"Got any ideas?" "Actually not."
The communicative construction of decisions in organizations

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The expression "die allmähliche Verfertigung der Gedanken beim Reden" ("the gradual completion of thoughts during speech"), the title given by Heinrich von Kleist (1878) to a subsequently influential work, is not only a brilliant reference for all those wishing to justify talking as a way to develop ideas, problems, and solutions to those problems while thinking aloud. It is also a starting point for the discussion to be conducted here. In fact, Kleist's expression has already been adapted for the purposes of organizational studies: Alfred Kieser's (1998, p. 45) title, "Die allmähliche Verfertigung der Organisation beim Reden" ("The gradual completion of organization during speech") highlights a discussion which has taken very different theoretical forms and which understands "organizing as communicating" (ibid.). The aim of this paper is to further this discussion, considering a) the connection between communicative constructivism (cf. Keller/Knoblauch/Reichertz 2013) and organizational studies, and b) the understanding of decisions in organizations.

The first step will be to outline core premises of communicative constructivism, and important lines of the debate around the connection between organization and communication. This will be followed by the analysis of a crisis situation in civil aviation, showing how decisions come about as actors communicate. The conclusion drawn from this is that a decision should not only be understood as the output of the mental processes of a human subject, but rather as the outcome of a communicative process in which a decision develops and becomes real by being perceived and designated as real. The concluding discussion addresses what this means for a complex model of organization, and thematizes one of the problems of the previously developed understanding of sociality, organization, and decision-making: the distinction between interaction and communication.

Communicative constructivism as a starting point

Within communicative constructivism, the problem of the distinction between interaction and communication is, in principle, resolved. In consensus with large sections of communication studies, there are two clear starting points: Firstly, communication is not understood solely as the intentional

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exchange of information, but as a comprehensive connection linking human subjects to one another and to the world (cf. Reichertz 2010; Watzlawick/Beavin/Jackson 2011). Secondly, communication extends beyond language: communication is not solely a verbal process of mutual referencing; it includes non-verbal utterances as well as speech. Regardless of whether it involves linguistic or non-linguistic, conscious and intentional or unconscious utterances, the goal of communication is always to reach understanding – with oneself and with others. Reichertz (2013, p. 50) summarizes this as follows:

"Communication is [...] not only the means by which people intentionally send messages and try to influence others [...], instead communication is always also the human practice with which identity, reality, society *and relationships are determined at the same time [...] Communication [...] does not solely serve to transmit (information), but also to mediate (social identity and social order)."* (own translation)

Communication is thus understood as a fundamental operation forming the basis for all things social: identity, relationships, order. With this comprehensive notion of communication as the foundation for the construction of sociality and society, the original notion of social constructivism is expanded and given a new focus. It is no longer knowledge that is seen as crucial for the production of reality (cf. Berger/Luckmann 1969), but rather the process and practice of knowledge-based communicative exchange. This directly links the subject, the subject's resources (knowledge, skills), communication and action: human subjects are the originators of communication, communication is tied to knowledge of the signs, the language, and thus the symbolic order of a society, and interaction, i.e. the mutual referencing of two or more subjects, is subsumed into communication. And the frame in which communication occurs, i.e. the knowledge, rules and resources referred to by communicating subjects, is created in processes of institutionalization through communication.

Under discussion: organization and communication

Interaction, communication and knowledge are also critical reference points for analysis in organizational studies. In a traditional understanding of organization, organizations are formally constituted and regulated structures with the function of achieving goals and purposes by means of the division of labour (cf. Abraham/Büschges 2004; Kieser/Kubicek 1983). This is made possible by the fact that actors create the structures and strategies of organizations on the basis of differently distributed resources and within the framework of formal and informal rules. Crucial aspects here are the exchange of knowledge and information and the coordination of goals, motives and interests (cf. Crozier/Friedberg 1993; Ortmann 1995; for a summary see Wilz 2010). The question of how actors within organizations acquire knowledge, and how organizations develop, store and manage knowledge (beyond actors' individual stores of knowledge), is therefore of great importance. Here

knowledge is seen mainly as a "means to an end", as an objectifiable resource, while organizations are understood as a space in which knowledge is developed, preserved and exchanged.

From this perspective, communication is also regarded as an event that takes place *in* organizations; it serves to pass on information. Communication in this form is mainly understood as language-based, written or oral, both face-to-face and remote. Seen in this way, organizations are repositories and spaces of knowledge and communication. This means that they are tied to their individual members as competent actors and their respective communication skills. At the same time they are a structure consisting of materialized knowledge which is usable as a resource for the members of the organization. This conception of organizations as "containers" of knowledge and communication has often been criticized as too narrow. In the current debates within organizational studies it has been expanded with various emphases (for a summary of the discussion about the management of knowledge and communication see e.g. Hasler Rumois 2010; Reinhardt/Eppler 2004; Schreyögg/Geiger 2003, Wilkesmann 2005).

Criticism of an instrumental understanding of communication and organization has taken various forms. That most famous within organizational theory is the application of the concept of organization and communication in systems theory. Social systems, according to Niklas Luhmann, consist of communications; the specific form of communication that constitutes the organization as a system is the decision (cf. Luhmann 1984, 2005). As social systems, organizations are constituted and maintained by distinguishing themselves from the respective external system. The mode in which this constitution and distinction occurs is decision-making: organizations can "be understood as systems which consist of decisions, and which make the decisions they consist of themselves by means of the decisions they consist of" (Luhmann 1988: 166, own translation). Within the organizational system, each decision is the prerequisite for other decisions. But every decision, according to Luhmann, occurs within a broad margin of contingency – there are no (more or less) optimal relations between means and ends. He thus no longer sees the relation between means and ends as constitutive of organizations, but decision-making itself – and therefore communication: "What constitutes an organization is therefore not a rule for the aggregation of content to be defined in the form of decisions, for example a purpose, but in the first instance its communication process" (Luhmann 2005: 412, own translation). This process of communication is considered in isolation from actors and their stores of knowledge, perceptions and interpretations; what is constitutive of the organization is not the subjects and/or their activities, but the abstract communications which, in organizations, always take the form of decisions, because they thematize their own contingency (Luhmann 1984; 1988; 1993; 2005).

Recent contributions from the Anglo-American debate also emphasize the central importance of communication for the constitution of organizations, focussing on the "processes and mechanisms by which communication constitutes organizing (as ongoing efforts at coordination and control of activity and knowledge) and organization (as collective actors that are 'talked' into existence)" (Cooren et al. 2011, p. 1149). This debate has developed parallel to communication and organizational studies in the German-speaking countries, and to date there has been little explicit connection between them (cf. e.g. Ashcraft/Kuhn/Cooren 2009; MacPhee/Zaug 2000; McPhee/Iverson 2009; Putnam/Nicotera 2009; Putnam/Phillips/Chapman 1996; Taylor/Van Every 2000; for a summary see Cooren et al. 2011; Schoeneborn 2013). In some respects the Anglo-American debate comports with an understanding of organization based on systems theory, in that it focuses on a network of communications and not on individual actors. What both also have in common, in keeping with this, is the idea that organizations are emergent phenomena, structures which are not built with a specific target or plan, but emerge as one decision follows another, or in the course of everyday communicative practices.

This debate, however, offers no consistent definition of the different manifestations of communication or of the relationship between communication and its originators; most notably, different answers are given to questions about the independence of non-human actors and the extent to which communication is bound to human subjects. For the discussion to be conducted here, the distinction made by Taylor and Van Every (2000) between communication as a conversation between human actors and communication as a text in the form of materialized, autonomously acting "agents" is conceptually interesting. With this distinction, they emphasize the nature of organization as something that – temporally and spatially – transcends situations: through the communication of actors, organization emerges *in actu* in situations of interaction, while the text, as the materialization of conversations, turns organization into a corporate actor through its permanent availability.

Organizational studies as a discipline has always emphasized this central importance of the written documentation of procedures and decisions (cf. Weber 1980, Luhmann 1964), defining files as the foundation and hallmark of the formal structure of organizations. The approach outlined here goes beyond this, however, as it a) no longer regards texts solely as decisions and instructions put into written form, but also incorporates technological elements and other artefacts, and b) explicitly views texts as having their own potency (as discourse and/or artefact), but without considering them in isolation from the context of their emergence – linguistic communication between human actors. Thus communication remains tied to the participation of human actors: "One should not neglect that any performance is as much the product of the agent that/who is deemed performing it as the prod-

uct of the people who attend and interpret/respond to such performance" (Cooren et al. 2011, p. 1152).

The understanding of organization that informs the case analysis presented here is very close to this conception. It regards organizations as material and symbolic structures which emerge from the active interaction of actors in a specific context of rules and resources, power structures and power relations, norms and meaning, formal procedures and informal approaches, routine and innovation. The basis for this is communication, which is in turn tied to the stores of knowledge, orientations, perceptions and interpretations of the communicating and active agents. It is therefore anchored in the subjects, as the structures of the organization, its rules and resources, are, as Ortmann/Sydow/Windeler put it, "taken into consideration here and now by someone with a specific biography and competence" (1997, p. 330, own translation). At the same time, this structure confronts the subjects as something external, as "the organization". It is a local order (Giddens 1984; Nadai/Maeder 2008; Strauss 1978; 1994), which is the product of conscious decision-making and negotiation, but also of the unconscious actions of agents, and which is available to the agents as a material and symbolic framework for communication and negotiation/action.

From this perspective, organizations are materializations and institutionalizations of communications – in artefacts, in rules and standards, as material and as symbolic order. At the same time, organizations are embodied in their members, as repertoires of knowledge, interpretations and norms, as acquired everyday practices, and as a component of individual experiences, attitudes, emotions and habits imprinted on the body.[2] Both "levels", the subjective and the organizational, are adapted to each new situation and context, produced in situ, and extend across space and time, acquiring solidity as repetition, as text and embodiment. Thus the paradoxical character of organization consists in the fact that it is simultaneously a) a material structure, a symbolic order and a process – an ongoing event which is not consistently controlled by the intentional acts of individual members, but also arises from routines and practices, and b) an inner process *and* an external counterpart of the actors who "construct" the organization as they communicate. So even from this perspective, which views communication as inseparable from subjects, their knowledge, feelings and thoughts, their embodied experiences and their abilities, the same principle holds true: communications connect to communications and decisions to decisions. Only in this way can meaning be constructed, decisions be interpreted as such, and organizational path dependencies understood. This connectivity, howev-

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[2] This understanding of organization draws on the traditions of social constructivism, the sociology of knowledge and structuration-oriented practice theory, and links them with approaches from the sociology of work and organizations. Important points of reference are, for example: Berger/Luckmann 1969; Böhle 2009; Crozier/Friedberg 1993; Friedberg 1995; Giddens 1984; Kotthoff/Reindl 1990; Manning 1992; Ortmann 1995; 2011; 2013; Ortmann/Sydow/Windeler 1997; Weick 1998; Schulz-Schaeffer 2010; cf. also: Wilz 2010; 2015.

er, is seen here as directly linked with the subjects that produce it, on the basis of knowledge and communication.

Thus, an organization is understood here as a continuous communicative process which creates a local order extending into space and time, and thereby allows for further communication.[3] With regard to decision-making in organizations, this means that decisions are also understood as communication – not as the abstract form to which an organization as a system can be attributed, but as a manner of communication which is recognized and designated as such by the involved actors. Before illustrating this understanding of organization and decision-making with the example of a crisis situation in aviation, I will briefly examine the concept of decision-making, which plays a crucial role in organizational studies as a whole.

A closer look at decision-making in organizations

A decision is generally understood to be a choice between alternatives made by a thinking and acting subject. The understanding of decisions found in rational choice theories and behavioural decision theory, but also decision research carried out in economics, psychology and neuroscience, focuses on actors who perceive their environment, relate the environmental conditions to their own motives, interests and goals, and then make a decision. A decision is thus understood as an event based on a specific mixture of consciousness, reflection and intention on the one hand, and intuition or "automated action" (Esser) on the other (for the different strands of the debate see, for example, Coleman 1994; Esser 1999; March 1994; Roth 2007; Schmid 2004; Schütz 2004a; 2004b; Simon 1947; for a summary see Schimank 2005; 2009; Wilz 2013).

This notion of decisions is fundamentally linked to the premise of *bounded* rationality (unless one has abandoned the idea of rational decision-making altogether), since the temporal and cognitive resources of the decision-makers are limited, and their perceptions and motivations are always subjectively rational. It has also been observed that decisions are made in an incrementalist manner. Decision-makers usually seek satisfying rather than optimal solutions (March 1994; March/Simon 1958), and decisions tend to be made in reaction to immediate demands arising from the changing and never completely transparent environment, rather than in forward-looking planning (for a summary see Schimank 2005; Wilz 2013). There is a similar long-standing argument in labour and organizational studies and in economic research that, in reality, decision-making is not an ideal pro-

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[3] It is not by chance that this formulation recalls Giddens's concept of the duality of structure and action (Giddens 1984); on the contrary, it highlights the direct connection to his fundamental ideas. It is, however, problematic for the discussion in this paper that the corresponding basic concept in Giddens's theory of structuration is not communication but action. I will return to this problem later.

cess of comprehensive testing and weighing up of alternatives, but a component of everyday working and organizing, and that the guiding of organizations by means of strategies and decisions is not a process of top-down implementation of management decisions (cf. Kieser 1998; Laroche 2007; Vaara/Whittington 2012; Whittington 2006; Wilz 2010).

However, there is still a frequent tendency to consider the components of the decision separately: the act of decision-making as a conscious mental act, the act of communicating the decision as a targeted, written or oral transmission of the decision, and the act of implementing the decision. This separation between the preparation and execution of an action and between the communication and implementation of a decision is often discussed with reference to the influential distinction made by Brunsson (1982; 1989) between "action" and "talk". Brunsson argues that organizations are concerned with, on the one hand, the – often retrospective – communicative legitimation of decisions, but on the other hand fixated on "getting things done" (Brunsson 1982, p. 37). This means that there may be considerable divergence between what is considered objectively judicious and right (the decision), what is said (the justification of the decision), and what is actually done (the implementation or non-implementation of the decision), and that this divergence is often necessary if things are to proceed smoothly. Brunsson gives a succinct summary in his description of what goes on within organizations: "The trick is to separate thinking from acting" (ibid., p. 40).

We should take a more nuanced view of this distinction, however. If it is linked to the idea that management (the actor level) makes decisions through mental processes (the material level) and communicates these decisions top-down (the communication level), and that the subordinate actors in organizations subsequently implement the decisions (the action level), the resulting analysis does not do justice to the complexity of these processes. The distinction between "action" and "talk" does not specify how the different actors in organizations interact, and it cannot clarify how the differentiation between communication and action is to be understood – if not in a very instrumental and linear sense (first speak, then act, or speak here, act there). This is not to say that decisions cannot also come about by conscious calculation, by envisaging possibilities and playing them out in one's own mind, and then be intentionally communicated. And it is equally possible to encounter situations in which no one can say why the decision went the way it did or who actually made the decision. However, the form of decision-making can vary and the place where decisions are made cannot be limited to the management level. Decisions are not simply communicated in an intentional act of information transfer, but in fact only come about during communication.

If we view an organization – as outlined above – as an "ongoing activity", as a flow of events reflecting and consisting of everyday practices within the framework of a local order of rules and re-

sources which is itself established through this activity, then decisions are *one* element of the communications that constitute this activity and order. In the flow of events, as Laroche (1995, p. 66) puts it, "decision-making is the emerging part of an iceberg" – they are an element of organization which is marked as a decision and attributed to an actor (or a group of actors, or the organization as a corporate actor), but which is only a small, partially visible and identifiable portion of the actual decision-making process. Below this "emerging part of the iceberg" there are large quantities of invisible and unidentified activities and materialities which contribute to the genesis of the decision. Therefore, a decision does not become a decision at the moment when it is made: this actual moment cannot even be determined. Nor is it the product of the interaction of these elements existing independent of the actors' perceptions. On the contrary, it does not become a decision until the moment in which it is named and highlighted as such with interpretations and attributions ("that's what's been decided", "that was his/her decision").

Central moments of decision-making are therefore the interpretation and ratification of a decision from the outside and the meaningful connection to interpretive patterns and norms which are valid in the decision-making situation. Decision-making is thus shifted from a mental inner-subjective processing into an external process, and the interpretive contributions and knowledge-based attributions by the actors are emphasized. Their perceptions, interpretations and attributions, however, must also be produced intersubjectively and communicatively and linked with the activities and artefacts (the "doings" and "sayings") of the organization – only then will they be within the local order that defines the organization.

In summary, decisions are not individual events that can be clearly delineated, and they should be seen neither as an abstract form of communication independent of the actor nor solely as the product of an actor's inner process, be it reflexive, rational and calculating, or automatic and intuitive. Instead decisions are constructed communicatively in a continuous process of active interaction between actors within the framework of an organization – which they, through this very process, are continuously creating. This understanding of decisions is based not only on the concepts of organization and decision outlined above, but also on my empirical analysis of different cases of decision-making (cf. Wilz 2002; 2009; 2011; 2015b), one of which I will discuss in the following section.

An example: "The Hero of the Hudson"

The case study to be presented here comes from the field of commercial aviation and documents an event that caused a great sensation several years ago. Shortly after taking off from New York's LaGuardia airport, a US Airways plane flew into a flock of birds, upon which both engines failed. In this situation, the captain initially followed all the usual routines. He checked his surroundings,

worked through checklists, and responded to technical warning signals and the suggestions of air traffic controllers. Then, however, he did the opposite of what his instructions, the technical equipment and the air traffic controllers said to do: he landed in the middle of New York on the Hudson River instead of flying to a nearby runway. The successful emergency landing, with which he saved the lives of all the passengers and crew, was publicly praised as a heroic act – with special emphasis on the fact that the pilot had very rapidly made a wise decision.

At no point in the public discourse, however, was there any discussion of how this decision had come about. Even with the tools of a sociological analysis, it is hardly possible to know whether the captain deliberated quickly, almost instantly working his way through all the aspects under cost-benefit considerations, or whether he automatically knew what the best decision was in this situation. Nevertheless, analysing the media reports and of the publicly accessible documents arising from the incident itself, particularly the audio recordings from the cockpit, offers the opportunity to reconstruct the sequence of events and of the decision-making process and to interpret the events that played out in the cockpit of the aeroplane.[4]

The sequence of events on US Airways flight 1549, as documented by the voice recorder transcript, initially reads as completely standard. The pilot, co-pilot and departure control staff exchange brief remarks about the preparation and the technical procedure of the take-off. The tone is professional and friendly, and the interlocutors routinely confirm each other's messages ("engine mode is normal, the taxi checklist is complete, sir"; "gear up please", "gear up"). Immediately before departure the pilot ("your brakes, your aircraft") and the co-pilot ("my aircraft") exchange responsibility for controlling the plane. Two minutes after take-off, the pilot ends the co-pilot's half-sentence, "flaps up, after takeoff checklist" with the response "flaps up, after takeoff checklist complete". Then, a second later, he says: "Birds".

INTRA-COCKPIT COMMUNICATION TIME and SOURCE CONTENT	AIR-GROUND COMMUNICATION TIME and SOURCE CONTENT
15:26:54 **HOT-1** flaps up. 15:27:07 **HOT-1** after takeoff checklist complete. 15:27:10.4	

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[4] The present analysis is based on the interpretation of documents (reports in newspapers and magazines, news programmes and internet sequences such as images, montages showing the surrounding terrain, the flight route etc.), and the voice recorder transcript (Brazy 2009; National Transportation Safety Board 2010), as well as the audio recording of the communication on board (U.S. Air Cockpit Audio Tapes "We're Gonna Be In The Hudson" 2009). It also included interviews and the autobiography of the pilot, i.e. the retrospective view of the event by one of the actors involved (Couric 2009; Schmidt 2009a; 2009b; Sullenberger/Zaslow 2009). The method used to gather and analyse the data follows the principles of grounded theory and the basic assumptions of the hermeneutic sociology of knowledge, cf. Breuer 2010; Hitzler et al. 1999; Mey/Mruck 2007; Reichertz 2007; Strauss 1994; Strauss/Corbin 1996; Soeffner 1989.

HOT-1 birds.
15:27:11
HOT-2 whoa.
15:27:11.4
CAM [sound of thump/thud(s) followed by shuddering sound]
15:27:12
HOT-2 oh #.
15:27:13
HOT-1 oh yeah.
15:27:13
CAM [sound similar to decrease in engine noise/frequency begins]
15:27:14
HOT-2 uh oh.
15:27:15
HOT-1 we got one rol- both of 'em rolling back.
15:27:18
CAM [rumbling sound begins and continues until approximately 15:28:08]
15:27:18.5
HOT-1 ignition, start.
15:27:21.3
HOT-1 I'm starting the APU.
15:27:22.4
FWC [sound of single chime]
15:27:23.2
HOT-1 my aircraft.
15:27:24
HOT-2 your aircraft.

(Sample extract from the voice recorder transcript; National Transportation Safety Board, Washington, DC 2009: 37)

The expression "birds" here clearly does not refer to something special about the view, or to a trivial, incidental event. On the contrary, in the following four seconds the two pilots reach an understanding that they have noticed an unusual situation and have recognized the danger inherent in it: in response to the remark "birds", the co-pilot (HOT-2) says "whoa" and "oh"; the pilot (HOT-1) confirms "oh yeah", and the co-pilot utters an "uh oh", before remaining silent for nearly the next 40 seconds. Thus, it is everyday and pre-verbal utterances that highlight the escalation of the danger, which is made plain by rumbling sounds and the decrease in engine noise. This abruptly ends the professional conversation routine which has proceeded up to this point. It is resumed immediately, however: after a further three seconds the pilot notes the failure of both engines ("we got one rol-, both of them rolling back"), sets in motion two technical procedures ("ignition, start; I'm starting the APU") and resumes responsibility for the control of the plane ("my aircraft", "your aircraft").

Here the pilot is drawing on organizationally established rules – standards of dialogue, of aircraft control, ways of creating and highlighting command structure and decision-making authority – and actively structuring the situation. In the next 30 seconds after the danger has been recognized and identified, he continues to refer to organizational routines: he instructs the co-pilot to consult the "Quick Reference Handbook" about double engine failure, and after an additional noise has been heard repeatedly, he makes a distress call: "Mayday, mayday, mayday". He states his flight number,

the problem ("hit birds, lost thrust in both engines") and the solution: "we're turning back towards LaGuardia". This first suggestion, to return to the departure airport, is the solution to the problem that corresponds to the organizational routine.[5] In the subsequent course of the communication, the pilot initially takes the usual steps, as he and the co-pilot, who is reading out sections of the handbook, take turns at giving status descriptions of the surroundings in the form of technical data. The announcements of the air traffic controller from the departure airport occur during this dialogue. The controller offers a free runway, and at this point, 60 seconds after the bird strike, the pilot already says: "We're unable, we may end up in the Hudson." Both pilots continue to work through their checklist. Various status notifications and warnings from the flight instruments and the conversation with the air traffic controller occur parallel to this. In response to his offer of a different runway, the pilot responds with the comment "unable", and when offered a third one he says: "I'm not sure we can make any runway."

This is the second point at which he evokes the possibility of landing on the Hudson, though he does not do so explicitly here. In the same breath he then raises another possibility: instead of returning to the departure airport, the new option is to land at another airport which should be on the right. While the air traffic controller there picks up this suggestion, asks for clarification, and after confirmation from the pilot checks whether it is feasible and announces it as a new option ("you can land runway one at Teterboro"), the pilot decides differently: 10 seconds after confirming that he wants to head for Teterboro, he announces to the crew and passengers: "this is the captain brace for impact". Just under 20 seconds later he informs the co-pilot and the air traffic controller of his decision: "We're gonna be in the Hudson".

During this conversation with the air traffic controllers and subsequently, the pilot remains in continuous dialogue with the co-pilot. Both repeatedly observe the technical data and the status of the engines. At this point the pilot is already ignoring all the announcements of the technical warning systems; he does not verbalize or communicate them, and only when talking to the co-pilot does he refer to the technical indicators in order to clarify the status of the plane (power, generator, flaps, speed). 20 seconds before the plane touches down he once again turns explicitly to the co-pilot and asks: "got any ideas?", and the co-pilot answers "actually not". The pilot then says, still accompanied by technical warnings ("pull up, pull up", "caution, terrain"): "we're gonna brace". After a total of three and a half minutes the recording breaks off – the aircraft has landed on the water.

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[5] Neither the phenomenon of the bird strike nor the return to the airport because of problems arising immediately after take-off is a completely extraordinary event – hence there are standard, prepared instructions for how to behave, and known procedures.

Interaction and communication in decision-making

How did the decision to land on the Hudson come about? The recording from the cockpit documents a sequence of actions which could certainly be seen as a rational decision-making process: the pilot may have made a mental assessment of all the possible variations and come to the well-founded conclusion that only a landing on the Hudson would be possible. But it is just as likely that the pilot, at the moment when he realized that this was an extreme emergency, intuitively knew what he would have to do. He already evokes the possibility that they might eventually have to land on the river ("we may end up in the Hudson") 60 seconds after the bird strike, and in the conversation before the accident the pilots explicitly refer to the river. 30 seconds before it happens, the pilot says: "What a view of the Hudson today", and the co-pilot affirms: "Yeah". So even before the Hudson came to have special significance, it had already left a trace in the pilots' perceptions, which may have helped to shape the – conscious or unconscious – identification of possible courses of action.[6]

Whether and to what extent the decision was actually taken rationally or intuitively cannot be ascertained. What is clearly discernible, however, is that the pilot is following routines. With his reflexive and outwardly visible run-through of alternatives, he reproduces the usual procedure of the organization, and legitimates his actions: only in this way, by maintaining routines and conforming to the usual requirement of making reasoned decisions, does the pilot remain within the framework of organizational rules; only in this way does he show that he is following all professional standards and is an actor who meets all the requirements of the profession and the organization. There is no way of judging whether this is a strategy of legitimation and self-presentation, and whether covering all bases was the result of intention, caution, habit, or intuition, just as there is no knowing whether the decision was based on rationality or intuition.

What does become clear in the analysis is that the decision evolves gradually, with the pilot playing a crucial role in it. It is he who enunciates the decision to land on the Hudson, and the decision is attributed to him. There are no indications that someone else has made the decision and the pilot is only expressing it and carrying it out. Moreover, it is not an explicitly joint decision which the pilot communicates and implements because of his higher position in the hierarchy (as "pilot flying"): the pilot and co-pilot do not analyse the advantages and disadvantages of the different options, they do not exchange views, they do not communicate their feelings to each other, and they discuss neither the interpretation of the phenomena they are observing nor the conclusions that can be drawn from them. Thus, the decision to make an emergency landing on the Hudson does not come about jointly,

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[6] Physical perceptions and visual impressions play a central role here, as shown by both the reconstruction of the events by the pilot and media representations; cf. Sullenberger/Zaslow 2009; Hudson River Landing 2009; Hudson River Plane Landing (US Airways 1549) [n.d.].

in the sense that a consensus about the chosen option is produced by thinking aloud and explicitly agreeing. But it does come about in the process of mutual referencing, as the decision is made during the ongoing communication and interaction of the pilot with the co-pilot.

Several dimensions play a key role in this process: knowledge, skill, organizational routines and standards, practices of cooperation and of aircraft control, technology, emotions and physicality, and the spatial and temporal setting in which the decision is made. The *knowledge* that the pilot and co-pilot incorporate in their communication (and on which it is based) is not made explicit: at no point in the course of the communication in the cockpit do the pilots explicitly refer to existing knowledge or lack of knowledge, they do not speak about previous, potentially comparable experiences, or things they have learnt in an advanced training course. All their knowledge about the situation, the technical equipment, the handling of the plane, the safety regulations etc. seems to be internally accessible, and internally applied. This is exactly what defines implicit professional knowledge (for a summary see e.g. Schützeichel 2010): the fact that the pilots do not discuss their knowledge is an indication that it is present, and in the situation itself an explicit reference to knowledge is not necessary for continued action. It is, however, discernible from the outside. The fact that the events can be reconstructed by outsiders shows that the procedure is governed by rules and has meaning – the communications and actions are meaningfully connected, the actors refer to each other in a comprehensible manner, the events are explicable to outsiders – and this is only possible because shared meaning is being produced communicatively.

At the same time it becomes apparent that this knowledge is built into the *routines* and standard procedures of the organization. The pilot and co-pilot refer continually to the rules of the organization, i.e. to knowledge condensed in artefacts, in handbooks and checklists. Even exceptional decision-making situations in the cockpit are prestructured by organizational routines (Reinwarth 2008), with regard to sequences of action, rules governing the division of labour at the organizational level and the completion of individual procedures, as well as the modes of communication, cooperation and coordination. At the same time, they include the interpretive schemes and norms which are meant to guide the actions and decision-making of the actors in such a situation, for example discipline and self-control. These rules, norms and interpretive patterns are so well-rehearsed through constant repetition as to become knowledge that is fundamentally available and is expected to be "second nature" to the actors. Thus the rules and resources of the organization, the specific work processes, and the communication and interaction of the actors are inseparably interlinked.

The *technical environment* plays a special role here. The transcript shows that the human actors are both silent for a certain time and, it seems, do nothing at all – or in any case nothing that is

communicated by language and/or expressed audibly. However, the technical environment is also involved in all the phases of the speaking, silence and actions of the human actors: the flight warning system, the collision warning system, the ground proximity warning system, but also alarm sounds and the verbal alerts ("traffic, traffic", "monitor vertical speed", "clear of conflict", "too low, terrain", "pull up, pull up, pull up") accompany the communication of the human actors and in some cases guide them. Human and machine are continuously interconnected, the actions of the pilots react to the plane – and the plane reacts to the pilots. From a certain point on, however, the pilot ignores the plane's warnings: he marginalizes its contributions to the events by neither commenting nor acting on them, in other words by excluding them from the communication, and he acts counter to the plane's instructions. While the air traffic controller continues to speak and offer solutions, while the pilot remains in communication and connection with the co-pilot, and while the flight equipment (the terrain awareness warning system, TAWS) repeats its warnings up until the successful landing, the pilot lands. In other words, he is able to recognize and interpret what the technical systems that make up the aircraft cannot recognize *and* interpret as meaningful.

None of this is verbalized – the knowledge, the skills, the routines and the operation of the technical systems are simply taken-for-granted elements of the situation. Another dimension which presumably plays a major part in the decision-making is also not explicitly addressed in the situation, although it is certainly of great importance and is evoked in the retrospective reconstruction of the situation by the actors: the actors' *emotional and physical sensations*. "It was the worst sickening pit of your stomach, falling through the floor feeling I've ever felt in my life," the pilot later stated in an interview (Couric 2009). Emotions and physicality, however, only appear very briefly and indirectly in the dialogue in the cockpit. Rather, the pilots communicate in exactly the forms stipulated by the norms and training of the organization. The tension over the course of the conversation is palpable – the pilot interrupts the co-pilot, and his statements and responses are in some cases extremely terse ("We don't." "Unable." "We can't do it."). On a linguistic level, however, all those involved broadly stick to professional routines.

This communication within the framework of the organizational standards is the prerequisite for the actors remaining mutually comprehensible and capable of action even in the given crisis situation. The decision is made as part of a process of communication in which the pilot and co-pilot confirm each other's perceptions, interpret the situation in consultation with each other, highlight the problem (Bergmann et al. 2008; Nazarkiewicz et al. 2014), refer to each other in all their speech and actions, and mutually ratify their course of action. Within the framework of this process, the solution to the problem emerges – and is then vocalized and implemented by the captain. This means that the decision is incorporated into the course of a dialogue which draws on the rules and routines for con-

ducting professional dialogue, and in the course of which the possibilities for and limits on actionable options are constructed.[7]

Conclusions: Communication, organization and decision

In summary, it can be said that the communication and the mutual referencing between the pilots shape the events and form the foundation and mode of the decision-making. Until just before the plane hits the water, the pilot and co-pilot are in dialogue: the pilot's question "got any ideas?" twenty seconds before impact, and the response "actually not", as well as the pilot's final words before touching down, "we're gonna brace", establish common ground and show that both are continuously connected to one another. The pilot actively produces this situation – as does the co-pilot, who cooperates with the pilot and does not at any point call into question his announcements, requests, actions and omissions, but instead mirrors them. Sometimes this communication follows routines, sometimes it is discernibly intentional; it is sometimes verbal, sometimes non-verbal, and as it progresses the pilot weighs up possibilities (or at least appears to weigh them up). In this process the pilot and co-pilot clarify matters: firstly, what the situation is, and then how it is to be resolved. Thus the decision is made in the course of the communication and interaction – and in the process of decision-making, reality is constructed communicatively, step by step, in the interaction between the actors.

The empirical evidence offers various clues as to who exactly the involved actors are: the transcript itself treats human subjects and technical artefacts in their utterances as equally important participants in the conversation documented. The course of the decision-making process, however, suggests that the involvement of the actors in the communication is differentiated: texts (checklists, handbook) and utterances from the technology (sounds, warning signals) are components of the communication, but they only have an effect when the human actors refer to them. The participation of the human actors also varies – depending on their spatial proximity and involvement in the situation (pilot, co-pilot, air traffic controllers, crew, passengers), hierarchical positioning, individual stores of knowledge, experiences and orientations. It also becomes clearly discernible that all the participants in the communication are integrated in the processes of the organization: as manifestations of previous communications and decisions, and as organizational actors who, through their cognitions and emotions, make the rules and resources of the organization active and effective throughout the course of communication.

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[7] For more on work, the relationship between humans and technology, communication and decision-making in the cockpit see also e.g. Bergmann et al. 2008; Cvetnic 2008; Matuschek/Kleemann 2009; Orasanu/Fischer 1997; Reichertz/Wilz 2015 a, b; Reinwarth 2008; Weyer 2008; 2015.

Thus, the analysis of this case shows that an understanding of decisions in which an actor a) selects the best of all possible actions through an internal mental process of calculation, or b) makes the decision in an immediate identification of and response to the situation is overly simplistic. Rather, decisions are being constructed. They arise from the communicative and interactive interplay between human (and non-human?) actors, in which the subjectivity, motivation, thoughts, feelings and knowledge of the actor are just as significant as the organizational context. This context does not consist of simply providing the background for action which an actor perceives and interprets. On the contrary, the technological environment, the professional training, organizational routines and standards, hierarchies and artefacts, and the written and unwritten rules and etiquette of the organization are incorporated in the communication of the actors involved, and the interaction between these elements leads to a decision that can only be understood in its processual "coming about", but not as the fixed result of a cognitive process.

With the decision to make an emergency landing on the Hudson, the pilot abandons the prescribed routines. But he does so while following the path set by the organization and continuing to communicate with other actors, the co-pilot and the air traffic controllers. In other words, he does not make a decision and then communicate it. Nor does he, in this crisis situation, leave the organizational setting to make a subjective decision in a situation where the organization is unable to set rules in advance. Rather, the decision is made in the interplay between inner and outer environment, in the communication between the actors involved – and not only is a decision made, but the situation and the organization are constituted at the same time.

Theoretical problems – a brief preview

These findings allow an almost seamless connection to the theoretical lines of communicative constructivism. Communicative connections between human actors are established while at the same time decisions come about – and meaning and understanding for the individual and the organization are constructed. This focus on communication, however, also creates problems for the debate around "organization as communication". Regarding the case analysis discussed here, this concerns two topics in particular. The first is the differentiation between decisions and other social processes: it is hardly possible to formulate exact conceptual distinctions between decision, action and communication. To connect this with a Giddensian understanding of practice, we would need to describe more precisely to what extent the dimension of communication as performative not only correlates with the structural dimension of meaning-giving (signification; cf. Giddens 1984) but becomes manifest as a fundamental operation of the reproduction of power, norms and meaning.

The second is the distinction between communication and interaction. If we follow the assumptions of communicative constructivism, then communication is the generic term under which all other social phenomena can be subsumed. However, the analysis presented here of the emergence of decisions in the context of work and organization makes it clear that this could also mean abandoning differentiation. The reconstructed events do not only consist of verbal and non-verbal conversations and reference to texts. Rather, mutual communicative referencing is a process in which the pilots are simultaneously working and speaking within the framework of their work – dealing with machinery, reading aloud, turning on the emergency power generator, switching the flight control to manual, and selectively responding to and ignoring the alerts of the technological environment. Both pilots do this jointly, and this coordinated, subjectively based action, following existing organizational paths, is a dimension of the events which should not be overlooked conceptually. Discussions within empirically based labour and organizational studies as well as the debates in theory of practice indicate that working, doing, speaking, operating machinery, but also the autonomous activity of machines, the physicality of actors, their knowledge and their experiences give rise to practices in which subjectivity and social relations are interwoven into working and organizing (Böhle 2009, Dunkel/Weihrich 2012, Matuschek 2008).

To avoid breaking with the traditions and contributions of labour and organizational studies, then, the dimension of interaction should not be neglected conceptually. True, communication is interactive, and in the conceptual understanding of communicative constructivism, interaction is always communicative. Still, the formulation "communication *and* interaction" is not tautological, but describes exactly what is meant here: an activity related to a thing, a text or a human subject, which can be an act or a flow of speaking, of doing, of routine, or of intentional action. This is always communicative and interactive, and decision-making is then absorbed into it. "A decision is what an organization sees as a decision" – we can follow Luhmann in this formulation, but in terms of content an important distinction must be made. The organization that sees something as something is constructed through the same processes that guide the subject which perceives and communicates, and thereby interprets, designates and attributes a decision as a decision. From this perspective, a decision comes about in the flow of communication, is communicated, and is ratified in communication – and only then is it constituted as a decision.

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