24   Resilience as an Organizational Achievement

Establishing permanent reflection, learning, and adjustment processes for sustainable decisions [1] (Geramanis & Hermann, 2016, S. 373-390)

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"About consulting, I always tell my students: Ask your advisors what you should do. When they give you a definitive answer, fire them."
James G. March

(Abstract)

For companies to stay fit for survival, they need to become resilient. Many organizations have learnt to grapple with massive risks and understood that rational, technocratic solutions alone will not suffice to master the uncertainty and ambiguity these entail. This paper explores one such case to identify the organizational qualities that are important for greater reliability and resilience. Whenever an organization manages to embed robustness and adaptability, it will also manage to find a response to the challenges it encounters. For consultants, this means that they need to expand their solid methodological repertoire with a deeper grasp of the (micro) theories of organization, of conflicts, and of people and always remain in a critical self-confrontation with their own practices.

[2]

Large swathes of management research are based on the assumption that the distinction between subject and object is the very basis for how people relate to the world around them and generate knowledge (scientific rationality = paradigm I). Accordingly, the rationale of actual practice is constituted by the epistemological relationship between subject and object, promising a deceptive objectivity for researchers. This has led to the production of theories that assume that practice only needs to acquire and apply sufficient theoretical knowledge to reach a desired outcome. In reality, these desired outcomes often fail to materialize, which would seem to challenge the basic paradigm.

More recent assumptions refer to the traditions of existentialism (Weick & Quinn 1999; Sandberg & Tsoukas 2011) to deliver more pragmatic insights (practical rationality = paradigm II). The new thinking assumes that people as subjects are inherently intertwined with the world and the social practices and meanings (social structure) around them, which constitute the rationale of their practices. Whenever people exercise a social practice, they integrate them as automatisms or subconscious patterns. With practices embodied in this manner, all actions happen in relation to the context or the concrete incident (in terms of time, object, social setting etc.), whereas scientific rationality (paradigm I) claimed to possess universal answers and solutions that applied irrespective of the given context. At the same time, people anticipate potential results and new options when they engage in a certain action. Whenever they engage in any action, they are, essentially, already ahead of themselves. This is relevant when considering the following case study, as the patterns of practice described here help elucidate these ingrained routines and practical rationality as applied in management.

24.1   The Setting – Or: The Idea and Reality of the Organization

> At approx. 11 p.m., a 20 year old woman riding a scooter is involved in an accident. She is discovered, wearing her helmet, but unconscious, by the driver of a passing car. The driver informs the emergency services. The emergency responders, including an on-call doctor, arrive at the scene at approx. 11:30 p.m. and encounter a patient indicating no neurological response to any stimulation. A first assessment suggests a critical cranio-cerebral trauma.

This is the setting of a real-life incident which shall serve as a case study that allows an insight into the workings of an organization. The choice of the emergency unit of a hospital was made, since this is an organization that works under severe time pressure. All of its members carry a considerable burden of responsibility in their work. This means that they, and other organizations like them, have to function as HRO *(high reliability organizations).* The term HRO was coined by Karlene Roberts, Gene Rochlin,

and Todd LaPorte at Berkeley to describe the similar observations that they made in the operations on the aircraft carrier Carl Vinson, at the en-route air traffic controllers of the Federal Aviation Administration in Fremont, CA, and at the nuclear power plant Diablo Canyon in California's San Luis Obispo (Weick & Sutcliffe 2010, p. 175). These organizations had developed practices and leadership methods that enabled them to work virtually without any errors for a long period of time and to take consistently accurate decisions, leading to high-quality, reliable work (Roberts 2010). HRO cope better with unexpected incidents than most other organizations.

The case studied here illustrates how HRO operate when decisions are taken under pressure and in the course of complex incidents. Such incidents make it particularly important, but also particularly difficult to cope with unexpected developments, with disruptions, and with errors. Their resilience therefore deserves attention – as a quality of organizations that has gained increasing attention by the wider public. We consider resilience to mean processes through which an organization adapts positively to challenging conditions (a threat, situation of stress, or emergency) and applies its abilities and full effectiveness. Part 24.5 will take us back to the question of resilience. HRO and resilience are intrinsically linked and have captured the scientific interest of many different, quite unrelated disciplines. We approach the case study with the mini-theories proposed by Karl E. Weick in his classic *Process of Organizing* (Weick 1985), supported by more recent insights from HRO and resilience researchers.

Few people think about what the act of organizing means. It seems sufficient to draft a structural organization (a hierarchy, put to paper in the form of an organizational chart, cf. ill. 1) or a procedural organization (outlining the business processes). We believe that these documents, be they paper or digital, record the actual hierarchies and processes of an organization. Most people will have come across an organizational chart. It is a simple, deceptively straightforward way of showing how the chain of command works and how responsibilities are organized. The lines in the chart represent how communication flows and who reports to whom.
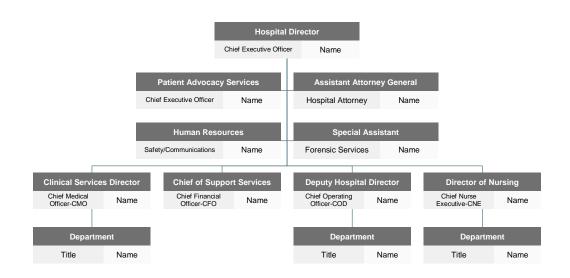
Hospital Director	
Chief Executive Officer	Name

Patient Advocacy Services		**Assistant Attorney General**	
Chief Executive Officer	Name	Hospital Attorney	Name

Human Resources		**Special Assistant**	
Safety/Communications	Name	Forensic Services	Name

Clinical Services Director		**Chief of Support Services**		**Deputy Hospital Director**		**Director of Nursing**	
Chief Medical Officer-CMO	Name	Chief Financial Officer-CFO	Name	Chief Operating Officer-COD	Name	Chief Nurse Executive-CNE	Name

Department		**Department**		**Department**	
Title	Name	Title	Name	Title	Name

Illustration 1: The structural organization of a hospital (Braithwaite & Clay-Williams, 2014)

Illustration 2 reminds us that the real-world experience of that same organization is far more fluid and diverse. That fact will also be reflected in the following case study.
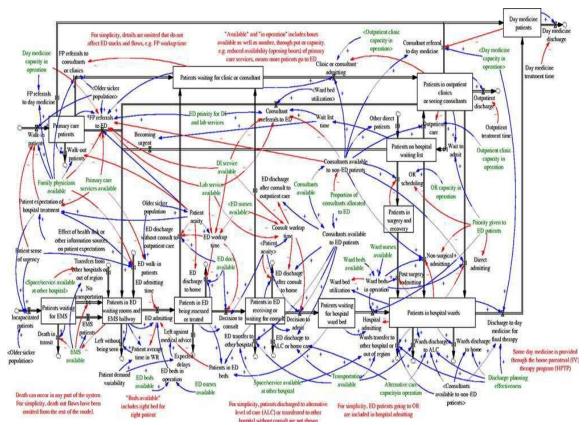
Illustration 2: The actual processes of a hospital (Braithwaite & Clay-Williams, 2014)

The difference between the imagined or planned and the actual organization has increasingly been recognized by researchers (Hollnagel 2014). Hollnagel's work "*Safety I & II*" distinguishes between "Work as Imagined" (WAI) and "Work as Done" (WAD). WAI is an idealized perception of formal activities that neglects how activities are constantly being changed to match the given circumstances. Only a look at the activities happening every day, on the ground, can reveal how the planned activities are actually being applied (WAD).

This distinction is relevant as phenomena like accidents, errors etc. are impossible to trace back to any specific root causes or mechanisms in increasingly complex organizations. We are, nonetheless, right to ask about the guilty party, not least since legal and financial judgments (criminal or civil liabilities etc.) need to be made, and the public deserves to be informed. At the same time, this leads to greater and greater expectations in terms of safety and security and to increasingly severe pressure on organization. We also tend to forget how organizations give birth to increasingly "intractable" links and chain reactions of small or tiny deviations in the many functions spread out in (and outside of) the organization. These can only be understood if we understand the activities "as done". Analysing and learning from mistakes offers invaluable footholds for interventions, corrections, and improvements in the system: a major challenge for anybody working in, leading, or advising complex organizations, put more briefly, for anybody who has to grapple with these uncertainties. Crises and accidents are never unavoidable. They tend to occur as a result of minor problems, surprises, or negligence, which change, grow, and escalate until they are too large to cope with (Sutcliffe & Christianson 2013). HRO research offers concepts and practices in response to this.

24.2 The Decision – Or: Wonder and Meaning

After the successful recovery of the injured driver, the medical team reaches the emergency unit of a hospital specializing in multiple injuries at around midnight (approx. one hour after the initial accident). Diagnostic procedures are started immediately in the shock room, following the established protocols for polytrauma patients, confirming the initial diagnosis proposed by the on-call doctor at the scene. In view of the pattern of injuries – with massive diffuse cerebral bleeding, severe trauma to the chest, and

secondary injuries to the abdomen – an interdisciplinary consensus is reached under the supervision of the senior physician managing the shift that no further diagnostic or therapeutic measures will be taken, as the patient is not expected to recover. The involved specialist physicians from the accident and emergency, anaesthesia, intensive care, and emergency rescue units (with the latter having no primary responsible in the hospital's decision-making processes) call for the assistant orthopaedic, visceral surgery, and neurosurgery specialists to inform their units' senior physicians. The idea of an organ transplant is raised.

Taking a decision means removing options and, by implication, reducing complexity. This simple fact shows in the etymology of the term itself: It is a cutting away of something. Where many options used to be, several options were cut away – some roads are closed, others travelled along. Two questions matter: Which decision is the right decision? And which actions arise from the decision?

The theory of decisions offers a logical frame of reference and a mathematical concept to help us understand which decision is the right one. From a traditional economic standpoint, the best alternative is typically imagined in terms of a cost-benefit ratio. The ideal is a decision that is rational, because it has been calculated (paradigm I). Behavioural science (Groth 2002; Groth & Nicolai 2004), however, has shown us that rationalility does not play the part we assume when actions or choices are made. Specifically, this happens, because:

- Not all alternative options are recognizable or manageable in organizations – meaning that only a subset of all possible options can be considered in any decision (*bounded rationality,* cf. Simon 1983);
- Not all problems are clearly demarcated;
- Organizations have no unambiguous set of preferences, that is, there might be e.g. conflicts of interest between different sub-sections.

Weick reminds us that the path leading to a decision and the sense attributed to the decision are two distinct processes (Weick 1985, 1995). A closer look at these processes is called for, as they not only determine how we perceive past decisions, but also decide how we anticipate and respond to future (unexpected) incidents.

Every organization evolves its unique way to reach a decision, to act on that decision, and to interpret its effects after the fact. This retrospective allocation of meaning does not concern only the consequences of the decision, it also leads to a reinterpretation of the information and circumstances that led to the original decision. The backstory of the decision is retroactively imbued with the a-posteriori meaning; accordingly, incidents that support the sense-making narrative are maintained or even reinforced in their importance, while others that contradict the official story are played down, side-lined, or collectively forgotten afterwards.

The story of an organization is the story of its decisions. They shape the self-perception and identity and influence how future events and decisions and the actions leading on from there are anticipated (paradigm II). All of these processes affect and interact with each other: The allocation of meaning and sense-making look towards the past (What led to a certain incident or decision, how have these decisions or incidents impacted on later actions etc.?). This looking back should not take over to such an extent that it might hamper the organization's ability to operate. In the words of Søren Kierkegaard's famous dictum: "It is perfectly true, as the philosophers say, that life must be understood backwards. But they forget the other proposition, that it must be lived forwards." (Kierkegaard 1923).

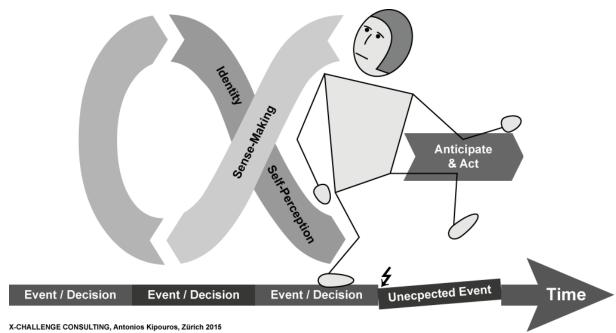X-CHALLENGE CONSULTING, Antonios Kipouros, Zürich 2015

Illustration 3: The interplay between sense-making, self-perception, and identity relating to past events and decisions and the anticipation and realization of future eventualities.

The effects of a decision can be seen from a range of different dimensions of meaning (Baecker 2009) which we can only touch on in passing:

- The factual dimension concerns the space of knowledge: It reveals how organizations cope with knowing and not-knowing.
- The social dimension concerns the space of power, which also includes the question of who has power and how power is expressed. This question allows opportunities for consensus and dissent in the organization.
- The temporal dimension concerns the "before" and "after" of the decision – also including what it might mean that different decisions were taken in the past.

In our case study, the question of which option would be the right option does not seem to have occupied the people involved much. The decision was taken, despite the different backgrounds of the people included in the interdisciplinary group, in a consensus after only brief deliberation and confirmed the initial diagnosis. The parties involved had enough knowledge to take a clear decision, and the fast decision-making process and the consensus achieved in the interdisciplinary group points to trusting and collaborative work with each other – at least in the narrative described to us. The example also points to other possible interpretations: The members of the group nod the decision through, have their own opinions, but do not say anything because of the time pressure or other reasons, so that they do not have to assume responsibility for the process going forward. When considering the case study, we therefore have to ask: What were the implications of the decision, and which actions were initiated by it?

24.3 Surgical Intervention – Or: HRO Principles and Communication

While the care team is being coordinated, the senior A&E physician and the emergency doctor at the scene speak to the victim's family who have arrived at the hospital: The diagnosis is explained, with the proviso that no statement has yet been made by the neurosurgeon. The neurosurgery assistant returns unexpectedly and informs the assembled team that the patient has just been transferred to the operating theatre on the insistence of the neurosurgeon in charge (time: approx. 0:40 a.m.; 100 minutes after the accident); the decision-making process of the physician in charge of neurosurgery was

not discussed, as he was not present in the A&E unit.

The decision transfer responsibility for the patient away from the senor A&E physician to the physician in charge of neurosurgery. The patient's relatives stay in A&E, where they are supported by the local medical staff and care team.

The course of the incident leads us to several questions: Why was surgery begun, even though a consensus had just been reached that no such intervention would be attempted? What does this decision mean for the decision taken beforehand and the authority of the people involved in it? Seeing how quickly the original decision was overturned would imply that the original decision was not actually a decision in the first place – was it a mere recommendation? Is this response normal practice? Or was it an unexpected exception, failure, or misunderstanding (depending on how one reads the situation)? The latter question leads to another problem: To what extent can planned and unplanned incidents be managed? From the immense body of literature on organizational theory, the contributions on HRO and resilience research by Karl E. Weick (1996) and Erik Hollnagel (2014) and others would seem to offer answers. In the given case, they can refer to the very critical state of the patient and to the interfaces at work between the assistant physician (present in A&E) and the absent senior physician (still at his home outside the hospital).

HRO researchers (Weick & Sutcliffe 2010) have provided insights and ideas about which practices are most suited to coping with complexity or making decisions and taking action while under pressure for time. The five principles, also known as the five processes of mindfulness (Weick & Putnam 2006), will be introduced here. These five principles of HRO coming together forms what Kathleen Sutcliffe and Karl E. Weick have termed "mindfulness". It places considerable requirements on organizations and their members. The first three principles concern anticipation – the ability to foresee how something can develop or pan out and to recognize possible difficulties or deviations immediately. The other two principles refer to practices following on from this as the automatic response to the occurrence of an unexpected incident:

1. **Preoccupation with failure:** Even though the ideal state would be the complete avoidance of errors, mistakes, and failures, failure will always be an option. The key is to remain aware of the mistakes that can be made and notice the deviations in the system as soon as they occur. Such deviations need to be monitored to see how they develop (keeping one "preoccupied" with them) and to be able to stop them effectively before they cause an avalanche of other failures (cf. principle 3) that cannot be stopped in its tracks anymore (Weick & Putnam 2006).
2. **Reluctance to simply interpretations:** Many things in organizations are taken for granted because a certain reading or interpretation has become ingrained. It does not help to constantly challenge everything, but a certain doubt and reflective experience protects the members of an organization from the arrogance or ignorance of assuming that everything is safe and sound.
3. **Sensitivity to operations:** This principle recalls the sensitivity, but also the great competence that is needed to recognize the tiny differences in systems with their unexpected and unpredictable interactions and to respond immediately to them. By contrast to the first principle's preoccupation with failure, the focus lies on not noticing and tracking individual instances of deviation, but on understanding the system and the dynamics at work in it.
4. **Commitment to resilience:** There is no perfection. No flawlessness. No fault-free work. And no person above erring. Karl E. Weick and Kathleen Sutcliffe (2010) are very clear about this basic point. When something unexpected happens, an appropriate response is needed to keep the possible damage to a minimum. This includes not just the flexible, situationally appropriate provision of the right resources and knowhow, but also the ability to stay in control of developments – not least on the emotional level. Not allowing fears and emotions to run rampant, staying ready for decisions and for action might be easier said than done; it requires trust in oneself and in one's abilities just as much as in those of the people around oneself.
5. **Respect for expertise and competence:** A prominent place in a hierarchy does not necessarily go hand in hand with the presence of substantial expertise or knowledge. In emergencies in particular, it is important to know where expertise is stored (lower down in the hierarchy or even outside the organization) for it to be used immediately and at the right place. Experts involved as advisors, however, neither solve problems nor take decisions. The responsibilities of all involved

parties need to be known to avoid a diffusion of responsibilities. Trust in and familiarity with (Geramanis & Porrini 2008) people and their professional abilities, experience, and the authority to take decisions and act in the given situation are the key to avoiding power games and disputes over authority in such instances.

The narrative of the case does not allow a final judgment of how well the five principles were applied. Some aspects can be recognized in the interdisciplinary make-up of the team discussing the diagnosis and planning the actions to be taken. The fifth principle also seems to apply, as the neurosurgeon decides to begin the surgical intervention – not least as he combined both the responsibility and the expertise for the case in hand at this point. However, the reasons for the decision of the neurosurgeon are not known (there might have been a breakdown in communication between the interdisciplinary team headed by the emergency doctor and the assistant neurosurgeon or the assistant and the senior neurosurgeon, but other medical considerations might also apply here, such as the wish to do everything in one's power for the young patient etc.). In any case, no communication happened between the neurosurgeon and the other specialist physicians at the time of the operation. The fact that the neurosurgeon's actions might be due to a lack of information underlines how important communication is in such processes.

No social reality can evolve without communication. Much has been written in this area; for our purposes, the definition of Luhmann (2000), who considers communication as the unity of information, message, and understanding, shall suffice. The sender decides which information to select and what to speak about (the message). Communication is complete only once the recipient has understood what the sender has communicated via the chosen means of communication (usually language). Whether the recipient has indeed understood the true meaning of the sender is unknown and can only be ascertained by a reciprocal communicative loop. According to Steve de Shazer (1998), such understanding cannot be immediate; it is inherently offset in the chronological sequence of the dialogue. Understanding and sense-making are then cumulative, not self-contained processes in the sense of actions or event limited to one specific moment. It is clear that misunderstanding is more likely than understanding at any given time. This state of misunderstanding is what constitutes communication in the first place. With everything understood immediately and correctly, no more communication would be required. Communication is therefore not a simple process of conveying information, but a social process – a process that was left incomplete in this case.

24.4   The End – Or: Procedures for Resilience

At approx. 3 o'clock at night (four hours after the accident), the neurosurgery unit informs the senior A&E physician that the source for the patient's unexplained internal bleeding – with continued cerebral bleeding – had to be identified urgently.

After the A&E physician diagnosis (new) extensive bleeding in the patient's abdomen and in the abdominal organs, he assembles the doctors in charge of anaesthesia, intensive care, neurosurgery, and visceral surgery to define the process to be followed and the expected outcomes: While the representatives from neurosurgery and visceral surgery plead for abdominal surgery in parallel to the neurosurgical intervention, the representatives of A&E, anaesthesia, and intensive care suggest that an apparent coagulation problem of the patient makes stopping the bleeding by surgical means impossible and that the treatment should be terminated in view of the cerebral trauma. The idea of an organ transplant is now off the table, as the extensive bleeding has now damaged all viable organs.

The patient is operated on by the visceral surgeons. No cause for the bleeding can be isolated.

At approx. 06:30 a.m., 7.5 hours after the initial accident, all surgical interventions are stopped and the patient is transferred to intensive care, where she is officially declared dead.

Even though the case study would not pinpoint any specific, obvious mistakes or malpractice, it does

show that some of the activities did not link up as well as they could have done. The practices proposed by the HRO principles are intended to prevent incidents that can cause severe damage by promoting a timely response and optimized procedures. High reliability, resilience, and safety need to be active part of everyday practice.

We have developed a proposal for the analysed sequence that helps bridge the gap between the ideal formal activities (WAI) and the actual activities on the ground (WAD). The means for this would be resilience procedures (Wears 2015; Wears & Hunte 2014) that strengthen organizational resilience and robustness and are designed to facilitate, not obstruct professional action.

It would be a desirable outcome if the case explored here led to many of the weak spots in the hospital to be replaced by more creative solutions. This would need hospital managers with a certain sense of curiosity, and medical professionals that want to become part of an high-reliability organization. Much is happening in the global world of healthcare, and it encourages us to continue on our consulting route.

We began by stating that practical rationality represents the source of our consulting concept. Whenever we are working on projects that concern safety and the management of risks, we apply the insights of HRO and resilience research. These are also effective when developing such procedures.[1]

Procedures can be developed according to two paradigms:

One paradigm (I) has the procedures enforced in a *top–down* direction. It is an expression of Taylorism (part of scientific rationality), which splits head work from hand work. The former is done by experts placed outside the operational sphere (manufacturing); they define the activities to be done. The procedures developed by them follow the "one and done" principle, which suggests that they will last forever (or for a very long time at the least), once they are designed.

The other paradigm (II) sees procedures as social constructs, rooted in the local reality, developed *bottom–up,* and grounded in sociology and occupational ecology. Such procedures are the product of applied experience. It is important to remember that these are inherently incomplete and need to be translated and adjusted to fit the given circumstances – making them essentially flexible. These procedures follow the principles of pragmatic rationality.

Procedures are there to facilitate, not obstruct people's performance, i.e. the activities on the ground. They can help coordination when some actors are absent, as they give the various actors an opportunity to anticipate with reasonable certainty what their absent colleagues would be doing. In our consulting work, we often hear of organizations with too many or too rigid procedures. We assume that too many of them come from a belief in scientific rationality, not pragmatic rationality. From our point of view, a reduced number of resilience-positive procedures would be more effective. Procedures overtaken by actual reality can be removed at will. This would need a culture (Grote 2014) that accepts competence, trust, and fairness in the professional practices of everybody involved.

Good procedures act as a bridge between management instructions *(Work as Imagined)* and the adaptations required to match the changing and unpredictable requirements of everyday reality (*Work as Done).*

For good procedures to be developed, we need to distinguish between conditions, processes, and objects:

- The conditions in place at the organization: We can only mention the most prominent ones. The people executing the work possess a rich pool of abilities, competences, etc., enabling a diverse set of opinions, standpoints, perceptions, and carried by flat hierarchies and delegated controls. The conditions under which such procedures can work are also clear; at the same time, there is still enough freedom to respond to other unexpected and unfamiliar events (the formal structures are not excessively detailed).
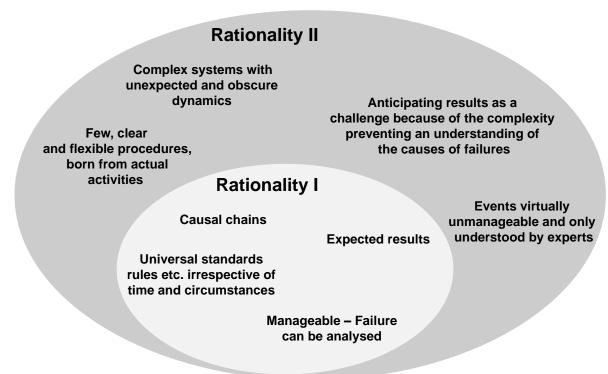- The process of developing resilient procedures etc.: We are not speaking about routine

[1] By procedures, we also mean rules, regulations, guidelines, checklists, instructions etc.

performance enshrined by fitting procedures, which might undermine leadership. The opposite is true: The key is to have procedures that create a frame of reference to cope with considerable and unpredictable *input variety* in the given circumstances. The people affected by it need to be involved. When a new procedure is developed, a pilot trial might help test the practicality of the design. A procedure designed in this manner enables an organization to anticipate other potential problems. Differences between the agreed procedures and the actual activities on the ground can be communicated, reflected upon, learned from, and revised by the actors at work themselves or by the people in leadership. Time needs to be available for this. Whenever it makes sense, procedures are removed, revised, or reinvented. This implies a commitment to local and pragmatic rationality: People will not do anything that does not make sense for them!

- Objects: The principle of equifinality applies – that is, there might be different routes and different means to reach the desired state from different starting points. Explicit flexibility and a focus of the intended goal are just as important. These procedures offer a good frame of reference for resolving conflicts of interest. They are the counterpoint to the assumption that there is only one perfect route (scientific rationality). In conditions of ambiguity, scarcity, and time pressure, we cannot commit to a single route, but even in such intentional multiplicity, there are certain steps that need to be taken and must not be forgotten.

Put more briefly: We need to try to develop fewer, sufficiently effective and flexible procedures, rather than no procedures at all or too many "best" practices.

This brief theoretical discussion will have hopefully shown that the dynamic nature of organizations can be observed at work in the processes of organizing and allocating meaning to organizational activities. The question has to be: What happens right now for an organization to seem safe, reliable, and resilient? Safety, reliability, and resilience can be reinforced and improved, but also challenged with certain actions. The five principles of HRO practices are the foundations of these qualities.

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Illustration 4: The conflicting rationalities I and II. Organizations need to confront themselves with both rationalities on a regular basis in order to become more resilient, reliable, and safer.

24.5   Implications for Greater Organizational Resilience

Lisa Välikangas (2010) offers a concise definition of the meaning of resilience:

> "Resilience is not about responding to a one-time crisis. It is not about rebounding from a setback.

It is about continuously anticipating – and adjusting to – on-going contextual transformations.

Resilience means the capacity to change before the case for change becomes desperate."

This is echoed by Erik Hollnagel's understanding of resilience as outlined in a presentation (Hollnagel, 2014):

"A system is resilient if it can adjust its functioning prior to, or following events (changes, disturbances, and opportunities), and thereby sustain required operations under both expected and unexpected conditions.

Resilience is something a system does, and not something a system has. Resilience is a characteristic of a system's performance or behaviour. This characteristic cannot be reduced to, substituted by, or explained by a single ‚internal mechanism' or ability."

Both authors draw attention to the importance of being able to adapt in time. In starker terms: If you wait to long, you deserve the fate you will get! The need to change arises from the gap between the *work as imagined* and the *work as done*, and from the forces caused by the given situation and the changes under way around the organization. Many a serious incident has been caused by people ignoring such an impetus for change, e.g. accidents, unintended disruptions etc.. Recognizing the sources for successful adaptations would be an important job for managers and leaders, and for the consultants advising them.

Our proposal is targeted on the occasion of the intervention (part 24.3.) and the events preceding it (parts 24.1 and 24.2) at the studied case. Even though the case would deliver rewarding material for more and deeper analyses (involving the affected parties), the following questions present themselves first and foremost:

- How was the information generated outside of the hospital after 11:30 p.m. processed? Did the ER unit take any measures, and was the responsible specialist notified?
- Definitive results were available approx. 60 minutes later; these were discussed in an interdisciplinary group and led to a certain decision. How competent was the group to take such a decision in the absence of some medical specialists? What are the competences of the attendant assistant physicians in such a constellation? Do they represent their discipline only in the sense of being ambassadors, or can they indeed take decisions on behalf of their discipline's actual representatives?
Put differently: What are their roles and responsibilities concerning their discipline or the specialist physicians they were reporting to (e.g. the need to notify), as compared to the group that has reached a shared decision (e.g. feedback to the group or the staff physician in charge about the results of the meeting with the medical specialist or his intention to prepare for surgery)? Would there be the means to contact all responsible specialists in a conference call in such severe incidents? The technical facilities differ from emergency unit to emergency unit, and some medical professionals do not have the necessary modern equipment available in their private residences.

Adjusted for the given context, these are the type of self-reflection questions we pose in our consulting commissions. For the case given here, we know that there are indeed many procedures and rules in place that are not, however, known (anymore). They have fallen into organizational oblivion and could effectively be abolished. It becomes clear that there was no actual consensus about the intended health and physical state of the patient after the diagnosis was made and that the course of treatment was not monitored in consultation with the relevant specialist and the emergency doctor in charge. This is where our proposal would suggest implement a resilience-boosting procedure, although it would be counterproductive to develop such a procedure in the absence of the people who will eventually be affected by it. For this reason, the procedures are scrutinized and reviewed in workshops with all relevant actors in order to make the organization more resilient and more reliable. These workshops confronted the participants with the following items (cf. part 24.4):

- **Conditions**: How are teams staffed at the moment in order to remain effectively functional even in

unfamiliar circumstances? What helps the teams live up to the considerable demands place on them?

- **Objects**: How much flexibility is reasonable, and where should standard procedures be enforced? Resilience can benefit from finding a sustainable balance between true robustness and flexibility.
    - Adding more versatile competences and capabilities: With circumstances such as described in part 24.1, the necessary people could be notified and leadership responsibilities be allocated in good time. Unlike in times of routine work, complex and uncertain incidents with considerable professional pressure make real leadership essential (Swiss Re et al. 2004). Leadership also means understanding the people on the team and being able to anticipate their responses. The reach (and limits) of the leader's expertise and abilities should also not be forgotten. When does support become necessary to prevent overburdening the people involved?
    - Adding more diverse perspectives, standpoints, and focus: A briefing on the incoming patient helps the physicians and care personnel in charge prepare for the situation they are about to face. This should distinguish between two aspects: the medical / technical and the human / personal sides. It is important to encourage the team members to ask all of their questions in good time, as this can reduce their feeling of insecurity and help them produce the performance that is required. The professional and technical concerns should be covered by the medical specialists, whereas the leaders are in charge of the human factor. It can help to designate different people to cover different areas of focus: Who sees the bigger picture? Who looks out for possible crossed wires and misunderstandings? Who watches for medical phenomena that concern the specific patient in question? If everything is communicated clearly and in time, a special sense of cohesion can develop: We are responsible this patient, and we will do our best.
    - Who needs to communicate with whom, and about what? How should this be done to reassure the sender of the message that he or she is understood by its receiver?
    - How is the transfer of responsibility signalled, and how could this be communicated?
    - Flat hierarchies and delegated controls: All actors involved should contribute their opinions and even their gut feelings if they disagree with the person currently in charge. If anybody feels out of his or her depth, for whatever reason, this needs to be made public, and support needs to be organized. Control should be in the hands of the person who is best suited for it; and it could be delegated to multiple persons – beginning with the briefing or while actively coping with the situation.

Such workshops produce robust and resilient procedures. However, their suitability and effectiveness should always be revisited and revised in everyday work. The positive side-effects of this is that employees are assigned to tasks that match their expertise in terms of their size and complexity and that any HR bottlenecks, especially in the sense of too few experts, can be coped with much more effectively. While fine-tuning these procedures is a job of internal management, regular reviews with external advisors can help avoid certain blind spots. Just as our confrontation with the case in hand is not finished – consultant learning in progress – developing and maintaining a resilient organization is a never-ending process of reflection, learning, and adjustment.

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