between May 2018 and May 2019. Entering the field, we used the distinction between “experts *in* crisis” and “experts *for* crisis” (in the subsequent sections abbreviated as “EiC” and “Efc” when quoting from or referring to interviews) to identify important representatives in the field. After an initial series of interviews, we also used recommendations from field actors to access further interview partners. The group of interviewees includes scientists who are experienced policy advisors, experts on crisis management structures (e.g. individuals entrusted with the establishment and organisation of crisis units) and consultants experienced in specific crisis areas (e.g. ecological issues, bankruptcies). For each interview, we used a guideline encompassing six main topics: Personal introduction, field of expertise, organisational context of advice-giving, own understanding of crisis, situations of advice-giving in crises and their specifics, function of advice to create and use opportunities in crises.

Additionally, we included fourteen statements from crisis experts that have been prepared for three workshops (subsequently referred to as WS1, WS2 and WS3), which we arranged between 2015 and 2019 and a panel session (PS1) on the topic as part of an international conference we organised in 2021. Finally, we conducted several interviews within the same project to reconstruct crisis dynamics in three empirical fields, a political crisis (subsequently referred to as “refugee crisis”), economic crises (related to the downturn of the “porcelain industry”) and ecological crises (related to “maritime accidents”) from different perspectives. A total of 55 respondents represents the full spectrum of involved participants such as executive managers, political and administrative leaders, blue light forces.

The three datasets complement each other in some ways. While the interviews with experts (which are at the centre of this paper) cover the supply side of advice, the other two sources also include the demand side of expertise, e.g. decision-makers and affected par-



**Table 1**  
Overview of data sources used for analysis (own design).

	Number of Interviews/statements	Year	Specification
Expert interviews	Total: 15	2018–2019	Scientific advisors (economics, environmental sciences, political sciences), professional crisis managers (ranging from organisations and authorities with security tasks to private crisis management enterprises) and professionals having recurring experiences with crises (e.g. lawyers)
Workshops and conference sessions	4	2015	(WS 1) Workshop of the working group “experts in crisis”, 4 December in Berlin with invited external participants (scientific advisor economics; expert river flood management; researcher international relations)
	4	2018	(WS 2) Workshop “Cultures of Crisis 3 – Professional Cultures of Crisis Management”, 8/November 9, 2018 in Frankfurt (Main) with invited external participants (two experts on international crises and peace-making operations, two crisis management experts)
	2	2019	(WS 3) Workshop of the working group “experts in crisis” on September 13, 2019 in Berlin with external participants (scientific advisor economics, professional crisis consultant)
	4	2021	(PS 1) Panel session on online conference “Emerging from emergencies”, 30 June to July 2, 2021; panel on “good advice in crisis” with four invited experts on crisis management and crisis communication
	Total: 14		
Interviews in the context of case studies	29	2018–2020	Case study on merchant shipping: Crisis management experts, coast guards, air and sea rescue forces, insurance company
	15	2018–2020	Case study on refugee migration: Expert advisors administration and political sciences, medical experts, administrative leaders
	11	2018–2020	Case study on porcelain industry: (Former) CEOs of companies, lawyers, representatives of the industry
	Total: 55		

ties seeking advice during crisis. It thus provides opportunities to triangulate different subjective accounts on the same topic [32]. However, the information obtained from the interviews conducted in the three empirical fields is much more contextualised and has a different empirical focus. Hence, this data did not contribute directly to our expert typology, yet helped to validate individual aspects of it.

The majority of our interviewees are from Germany. This is important to note as we generalise from the particularities of the German national context in our analysis of types of expertise, without ignoring the fact that crisis management institutions as well as institutionalised practices of consultancy and policy advice may differ across national states. However, as our focus is on the relational qualities of giving and seeking advice, we think the abstractions provided in this paper are valid beyond the German context. Moreover, we discussed our key claims with international participants in our workshops and panel sessions (see Table 1). Some of our German interviewees also have long-term international experiences and reputation in crisis management and were able to reflect upon national specificities as well. While all interviews have been conducted in German (quotes given in this paper were translated into English by the authors), eight workshop and panel statements were originally provided in English (those on WS2 and PS1), while six statements presented at WS1 and WS3 were originally provided in German. With one exception, all interviews have been recorded and transcribed verbatim. The workshop statements have been partly recorded and transcribed or we took minutes.

We applied qualitative content analysis [33]. We started fieldwork and data analysis with the rough distinction between experts *in* crisis and experts *for* crisis (deductive approach). The five types as elaborated below emerged from the data when we coded it along different dimensions such as self-conceptualisation of advice, type of involvement in crisis, nature of the relationship to decision-makers (inductive approach). In order to obtain a clearer picture of the potentially changing expert roles and requirements of advice in the course of a crisis, our research was further inspired by the methodological approach of “innovation biographies” [34]. We asked our interviewees explicitly about their entry and exit point in crisis advice and the specific constellation of actors involved in crisis response. In terms of data analysis, we carefully considered the specific time-spatial context of expert advice by reading the transcripts several times as a whole and discussing interpretations in the research team.

#### 4. Types of advisors and crisis process

Our data confirmed the validity of the analytical distinction between experts *in* crisis and *for* crisis. Yet, the analysis also revealed that both approaches may co-exist and typically interact with one another in practice. Hence, rather than representing mutually exclusive and sealed categories, experts *in* crisis and experts *for* crisis should be understood as ideal types that constitute the poles of a wider continuum, within which types of experts can be located (see Y-axis, Fig. 1). Types of experts that are positioned closely near one of the poles are characterised by the predominance of either expertise *for* crisis or expertise *in* crisis. For example trouble shooters represent experts *for* crisis very clearly, while trusted advisors when facing a crisis epitomize the ideal type of experts *in* crisis. More interesting, however, are those types that occupy positions somewhere in between the respective poles, like the situative or the accidental expert. In them, aspects of expertise *in* and *for* crisis are blended to varying degrees. The spectrum of the identified types of expertise is summarised in Fig. 1 and will be elaborated in greater detail in the following subsections.

On the x-axis in Fig. 1, we capture temporal aspects of crisis. It roughly differentiates between three successive phases, namely pre-crisis, acute crisis and post-crisis, to specify when the respective experts are asked for advice and at what stage of the crisis they usually disengage from the advisory relationship. This allows us to explore in greater detail the systematic differences between the ex-

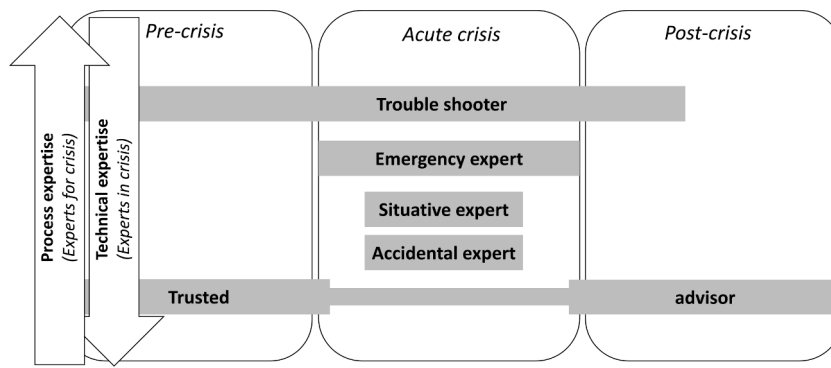


Fig. 1. Types of advisors, sources of expertise and phases of crisis

pert types, to better understand how their influence on decision-making varies in the course of the process and to capture temporal variations in the degree of influence of respective types.

In the following sections, we will decipher each of these types by describing the underlying dominant knowledge base (expertise *in* or *for* crisis), the nature of the relationship to decision-makers, the temporal engagement and disengagement in the crisis process (in relation to pre-crisis, acute crisis and post-crisis phases) and eventually the scope and kind of influence they have on decision-making.

#### 4.1. Trouble shooter: crisis as routine

This type epitomises the classic “expert *for* crises”. The trouble shooter’s expertise is based on years of practical experiences and a formal education in crisis management or crisis communication. The trouble shooter has a profound knowledge of the dynamics and logics of acute crises. For this expert type, a crisis primarily denotes a particular and well-known context of action. Chaos, time pressure, the necessity of making vital decisions under fundamental uncertainty and the resulting stress and emotional exhaustion are recurring elements that distinguish crises from ordinary situations; trouble shooters understand this very well and feel prepared to act in an appropriate manner. Trouble shooters have years of experience in dealing with crisis situations in different contexts, which enables them to manage every crisis, irrespective of the idiosyncrasies of practical fields or domains [13]. No prior knowledge of organisational structures or political situations of the crisis is necessary; in their professional self-image as “generalists” (EfC5) trouble shooters are confident in their ability to grasp any contextual specifics at short notice (EfC on WS3).

While the trouble shooter’s expertise is most urgently needed in the acute phase of crisis, the relationship to decision-makers is sometimes already established before the crisis. Trouble shooters reframe ordinary times as the “primordial stage” [13], emphasising that it is only a matter of time, when the next crisis will come. These experts also have permanent offers of advice in the form of training courses for crisis management, services for crisis prevention or crisis reflection etc.

“There are advisory mandates where you support a company for a certain number of days in a year and this is budgeted. In the event of a crisis, you are obliged to be there within half an hour, for example. That means having a stand-by-contract.” (EfC5)

A prior relationship is not mandatory for successful advice as this type has the ability and tested procedures (e.g. prepared contracts) to specify the scope of the mandate on the spot and to establish trustful relationships to decision-makers literally in few minutes (EfC13). This encompasses skills of building “rapid relationality” [20]. Routine services are, and have to be strictly separated from the acute crisis advice since the conditions of advice-giving are entirely different (EfC13).

As an integral part of specifying the contract, this type of expert attaches great importance to the boundary between their role as advisor and their customer’s role as decision-maker:

„If we enter a crisis and are on the spot, there is always the so-called ‘clarification of roles’. And we are very clear, ‘we are your advisors. [...] We give advice on what will happen if you decide this way or that way’. But the decision itself is always on the side of the customer.” (EfC13)

Our interviews with trouble shooters confirm that decision-makers in a crisis feel more dependent on external expertise and that this dependency causes a drift into quasi-decision-making. Clear contractual agreements on the definition of responsibilities are needed precisely to counteract this drift into role conflicts.

The influence of trouble shooters on decision-makers during crisis is immense. Usually, these experts enter crisis situations as the only person with prior crisis experiences. Due to their superior skills in dealing with uncertainty, they regard it as their duty to stay calm and deliberate in such situations. The confrontation with emotions and their management are key tasks to provide best possible circumstances for decision-making [35]. This is mainly achieved by offering simple structures to regain control over the escalating situation.

“There is this situation of chaos. And therefore, you need structure from the very beginning, which comes from the advisor to overcome this chaos-phase as quickly as possible.” (EfC13).

In the pre- and post-crisis phase, trouble shooters offer ongoing services that aim at professionalising their customers’ crisis management capabilities and to enhance their preparedness for the next crisis to come. In the pre-crisis phase, this is done by offering

seminars on crisis communication and practical training for employees, helping customer organisations to develop crisis management handbooks or to establish crisis management structures. During the post-crisis phase, these experts offer debriefing sessions and help customers to learn lessons from the past crisis.

#### 4.2. Emergency experts: crisis as an effective organisational mode

This type represents domains of expertise that are frequently related to emergencies, such as medicals, firefighters, policemen/policewomen or other representatives of public authorities responsible for public safety. In the German context this type of expertise is often represented by “authorities and organisations with security tasks” (“Behörden und Organisationen mit Sicherheitsaufgaben”; BOS). From their point of view, crisis is a temporary organisational mode that can be deliberately enacted to mobilise limited resources and focus attention on dramatic situations outside of established organisational routines (EfC1; EfC2).

Much like the trouble shooter, the emergency expert has acquired formal training and subsequent practical experiences in dealing with acute situations. Therefore, we positioned them close to the expert-for-crisis pole (see Fig. 1).

“[...] actually, it doesn't matter what crisis it is, it is more about the methodological approach. [...] Which information do I get? How can I filter information? Which information is important, which is not? How do I handle a larger circle of technical experts? How can I structure meetings?” (EfC1)

The emergency expert's skills complement the trouble shooting expertise. While the latter is specialised in the crisis itself, the former is specialised in emergencies. Emergencies are often, but not always part of a crisis. Part of such training takes place in settings that simulate stressful situations, e.g. marine rescue teams train to plug a leak with a few materials at hand while standing knee-deep in rising ice-cold water (EfC; in case study on “maritime accidents”). On the one hand, there are “routine emergencies” [36] that require professional handling, but lack the fundamental uncertainty and threat for public goods characteristic for crises. On the other hand, there are crises with emergencies. The fields of ocean shipping or refugee migration, for instance, are prone to emergencies. An entire range of emergency experts, such as sea guards, fire brigades, helicopter pilots, police forces, medical professionals have appeared.

Emergency experts enter the scene once a crisis has been diagnosed and remain involved until the emergency squad is dissolved (EfC1), often even before the crisis has ended. While the trouble shooter is in direct contact with strategic decision-makers and advises at eye level, the normal position of the emergency experts is more at the front line of the crisis, where the victims need immediate support or just behind the front line, for instance, in emergency squad rooms. Emergency experts tend to be highly specialised on a narrow task field (such as fire-fighting, psychological assistance). Often, they complement teams of specialists (EfC2, EfC11) and experience crisis management primarily as an individual contribution to a collective effort. They usually receive orders from decision-makers. Within their area of specialisation, they fulfil rather predefined roles and are trained to function in a pre-structured manner to keep their cool in the face of danger. Despite being in a hierarchical relationship to decision-makers, their routines and training lends them a high degree of autonomy when acting at the front line. For instance, they bring in clear priorities of values that need to be saved in an emergency (lives, nature and goods in the case study on maritime accidents).

The influence of emergency experts on decision-makers is mainly restricted to the phase of the acute crisis. Within their area of responsibility, they help decision-makers to save values threatened by the crisis. Due to their functionally limited tasks and predefined roles at the front line of a crisis, they lack immediate access to strategic decision-makers. They might, however, be called in to give their assessment of the situation at the front line to specify needed resources or to propose next steps to calm down an escalating situation. If asked for advice, the contact is transient and their involvement in strategic decision-making remains superficial. Yet, as one respondent (EfC during WS2) explained, the desire to include more of the emergency experts' knowledge about crisis dynamics into strategic crisis management was one reason why crisis management as a consultancy service for strategic decision-makers based on knowledge initially generated for blue light organisations (EfC13).

#### 4.3. Situative experts: crisis as a recurring event

In contrast to the trouble shooter and the emergency expert, the situative expert's knowledge is not connected to the matter of crisis in the first place and crisis does not constitute the core of the professional identity. Rather, situative experts represent knowledge domains that have turned out to be crucial to deal with a crisis in practice. They are, for example, lawyers who are appointed as insolvency administrators, criminalists who are consulted to help in negotiations with a blackmailer or software engineers who are asked for a technical assessment during a cyberattack. These are all examples of knowledge domains in their own right, but with a certain affinity to crises as the relevant skills have often become important in times of crisis in the past.

Therefore, over time, situative experts may build up track records that allow them to accumulate experiences from several crises.

“First of all, it is learning by doing – from the job you get a feeling about how you have to talk to them [clients in business crisis; authors]. Then you might also realise whether or not you are the right person for this job.” (EiC6)

However, even in such cases, the situative expert's conceptualisation of crisis lacks the general character of the former two types. Instead, they prefer crisis definitions limited to their core area of expertise: “We offer interdisciplinary advice about a crisis; I have to say an *economic crisis*” (EiC6, own emphasis). Therefore, we locate the situative expert exactly in the middle of our continuum, as they combine equal parts expertise *for* the crisis and expertise *in* the crisis.

Who actually becomes a situative expert depends very much on the idiosyncrasies of a particular crisis. Therefore, these experts are generally called once the crisis is already in progress and they leave, after having completed their task. However, due to the general affinity of their knowledge domain to the crisis, some individual situative experts may establish personal relationships with trou-



ble shooters that persist beyond the timeframe of an individual crisis. Some crisis management consulting firms or authorities with security tasks build and maintain networks with specialists who have superior skills and, at the same time, have already proven their crisis resilience (WS2 and 3). These latent ties can be reactivated at short notice, if required.

Due to the temporary involvement and a strict focus on narrow topics and specified tasks, the relationship of situative experts with decision-makers remains rather transient and weak. Unlike the trouble shooter, situative experts see no necessity to explicate the boundary between advice and decision-making. Nevertheless, role conflicts do occur, as decision-makers are usually strongly dependent on an accurate professional assessment:

“When the manager of a crisis is really dependent on what you tell him/her and it’s the information they need, then, of course, you act like a decision-maker.” (EiC8)

In some very specific cases, the boundary between advice-giving and decision-making does not exist at all and consulted experts have decision-making roles and formal responsibility at the same time. For instance, under German jurisdiction, tax consultancy experts are legally liable for the correctness of the advice given (EiC9).

In a nutshell, situative experts mainly help decision-makers to solve specified problems in the acute crisis. Within that narrow area their recommendations might have the quality of quasi decisions, but apart from that, their general influence beyond acute crisis times is rather limited.

#### 4.4. Accidental experts: crisis as the exception

The category “accidental expert” encompasses experts who become involved in crises despite the fact that their knowledge domain is completely detached from crisis management under normal circumstances. However, in the escalation of events, this expertise turns out to be related to the crisis in surprising ways. Accidental experts are either highly specialised in areas of knowledge with high proportions of idiosyncratic knowledge, such as a particular regional expertise or in-depth knowledge of an economic sector or even a particular company, its organisational culture and history, or they possess knowledge that is indispensable for coping with the acute situation that cannot be contributed by other members of the crisis response structure, such as specific language skills. They are usually ill prepared to manage crises, often have no prior experiences in giving advice at all. Hence, we placed them close to the expert in crisis pole of our spectrum.

Moreover, their involvement is difficult to anticipate, as it depends in unpredictable ways on the topic and scope of a crisis. They are asked for advice when the region they know much about or the firm they studied intensively is affected by a crisis. Becoming an accidental expert is always possible but highly unlikely. Such experts are not part of the networks of specialists created and maintained by the crisis management organisations (EfC on WS2) and therefore cannot be reached through snowballing strategies. In our interviews, we only learned of the existence of this type through accounts of other interviewees (EfC1; EfC11; interview maritime accidents), but we did not directly interview any representatives of this type, as the following example illustrates:

“I know a colleague who was called in [name of the location] to participate in flight missions during the flood. He advised about the hydraulic situation. Dikes burst there [...] and that was a critical situation in which he provided advice.” (EfC10)

Similar to situative experts, this type is recruited “*ad hoc*” [7] during the acute crisis and for clearly delimited tasks or even individual questions. Recruitment is oftentimes opportunity driven and to some extent coincidental. For instance, a regional specialist on the Ukraine with a disciplinary background in historical sciences, was asked by many media outlets to publicly explain the cultural context of the first Russian invasion of the Ukraine in 2014 (WS1). Given the erratic nature of the advisory relationship, it is highly unlikely to last beyond a single consultation.

Even though the respective expertise can become crucial, it has also been problematized to call in accidental experts during crisis (EfC1). When being confronted with concrete questions, they are easily pushed beyond the boundaries of their core expertise. Oftentimes, the thematic fit can only be partial. A contemporary historian can have a wealth of regional knowledge in their area of expertise and unveil important contextual aspects of an invasion of Ukraine by Russia. At the same time, this does not include a deep understanding of international relations, security policies or military tactics (EiC WS1). Moreover, sometimes it is not the most reputable specialist who attracts attention, but the most extroverted representative of the field [37].

Most likely, these experts have some limited, highly context-specific influence on the course of events during the acute phase of the crisis, but will have only a marginal impact on the respective fields in the long run.

#### 4.5. Trusted advisors: crisis as a symptom

Trusted advisors have established a leading position in their domain of knowledge. They are highly respected representatives of their field. This has given them access to high-level decision-makers and to institutionalised forms of consulting, such as memberships in reputable, permanent and temporary advisory boards. Advice most typically does not happen in crisis, but rather during ordinary times [38]. Thus, we decided to place the trusted advisor in close proximity to the expert-*in-crisis*-pole of our continuum (see Fig. 1).

Usually, trusted advisors have no prior knowledge of crisis dynamics; nevertheless, they can be consulted when a crisis affects their field of expertise or when a decision-maker confronted with crisis needs external input from a dedicated specialist. If a crisis occurs, trusted advisors tend to be surprised by its outbreak in similar ways as the decision-makers they advise. The relationship to decision-makers is established during non-crisis times and has a long-term nature. Over time, trusted advisors can become so accustomed to the practices they used to advice that they start to speak the same language as the practitioners. Initially, reputation and professional recognition ensures that the relationship can develop. In the course of time the personal trust between expert and decision-maker gradually grows and eventually might even become the dominant glue of the relationship. Hence, we called this type of expert

trusted advisor. Personal trust is regarded as a double-edged sword in consultancy. On the one hand, it represents a good foundation for a smooth collaboration between advisor and decision-maker. Social capital is a long-term effort that in case of a crisis can have effects similar to “rapid relationality” [20]. On the other hand, however, when personal trust becomes the dominant glue, trusted advisors might find themselves in a situation in which they are asked for personal opinions rather than professional assessments (WS2; PS1). Therefore, for trusted advisors “maintaining professional distance” (PS1) and focus on their own key competences are important behavioural rules to protect themselves against role conflicts and unreasonable expectations.

The influence of trusted advisors on decision-makers during crisis is rather limited. Trusted advisors are not trained to manage the crisis situation itself. They perceive themselves rather as a “sparring partner” (EiC12) for decision-makers to consider different options in a protected environment. In the urgency of an acute crisis, however, decision-makers do not have the liberty to reflect at leisure. Rather they might prefer clear answers to straight forward questions (EfC WS2; also [16]). Hence, the trusted advisor’s main influence lies in the pre-crisis phase, during which they regard it as their responsibility to prevent crises. This is a less visible and less reputable, though not necessarily less relevant, part of the consultancy practice:

“You get little credit for those things you prevent. The crisis manager who enters the scene and says ‘You did everything wrong, and now everyone is listening to me [...]’ gets more credit for his/her achievements than the one who carefully prevented a catastrophe for years.” (EiC4)

During the post-crisis phase, trusted advisors play an important role in interpreting the crisis. From their point of view, the striking point of a crisis is not its singularity (EiC4), but rather its nature as a “culmination” (EiC4) of a long-known and intensively discussed problem. A crisis is like a “brutal audit” [39] that unveils problems embedded in a common practice they know very well.

In contrast to the trouble shooter, the influence of a trusted advisor is less geared towards professionalising the crisis management skills of decision-makers. Rather, by framing the crisis as a symptom of problems, they have a good chance of using the crisis as a window of opportunity to initiate change in the practice field. In the acute crisis trusted experts may gain additional insights and understanding, but not necessarily enhanced influence. Their window of opportunity opens shortly after the acute crisis has been overcome and memories are still alive.

### 5. Discussion: crisis as opportunities for expert advice

Our empirical insights presented above allow us to answer the research questions posed at the start. First, we asked, what types of experts become influential during a crisis. In our analysis we deciphered the term “expert” and were able to demonstrate empirically that five different types of experts are called in times of crises to assist in dealing with the escalating situation and its practical consequences. We referred to them as *trouble shooters*, *emergency experts*, *situative experts*, *accidental experts* and *trusted advisors*.

Our second research question referred to systematic differences between these types of expertise. We were able to demonstrate that they differ systematically with regards to the ways in which they combine expertise *for* crisis and expertise *in* crisis, their temporal engagement and disengagement, the nature of the relationship to decision-makers and their influence on them (see Table 2).

**Table 2**  
The spectrum of advisors in crisis (own design).

	Trouble shooter	Emergency expert	Situative expert	Accidental expert	Trusted advisor
Roots of expertise	Expert for crisis	Predominantly expert for crisis	Equal shares of expertise for and in crisis	Predominantly expert in crisis	Expert in crisis
Professional identity	“Generalist”, can manage every crisis, needs only short time to understand the field logic of decision maker	Specialist for emergencies, introduces routines and clear prioritization of values	Specialist for a knowledge domain that (more or less) frequently becomes part of crises	Specialist for a knowledge domain that incidentally becomes central in the course of crisis	Specialist in a knowledge domain with long-lasting experiences in consulting in a practical field that has come into crisis
Temporality	Acute crisis but also pre- and post-crisis	Enters and exits during acute crisis	Enters and exits during acute crisis Latent ties during pre- and post-crisis	Enters and exits during acute crisis	Pre- and post-crisis, sometimes acute crisis
Nature of influence on decision-maker	Professionalises decision-maker’s crisis management skills	Helps to reduce threat by saving values (lives, public goods), Gives assessments on the situation	Helps to solve specified problems in the course of crisis Recommendations with “quasi decision” quality	Helps to improve the understanding of the context of the crisis	Uses crisis as a symptom for long-term, field-related problems
Crises as window of opportunity for advice	Beyond the scope of the crisis	In acute crisis only	In acute crisis only	In acute crisis only	Beyond the scope of the crisis
Examples	Crisis management consultancy, crisis communication specialist	Marine rescue team, Blue light organisations	Specialists for insolvency law, cyber criminality, kidnapping, social media, explosives	Regional expert, translator, sectoral insider, former member of an organisation	Reputable researcher with strong consultancy agenda, member of permanent advisory boards

Thirdly, in this paper, we advanced an understanding of crisis as a complex social process. In research question 3, we asked about the temporal dynamics of advice-giving in the course of crises, and in research question 4 we asked about the different degrees of influence of advisors on decision-makers in the course of the process. Our findings suggest that trouble shooters and trusted advisors can establish permanent ties to decision-makers and therefore have to adapt their everyday practices of advice-giving to the requirements of the acute crisis. Yet, due to the permanent nature of the relationship, these types have a greater potential of influencing decision-makers also in post- and pre-crisis times. Moreover, we observed three additional types of expertise that are activated *ad hoc* during the acute crisis and whose influence on decision-makers is more superficial and restricted to the acute crisis phase and on immediate crisis response issues. While emergency experts mainly contribute knowledge on crisis management (experts *for* crisis), situative and accidental experts are primarily called for technical knowledge (experts *in* crisis). But, do these findings also confirm the view that crises are windows of opportunities for advisors and temporarily enact technocratic forms of decision-making, which is our last and fifth research question raised at the start of the paper?

At first glance, this view is supported. We demonstrated that the spectrum of advisors widens in the acute crisis phase: three of the five types of experts we discussed above only occur during the acute crisis but not in pre- or post-crisis times. Not surprisingly, the role of expertise *for* crisis is being strengthened under the auspices of a crisis: trouble shooters become involved more intensely or step up for the first time. Also, emergency experts who are absent in pre- and post-crisis times enter the scene during the acute crisis. While decision-makers are familiar with the trusted advisors with whom they used to collaborate and upon whom they continue to rely in all phases, the arrival of situative experts or accidental experts during the acute crisis significantly increases the diversity of input related to expertise *in* crisis of decision-makers. Of course, these findings derived from qualitative data say little about the absolute number of experts consulted during a crisis. Yet, they allow us to conclude that in crisis a broader spectrum of advisors exert influence on decision-making compared to crisis-free times.

When looking at the quality of the influence advisors take in the course of a crisis, a more differentiated impression arises. Only trouble shooters and trusted advisors have immediate access to strategic decision-makers, are involved in strategic discussions on a broad spectrum of topics and are able to develop long-term relations with decision-makers. For these two types of experts, the window of opportunity to fortify their influence on decision-making opens in the post-crisis. For trouble shooters, any crisis in a sense reconfirms their claim for competence and most likely increases the demand for permanent services and expertise *for* crisis more generally on the side of decision-makers. Practice fields in which crises frequently occur are likely to pay more attention to trouble shooters and, in the long run, are likely to enter a development trajectory towards a greater professionalisation of crisis management capabilities in everyday business.

For trusted advisors, new opportunities for consulting emerge during the post-crisis phase, depending on their ability to successfully frame the crisis as a symptom of some field related problems. They need to engage in post-crisis “framing contests” [40] and must be persistent in ensuring that the decision-makers' responsibility for the crisis is not forgotten. However, especially when it comes to *policy* advice, the last experiences with crises, such as the COVID-19 pandemic, also revitalised the debate about democratic legitimacy of experts influencing decision-makers, especially when an acute crisis is over [4]. Another hotly discussed topic in the aftermath of the COVID-19 pandemic was the narrow selection of experts heard under the time constraints of an acute crisis [2,4]. This has given voice to some knowledge domains (that of epidemiology and virology) while suppressing other views (e.g. social sciences, pedagogic, psychology). Decision-makers and the public realised only in hindsight that important aspects of the problem have been underestimated for too long.

The influence of the remaining types of experts is clearly restricted to the acute crisis phase. These experts help to reduce the threatening aspects of the crisis and contribute to prevent the situation from further escalation but have only infrequent or indirect contact to strategic decision-makers. Only for these rather transient and topically strongly focused forms of consultancy, the thesis of crisis as a phase of technocratic decision-making applies to its full extend.

## 6. Conclusion

In this paper, we introduced a typology of different types of experts according to their role and function as advisors in crisis response. Based on qualitative data, we discovered the trouble shooter, emergency expert, situative expert, accidental expert and trusted advisor as types of experts, which become relevant during different stages of a crisis. These types differ with regard to the predominant knowledge base (expertise *in* or *for* crisis), the temporal engagement and disengagement in the crisis process (in relation to the pre-crisis, acute crisis and post-crisis phases), the nature of the relationship with decision-makers and eventually the scope and kind of influence they have on decision-making. Such a differentiated and systematised empirical account on expertise in crisis from a process perspective did not exist so far.

This paper is a first attempt to explore the role of experts in crisis situations. Our research has clear limitations as we solely focused on the dyadic relation between expert and decision-maker, thereby neglecting institutional and cultural aspects as well as unequal power relations and interests of involved actors, who critically influence and structure the advisory situation. Also, we cannot say much about the dynamics of interaction between these types of experts, even though they come together in practice and have to collaborate. Thus, our typology should rather be read as a starting point or an orientation for acknowledging the *diversity* of experts involved in crisis but less the *complexity* of specific crisis-response situations, different contexts of advice (e.g. public political, administrative or for-profit private organisations) and related opportunities for change and learning. Another shortcoming is that our study does not allow us to make any statements about the number of experts who are called upon to provide advice in crises. What we do know, however, is that the diversity of expert types increases during acute crisis.

Finally, due to the nature of qualitative research, the enlisted types of expertise are not exhaustive. Yet, we do claim that our typology encompasses important systematic distinctions helpful to disentangle observations in fuzzy practices. It is, however, not intended to separate or categorise empirical observations. In practice, for instance, aspects of different types of expertise can be embodied in the same person. Moreover, the typology is not static. In the course of time, persons acquire new knowledge and thus might shift from one type to the other or become hybrids.

In general, one could expect that the more crisis experiences a person gains, the more he/she will move towards the experts-for-crisis end of the continuum, e.g. an emergency expert might turn into a trouble shooter or become a hybrid form of advisor, e.g. the trusted advisor who, over time, accumulates ever more experiences in managing crises. Our typology is intended to improve understanding of the role and function, challenges and opportunities of expert advice in crisis, a topic that will most likely gain relevance in the future for the public debate and the social sciences.

### 6.1. Practical implications

We were able to show that a greater diversity of types of advisors become involved in crisis compared to non-crisis times. This raises new challenges on how to integrate diverse views and how to bring experts for crisis in fruitful collaboration with experts in crisis. Furthermore, our findings suggest that the accidental, emergency and situative experts occur almost exclusively at the acute stage of a crisis. The *ad hoc* manner of the engagement raises practical challenges on how to effectively organise match-making processes between decision-making and advice-giving. Also, the necessity of generating mutual trust on short notice becomes pertinent [20]. It is an open question in how far this ability is just a matter of personal talent or if it can also be trained professionally or supported institutionally. For the trouble shooter and the trusted advisor, the crisis represents just an episode in a longer lasting relationship. This gives them possibilities to also become influential during the post and pre-crisis phases.

The trouble shooter offers services in crisis preparedness and supports post-crisis reflection to some extent. As this type of experts can work most effectively when their customers are already prepared for crisis, many organisations beyond those that routinely deal with emergencies have to decide how many resources they wish to invest in crisis preparedness. The trusted advisor is generally more dominant in non-crisis times, but the relationship remains in place during the acute crisis phase. However, the relationship has to be adapted to the particularities of the crisis situation. Unless trusted advisors acquire some skills from crisis management, their influence during the acute crisis will diminish compared to non-crisis times, even though their addressees become more dependent on external expertise. Deep understanding of the temporal dynamics of crisis is helpful to better understand the opportunities for intervention in the course of events. For instance, in the acute crisis, experts are expected to provide clear answers to straight forward questions. They need to filter complexity to enable effective decision-making. Once the crisis is overcome, however, time is ripe to reintroduce complexity and to keep the momentum to induce change in the practical domains they consult in Ref. [31].

Finally, in our paper, we did not differentiate between different contexts of advice in crisis. However, when it comes to *policy* advice, it should be noted that the influence of experts on decision-makers and the representation of knowledge domains are, of course, not unproblematic issues from a democratic point of view [2,5].

### 6.2. Theoretical implications

We seek to contribute to two strands of literature. The social scientific debate on expertise lacks a deep understanding of the particularities of crisis as a practical context for advice different from everyday business. For this debate, our findings on trusted advisors and, to a lesser degree, on accidental and situative experts show how a context suddenly and surprisingly dominated by uncertainty, urgency and threat brings about significant changes in advisory practices. Moreover, our findings suggest that the term “expert” may be too broad to capture all particularities of advice in different practical contexts.

The topic of leadership in crisis for the crisis management debates needs to be extended by also considering those actors who have an influence on decision-makers. Our findings suggest that additional research on how to usefully integrate external technical expertise in crisis management is desirable. Moreover, our approach raises the awareness that the crisis managers themselves are not only experts for crisis but at the same time also actors in crisis. While trusted advisors might use post-crisis “framing contests” [40] to address structural problems that already existed subliminally before the crisis, trouble shooters tend to advise their customers towards a greater professionalisation in crisis management. Their influence on practical domains does not only change the course of a crisis. In the long run, their influence can even change the character of the field itself by pushing them into the direction of emergency or risky contexts [41]. The long-term effects of crisis, crisis management practices and crisis consultancy on practical domains is another field of research that still waits to be pioneered.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

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