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Governing the sea rescue service in Sweden: communicating in networks

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Governing the sea rescue service in Sweden—to communicate in networks

Abstract

This paper discusses how various actors communicate about and coordinate sea rescue activities in networks. We combine a network approach with theories of inter-organization communication to understand how communication can facilitate or limit coordination in networks. Search and rescue officers retain the overall authority to direct rescue missions, and coordination with several other professions is central to this. When coordinating different professional actors in a network it is important to develop trust, legitimacy, and a shared and uniform understanding of the situation and of how to act. Communication deficiencies often result from the fact that involved actors belong to different organizations with different cultures or representing different professions. The greatest gap we found was between those working and not working at sea, and between those habitually or seldom involved in rescue activities. Communication comprises more than simply exchanging information; it also entails the forging of relationships, to facilitate future coordination and cooperation and to develop mutual trust and understanding. In any rescue operation it is important that the actors interpret communication in the same way and act according to a shared pattern. Joint training and follow-up are important conditions for continuous learning and development in this regard.

Introduction

In Scandinavia and elsewhere, people now have higher expectations regarding society's ability to handle emergencies. The occurrence of several natural disasters has drawn increased attention to society's emergency management abilities. Emergency management includes risk assessment as well as measures to prevent sudden, unexpected occurrences that entail serious consequences for fundamental functions of society. The seriousness of these consequences calls for preparation from authorities and other actors on all levels of society; it also calls for the engagement of volunteer and interest groups.

To structure and organize the contributions of these actors, a specific arrangement with the *frivillig resursgrupper* (FRGs)—or volunteer resource groups—has been introduced to the emergency management system. Such volunteer groups represent a resource available to municipal emergency management. FRGs are not regulated in law, and it is up to a municipality whether or not to use them. FRGs represent a structured form of cooperation between a municipality and volunteers. These groups comprise people with various competencies required by a municipality, giving municipalities relatively easy access to capable people in an emergency. FRG members should above all be able to take initiative and improvise in an emergency; they should, for example, be able to administer first aid in an emergency or act as an extra resource in communicating with the public (Krisberedskapsmyndigheten, 2005).

The involvement of such organizations calls for an ability to uphold communication between actors of different backgrounds and professions. The professional actor, working in emergency management on a daily basis, must be able to communicate with people who are seldom involved in such activities. In Sweden, the Maritime Search and Rescue Service (SAR) has long experience of coordinating organizations involving people with different professional skills. Essential for policy making in changing situations is the actors' capacity to learn and handle new information, so a processes perspective expects actors to learn and change. This paper will focus on the Swedish Maritime Search and Rescue Service and their experience of communicating in

networks, to find what lessons Swedish emergency management in general can learn from that sector.

Like Swedish emergency management in general, maritime SAR includes measures taken in response to sudden, unexpected events that are traumatic for those involved. Both maritime rescue and emergency management require the ability to coordinate cooperation between public and private actors. Designing and developing SAR services must be done in close cooperation with many different actors, often belonging to different professional groups. Since cooperation in interprofessional teams¹ is on the increase today, it is important to acquire competence in collaborating and communicating with other professions. We create, recreate, negotiate, and establish a shared and uniform understanding of phenomena through using language, and the language we use changes or confirms social relationships. The transfer of knowledge, meaning, and understanding via communication between people is neither neutral nor unproblematic. In civil defense, various professionals with different norms, knowledge bases, and technology use must communicate when cooperating to solve problems; this must be done without serious misunderstandings that lead to costly—in both human and material terms—consequences. The risk of misunderstanding in such communication increases in groups in which specialist knowledge is represented by professionals with different amounts of experience of collaborative work in networks of organizations with different structures, cultures, and geographical settings (Törnqvist, 2004).

Purpose and methodology

In emergency management systems, a range of public and private organizations needs to coordinate activities in emergencies. This paper examines how actors representing a range of different practices communicate with each other and coordinate their activities in networks. We combine a network approach with theories of inter-organization communication in attempting to understand how communication can facilitate or limit coordination in networks.

¹ We use Donnellon's definition of a team as, "A group of people who are necessary to accomplish a task that requires the continuous integration of the expertise distributed among them" (Donnellon, 1996: 10).

The empirical material cited here comes from case studies of the Swedish Maritime Search and Rescue Service, primarily its operations at the Gothenburg coordination center (Törnqvist, 2004). These studies collected data using participant observation, document studies, and audio and video recordings. SAR officers were interviewed and documentation such as laws, regulations, manuals, and written communications were also examined to grasp the framework in which SAR activities occur.

The first part of the paper presents a conceptual discussion of network and governance steering, coordination, and cooperation and of the possibilities and limits of communication between different groups or organizations. The second part discusses the tradition of coordination and communication in maritime SAR in Sweden. We wrap up the paper with a concluding discussion that includes a brief consideration of some policy implications.

Communicating in networks

Emergency management and maritime SAR systems are designed and developed according to established institutions and legal frameworks. At the same time, this process requires coordination and cooperation between a range of public and private actors in networks. Current political science literature identifies two main theoretical approaches to organizational steering, namely government and governance. A traditional government approach highlights the formal chain of command of public organizations and decision making by political actors. From a government perspective, the role of formal institutions and the state's monopoly on legitimate coercion is the focus. State institutions can thus make decisions and also have the capacity to enforce their implementation (Stoker, 1998). The development of governance structures is regarded as a consequence of the state's increasing need to mobilize the resources of actors outside their formal control to be able to formulate and implement public policy.

The governance approach identifies a network-oriented method of decision making, including intricate interplay between public, private, and non-profit organizations. Peters and Pierre explain that governance “...refers to the process through which public and private actions and resources are coordinated and given a common direction and meaning” (2004: 78).

The governance approach focuses on how and why actors continue to participate and interact in relatively stable networks. Networks are considered as non-hierarchical arrangements of mutually dependent actors, and are explained as arising from the needs of the involved actors to exchange resources and negotiate shared purposes. Cooperation and coordination in networks are regarded as the best ways to serve common interests (Börzel, 1998). In this paper we mainly focus on how marine SAR has developed in networks of public and private actors.

Networks are considered as non-hierarchical arrangements of mutually dependent actors, characterized by uneven power relations and usually containing open exits. Interdependencies and resource exchange are regarded as central to networks and are also decisive for what actors are included in and excluded from a given network (Rhodes and Marsh, 1992).

When cooperating in networks, actors need to communicate with others who may possess professional backgrounds different from their own. The particular form of communication used determines how problems will be handled and what policies will be developed. Kingdon (1995: 146–147) discusses the existence of a “national mood” among central actors in a policy area. He is referring to how established actors involved in a discussion are comfortable with its contents and can sense when the mood shifts. There exists a key understanding, which, although facilitating communication, also constrains the development of policy and the introduction of new ideas. However, the existence of a national mood or shared understanding is crucial when coordinating actors in an emergency. To minimize risks and handle insecurity it is important to establish smoothly functioning communication.

High-reliability organizations (HROs) are organizations with a low tolerance for defects in the technical systems with which they work (Bea and Moore, 1993; Bierley and Spender, 1995; Roberts, 1990; Rochlin, 1993; Weick *et al.*, 1999). They thus constantly endeavor to eliminate defects from their systems (La Porte and Consolini, 1991, 1998), as one mistake can cause a loss of public support. Communication in HROs is often not face-to-face but mediated, and the actors involved in the communication may not share the same values or professional background. Communication in large systems, such as marine SAR systems, serves two purposes: 1) to clarify roles, goals, relationships, and responsibilities, and 2) to develop trust and shared values (Grabowski and Roberts, 1997).

In marine SAR, various public, private, and non-profit organizations must coordinate their activities in an emergency. According to Wenger (1998), an organization is a social construct consisting of various constellations of practices. These practices negotiate their own activities, even though they sometimes represent only responses to regulations. These practices are created, developed, and dissolved through learning. Practices also create their own boundaries, which may be—but are not necessarily—the same as the related institutional boundaries. These boundaries are especially interesting because they are a learning resource, giving rise to scope for new interplay between experience and competence. A practice includes elements such as language, tools, documents, symbols, well-defined roles, and regulations, all of which may be visible; equally important, however, are unspoken norms, embedded understandings, tacit agreements, etc. Wenger points out that a practice entails both acting and knowing, manual and mental effort, and concrete and abstract purposes; the process of being engaged in a community of practice thus involves the entire person.

In networks, actors' relationships can be seen as communication channels, through which resources such as information, knowledge, and trust are exchanged (Kenis and Schneider, 1991). The relationships differ, however, in their level of intensity, normalization, standardization, and interaction (Börzel, 1998), and the actors are entangled with each other by webs of rumor, friendship, mutual interdependence, etc.

Members of networks exchange resources, and cooperation and coordination are seen as the best ways to address common interests in networks (Börzel, 1998). Relationships and resource exchange in networks take place over a long period of time through a general pattern of interaction, in which the members take part in mutual and common actions (Powell, 1991; Kickert *et al.*, 1997).

Emergency enforces cooperation between different organizations and relies on the existence of relatively open networks. In an open network no decision will be legitimate just because it is regarded as so by *one* organization or institution; rather, legitimacy emanates from interplay between legal interpretations, shared understanding, and trust in the network. Maritime SAR depends on these networks and on properly functioning communication between different organizations. When members of an organization talk with each other and with outside parties, quite apart from communicating, they are also constructing the organization itself through the process and substance of the communication. It can be said that an organization is created, maintained, and activated through communication, and if the communication is misunderstood the organization's existence is potentially weakened. If communication in a network is to be effective, without costly misunderstandings, network members must acquire communicative competence, meaning an ability to use language appropriately given the parties involved in a specific situation. Whether the communication is face-to-face or is in some way mediated must also be considered (Vaughan, 1996, Walther, 1992, 1996).

SAR practice is formed from the interplay of participating actors and institutional arrangements. We will now discuss some examples of the communication involved in this and its implications for policy in the SAR area.

Swedish Maritime Search and Rescue Service

The Swedish Maritime Administration is the state authority responsible for maritime search and rescue (SAR). Their operations are managed and coordinated from the Maritime Rescue Co-ordination Centre (MRCC), located in Gothenburg. A SAR officer can use all the resources of society in attempting to save lives, meaning that s/he must

cooperate closely with a wide range of actors. Actors from different professions and organizations and even speaking different languages frequently collaborate in performing a rescue mission.

The various actors involved cannot interrupt ongoing cooperation during a rescue mission even if they think it is not working well; rather, they must cooperate to rescue people in distress at sea. The actors also know they will meet again in the future and therefore need surmount any differences of opinion. The SAR officer is the management officers who is actually posted to the field, and s/he needs to weigh the risks of an operation from the information received from many different places and actors, both lay and specialist.

SAR officer in charge of rescue operations

The SAR organization is a lean organization that most often receives alerts as they first come through the “112 alarm” system. The SAR officer interviews the caller, alerts all vessels in the area involved, decides what to do, and then contacts the appropriate rescue units. Throughout the operation, the SAR officer stays in direct contact with each unit, including the vessel in distress if possible. If the accident is a major one, a staff is created from the experts that come to the rescue centre. If many operations are taking place at the same time, the SAR Officer can request help from the other organizations working in the same room as the MRCC, namely, the navy, coast guard, and Aeronautical Co-ordination Centre (ARCC). These organizations can also participate in everyday SAR work without the creation of any formal staff. This makes it uncomplicated, for example, to alert airborne units of search or rescue missions.

The SAR officer has access to a full range of communications equipment and to computer support, such as databases. One such database contains information about available resources such as aircraft and boats, detailing their technical specifications, the kinds of missions they are suited for, exactly where they are at a given time, and how they are equipped. As well, computer programs allow the estimation, for example, of how far and in what direction a boat may have drifted under different conditions.

To become a senior SAR officer one must possess a higher nautical degree, and most officers have many years of experience of working at sea, often in an organization involved in rescue missions. A newly hired officer begins in which theory and practice are mixed; s/he is “the third person,” meaning that s/he works together with the two senior officers on duty. After a while, the apprentice replaces one of the senior officers on the watch. Exactly when the apprentice/junior officer is ready to become a master/senior officer is decided by the other senior officers in consultation with the apprentice. The Swedish model is an example of what Lave and Wenger (1991) and others describe as a learning process running “from the periphery to the centre,” in which learning is situated and happens in a particular socio-cultural context.

Technology decides how to communicate

In earlier times if one were in distress, one assumed that help would arrive from nearby and that one would only be able to alert helpers by means of visual signaling, for example, using signal flags, arm movements, or light. The amount of transferable information was limited, and though only a few interpretations of such signals were possible, misunderstandings could occur. Newer technologies allowed more information to be transferred faster, over greater distances, and to more people. This in turn has increased expectations as to the number of people and units who will react to an alarm, and more people taking part in rescues has meant a greater need for coordination if such cooperation is to be effective. Thus, the person in charge of the rescue operation must be able to interpret the information and sift out what is essential in the information flow. This requires great communicative competence on the part of all those involved in a rescue operation.

The new Global Maritime Distress Safety System (GMDSS) consists of different parts which are sending out distress signals more or less automatically. With this system the emergency frequencies do not need to be constantly monitored, since the rescue centre itself is directly and immediately alerted (Törnqvist, 2004).

Up to approximately 99 % of these GMDSS alarms are false, in the sense that someone has “pressed the emergency button” by mistake. When this happens, however, there is no way to cancel the signal that has alerted the rescue centre, even though one may think one knows what has actually happened. Sending a “May Day” call by voice, however, demands more consideration and unintentional alarms are virtually never propagated in this way.

The spread of the cellular phone has made it easier for those at sea to maintain contact with friends and relatives, potentially reducing the number of missing person alarms. On the other hand, the technology has raised expectations as to contact frequency: people now expect to be able to call someone at any time, or that someone on holiday should report at a certain time every day. If these expectations are disappointed anxiety and alarm can result. The “missing” person may simply have forgotten that the batteries were flat or that the phone was out of range, which also means that the cellular phone cannot be used in a real emergency. The cellular phone can thus create a false sense of security, and SAR officers end up spending a lot of time simply calming down relatives.

Organizations can also contact each other using mobile phones, which, compared to the use of VHF radios, prevents communications from being monitored or overheard by uninvolved parties. Cellular phones can also be used to trace a person’s movements and with whom s/he has been in contact and when. The cellular phone is used not only for alerting but also to coordinate rescue operations. However, a disadvantage of the cellular phone for this purpose is that all the units involved in the mission cannot simultaneously follow what is being said. This can cause information gaps that could even delay the rescue or—in the worst case—result in misunderstandings or incorrect information going uncorrected. With the help of telecommunication companies, cellular phones also let the SAR officer pinpoint exactly where the cellular phone has been used and at what date and time. This is obviously a great advantage when a SAR officer needs information regarding the whereabouts of a person in perceived or real distress, or when a person in distress does not know where s/he is.

All this new technology means that more people can be reached by a distress signal and that many parties can now cooperate in Swedish maritime SAR efforts. Current technology also allows rescue operations to be coordinated and led from a great distance; consequently, there is only one rescue centre for all of Sweden, located in Gothenburg.

Rescue operations in practice

In every rescue operation a log is kept in which operational activities are recorded in detail. Nowadays such logs are kept using a purpose-developed computer program; the program is connected to the SAR databases and automatically records information such as date, time, and phone numbers. If the SAR officer finds something particularly noteworthy in connection with the case, s/he can record it in the program as well. Often these records are used to highlight aspects of operations that need to be improved, for example, whether a distress signal was handled improperly due to misunderstanding or knowledge gaps. Problems can also arise because a SAR officer was deliberately given wrong information because of competition between rescue units. Of course, such records also include information about aspects of cooperation that went particularly well. These logs, complete with any appended notes, are the basis of discussions among SAR officers that form part of ongoing group competence development.

A not so obvious part of such continuous learning is the ongoing discussion between SAR officers of how best to use the computerized log. Such discussion arises spontaneously in relation to search and rescue operations, and can continue for an extended period. Superficially, the SAR officers may seem merely to be discussing the technology when reflecting on how the program works, i.e. how and where to record an event. Unawares, however, they are first and foremost discussing their own ways of getting the work done, and the dialogue can encompass both concrete work methods and ethics questions. The officers are both directly and indirectly sharing their experiences of how rescue operations can develop and their views of how “skilled” rescue operations should be conducted and how “skilled” SAR officers ought to act. At a deeper level, these discussions concern how they view their community of practice.

This learning process can be said to exemplify how socio-cultural learning also is situated learning.

Much, if not all, of this enormously important communication is mediated, and most people involved in a rescue operation and mission have never met face-to-face. How is trust and confidence created between people who have only “met” by phone or radio? Researchers such as Walther (1996) maintain that one can create a functional relationship through computerized contact if sufficient time is allotted, and we will give an example of this from the Gothenburg rescue center. Earlier we mentioned the database containing information on all available resources, including aircraft, boats, etc. The database is updated in real time, when the person monitoring a particular resource contacts the SAR officer (for example, to say that a boat is leaving its normal port for a few hours for an exercise) who then updates the database. You would suspect these calls to be relatively brief, but besides simply dealing with the matter at hand, the weather, current cases being worked on together, friends in common, etc., all come up—in short, small talk about anything or nothing, which can seem meaningless to an outside observer. Such personal communication does not serve to exchange information or convey knowledge, but rather to create or cement a mediated relationship, to facilitate upcoming cooperation in rescue operations and missions. This relationship, created via one or more communication channels, must then be recreated when the parties meet face-to-face. Diane Vaughan (1996) claims that one factor contributing to the disastrous decision to launch Challenger was the fact that the decision was made over the phone, something that had not happened before (prior launch decisions were made face-to-face). In this instance the actors misunderstood each other, despite their previous relationships, as this time they could not see gestures or other body language. The decision-making setting was thus different, and the parties to the decision could not correctly interpret the information they gave each other. The decision setting is also important in everyday work at the MRCC.

Example of communication problems

Swedish marine SAR is built on cooperation among many different organizations that are active in different geographical places. Many notes in the computerized log concern such cooperation, and mainly discuss mistakes occurring when the wrong actor was called on in an emergency or there was a lack of knowledge of how to act in a specific situation.

In one example taken from the SAR log we can sense the irritation between the SOS operator and the SAR officers:

SOS ... calls and wonders who had called a helicopter. Answered that it was the sea rescue that called and received a very sharp “Why?” and “On what grounds did you do that?” Answered that we called the helicopter and that we did not even need to contact the SOS center to do that. The person kept up his argument, and to avoid go crazy² I connected to ARCC³ ... Discussing this during an alarm and while on operative duty doesn’t lead anywhere.

In this communication we can sense the irritation between the two parties, but also disagreement over who is responsible for what issue. They cannot even agree as to when discussion of the matter should take place.

What issues should be part of an organization’s responsibility is also under discussion. The overall responsibility of marine SAR has not been clarified to all parties, as can be seen in the following note written by a SAR officer:

Doctor ... forcefully questioned why he should concern oneself with a pleasure sailor who is situated in a pleasure craft and who has fallen on a bare hillock ...

From the notes it is also obvious that as well as some units not knowing how to contact the MRCC, they are also unsure of who is responsible for what. In these situations they simply act the way they usually do in their organizations:

Obvious routines must be updated with the fire boat. Communication works very badly and they do not know how to contact MRCC. MRCC only wishes to have the fire boat. SOS and the fire officer also alerted the fire engine and a minor boat ...

² Original: “gå i taket.”

³ ARCC = Aeronautical Rescue Coordination Centre.

Other notes from SAR officers describe how their decisions have been questioned by other units:

Again a lot of unnecessary drivel from Mr. ... whether he should go forward to the position or return. In this case MRCC⁴ required him to go forward. [The reasons] why do not need to be discussed, but are obvious. No answer after a selective call, so MRCC had to use a telephone.

A SAR officer's decision is rarely questioned, though it could happen when someone is unaware of a SAR officer's formal authority. However, this was unlikely the case here, since it was noted that the party involved had questioned the officer before. These communication difficulties need not be attributed to the fact that the people involved represent different organizations, are in different locations, or belong to different communities; individual people could well have difficulties cooperating quite independently of the organizations to which they belong.

The notes do not only contain comments describing poor communication. There are also notes that single out other organizations and instances as examples of good work and cooperation.

The SAR organizations also evaluate the work done in a rescue case. Many comments in the log-book from these evaluations concern whether and how to report cases of drunkenness at sea. One explanation of why such reports are not generally forwarded to authorities could be the different goals of different organizations. For the police, for example, who must control sea drunkenness as one of their everyday tasks, it is important that SAR officers report any such suspicions. For SAR officers, however, an obligation to report such cases could actually impede their efforts to save lives, as a person involved in an emergency but who has used alcohol could, for fear of being reported, avoid calling for help.

Knowledge of the standard abbreviations in use is one small facet of communication competence in the marine SAR field. For one working with these abbreviations every day, such knowledge comes rather quickly. However, for a fire fighter or volunteer who

⁴ Maritime Rescue Sub Centre.

seldom takes part in rescue operations at sea, ignorance of these terms can be a major hindrance to communication. These abbreviations are, however, standard worldwide, facilitating international communication in the SAR context.

Different communication abilities are required depending on whether one is communicating face-to-face or via telephone, radio, or computer but information and communication technology can create a substitute for physical space from a geographical context. A virtual pocket of local order can be created where projects are carried out based on the resources and restrictions available to the various organizations involved in the Search and Rescue Service and coordinated during a search and rescue mission.

Concluding discussion

SAR officers retain the overall authority to direct and make decisions pertaining to SAR missions. In this activity technology is important, having several different functions:

- Technology that **replaces humans**, for example, an emergency position indicating radio beacon (EPIRB) that replaces a wireless operator
- Technology that **activates humans**, for example, automatic alarms
- Technology that **complements** or aids humans, for example, various computer programs for making advanced calculations
- Technology that **is activated by** humans, for example, information from operators about where a specific cellular phone is located, when it was last used, etc.

In Sweden, the technology developed for the SAR field is mainly technology that can be said to be *controlled* by SAR officers, i.e. it is the officer who actively decides whether or not to use a certain computer program designed to support her or his work. Globally, standardized systems that *activate* the SAR officer are gaining ground, and the SAR officer is likely to become more of a system monitor.

At the same time, coordination and cooperation with various professionals is still central to the work of SAR officers. Sharing resources such as knowledge, information, and

artifacts is essential to marine rescue operations. The actors must depend on each other if they are successfully to complete a sea rescue mission. As we have seen, marine SAR largely concerns the ability to coordinate cooperation among various organizations and units. Independently of whether the groups whose activities are being coordinated are paid or voluntary, they still need to deal with the same elementary problems concerning interplay, roles, and relationships. This aspect has been overlooked in most network literature, and research into it would build our understanding of how actors coordinate and cooperate in networks.

When coordinating different professional actors in networks it is important to develop trust, legitimacy, and a shared and uniform understanding of the situation and how to act in it, and communication is crucial to this process. Despite all the technology used in the marine SAR field, it is the people involved in search and rescue who matter the most; in the final analysis it is their experience, competence, and commitment that are decisive.

Most of the communication in SAR missions is mediated, i.e. the people communicating are not present in the same geographical place, so great communicative competence is demanded of SAR officers.

As exemplified in our case study, such communication is facilitated by the fact that most actors in the marine SAR network have established long-standing relationships and hence are familiar with each other. Although they may not always agree, they understand how to communicate with each other and when it is time to end a protracted discussion that is leading nowhere. These are important factors enhancing coordination and facilitating cooperation in the context of a rescue mission and are also central to a community of practice. Locally, rescue units have developed communities of practice in which the members share routines, a certain way of solving problems, and a special culture. It is worth noting that this community building is an ongoing process, taking place mainly during SAR mission operations. Not least, the log has proved to be important in helping actors improve their communication and cooperation routines.

In relation to other emergency management activities, one lesson drawn from marine SAR is obvious: one must develop a shared language, without too many abbreviations or acronyms. In the studied case, communication deficiencies often could not be attributed to the fact that people belonged to different organizations with different cultures or represented different professions. The greatest observed communication gaps were between those who did and did not work at sea, and between those who habitually and seldom worked on rescue activities. It is crucial to realize that communication represents more than just an exchange of information; it is also a way to forge relationships that facilitate future coordination and cooperation and to build mutual trust and understanding. In a rescue operation it is important that all the actors interpret communication in the same way and act according to a shared pattern. Joint training and follow-up are important for ongoing learning and development in this regard.

Investing in a computer program that is available to all actors and can be used for logging events and reporting good and bad experiences during a rescue mission is one way to facilitate communication among those involved and in the end deepen cooperation. In marine SAR, the mobile phone is the lowest common denominator, and was even regarded as a hindrance by the involved actors. At the same time, it is essential for communication to develop shared, uniform routines, such as taking notes during a mission for evaluation afterwards. In the marine SAR case, the log proved to be an important learning resource, even though not all actors had access to it; using it, past events could be recalled and analyzed in the interest of future improvement. As demonstrated, shared technology is crucial for success, and it could be used to create both virtual and physical arenas in which actors can meet, practice, and develop shared routines, language, and values.

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