



Planning and conducting crisis management exercises for decision-making: the do's and don'ts

Tonje Grunnan¹  · Håvard Fridheim¹

Received: 28 December 2016 / Accepted: 24 July 2017 / Published online: 21 August 2017
© The Author(s) 2017. This article is an open access publication

Abstract Organizations exercise to strengthen their crisis management capability, to identify possible improvements to plans, and to develop necessary skills. Taking part in exercises is one way leaders can test their decision-making abilities under emergencies and crises. Crisis management exercises provide arenas for learning and knowledge sharing. This paper discusses how exercises can be performed better and more efficiently. We draw upon practical experiences from 12 table top and functional exercises, involving a variety of military and civilian actors, and we argue that it is possible to improve the planning and conduct of many exercises, leading to more relevant results and greater benefits for the participants. We want to demonstrate that exercises are important tools for decision-making and strategic planning processes within units or organizations. The target audience for the paper is anyone involved in crisis management exercises, from strategic planners and decision-makers to practitioners. The paper identifies practical recommendations for successful crisis management exercises, both discussion-based and operations-based. Learning points are extracted and analyzed with the use of problem structuring methods, resulting in a list of success criteria for crisis management exercises with examples of what works well and what does not.

Keywords Crisis management · Exercises · Strategy · Decision-making · Problem structuring method

Mathematics Subject Classification 90B50

✉ Tonje Grunnan
tonje.grunnan@ffi.no

¹ Norwegian Defence Research Establishment (FFI), Postboks 25, 2027 Kjeller, Norway

1 Introduction

Crisis management exercises are proactive events which are held to strengthen the crisis management capability of participants from various levels of an organization. Much is written about the role of leaders in crises, and the way leaders respond and react to a crisis is often used as a yardstick to test their decision-making skills and measure their leadership qualities. Taking part in exercises is one way leaders can test their abilities to make decisions when managing crises. However, effective crisis management involves more than just leaders. Exercises are used to identify possible improvements to plans and to develop necessary individual and collaborative skills. They may involve senior management at the strategic level, but also personnel on the operational and tactical level of the organization. The value of conducting exercises is considered high (Rosenthal et al. 2001; Lagadec 1997), and the general assumption is that crisis management exercises provide arenas for learning and knowledge sharing.

In this paper, we argue that the way exercises are designed and conducted are important factors for the ability to learn relevant lessons afterwards. Choices or simple mistakes during planning or conduct can easily lead to exercises that do not provide the necessary learning points for the organization and for the individual participants. In our opinion, increased information sharing about such issues is useful, to help avoid possible pitfalls.

The aim of the paper is to identify factors for successful crisis management exercises, to show how exercises can be planned and performed better and more efficiently with little effort involved. The factors are drawn from empirical evidence and practical experience from many years of designing and leading exercises, both in the civilian and military domain. Learning points are extracted and analyzed with the use of problem structuring methods, resulting in a list of success criteria for crisis management exercises. Since experiences from exercise planning and conduct are rarely published publicly, this empirical contribution gives added value to existing literature in the field.

The Norwegian Defence Research Establishment (FFI) has for many years worked with, and continues to pursue, the development of crisis management exercises for actors in the Armed Forces and for civilian agencies and authorities. We have limited this study to comprise 12 table top and functional exercises with a low number of participants. Large full-scale exercises at the operational level are not included. The paper focuses on planning and conduct of exercises. Evaluation and learning are important factors and should always be part of an exercise, but these matters are not covered in this paper. The target audience for the paper is anyone involved in crisis management and/or crisis management exercises, ranging from strategic decision-makers to practitioners.

2 Background

2.1 Crisis management and decision-making

A crisis involves "...a serious threat to the basic structures or the fundamental values and norms of a system, which under time pressure and highly uncertain

circumstances necessitates making vital decisions” (Rosenthal et al. 1989). The term “crisis management” generally relates to the process by which organizations deal with these crises.

In this paper, we use crisis management as a term for the acute phase of a crisis, until normal operations are resumed. In other cases, many will adopt a more holistic view and argue that the complete crisis management cycle also includes the strategic and operational planning done to prepare for the crisis, as well as the evaluation and learning processes following the crisis. The main principles (or phases) of disaster and crisis management are commonly referred to as prevention/mitigation, preparedness, response, and recovery (Heath 1998; Sutton and Tierney 2006). Planning, training, and exercising are means for people to manage crises in all phases. A crisis is characterized by severe threats, a high degree of uncertainty and a sense of urgency (Rosenthal et al. 2001). This is not easy to replicate during the orderly conduct of an exercise lasting a few hours, for instance involving a handful of people discussing around a table.

Governments and organizations have to deal with a wide range of crises in an increasingly complex safety and security environment. The new forms of crises constitute a changing landscape for risk managers and require innovative crisis management responses (Baubion 2013). Dealing with crises depends on its nature and scale. The complexities of the crises demand the involvement and co-ordination of many actors. In order to prepare for the response to crises, organizations must apply a variety of approaches to risk assessment, emergency planning and training. Baubion (2013) argues that the two key functions of modern crisis response, leadership and network co-ordination, require specific training, i.e., strategic crisis management training to test leadership. Looking at leadership, we will argue that taking part in exercises will enhance the strategic leaders’ ability to take decisions in real crisis.

Heath (1998) introduces some requirements for crisis management, such as: the crisis manager should be as senior as possible and capable of managing the crises, membership of the response team should be fixed, and there should be a strong focus on command and control structures. Studying these suggestions, we will argue that training, simulation games, and exercises are useful settings for crisis managers to test their management skills. Nonetheless, exercises are not always intended for strategic leaders only. Depending on the purpose of the exercise, the composition of the participants will be different. The exercise must have realistic and appropriate goals for all participants at all levels to be a success.

There is a fair amount of literature on real crises and lessons learned in real crisis management from the global/strategic level (for instance, the 2008 financial crisis or the 9/11 terror attacks) to the tactical/local level (for instance, learning processes in emergency response organizations, see Sommer and Njå 2012). Also, there is research on exercise outcomes, both in terms of individual and organizational learning (see for instance Perry 2004; Borodzicz and van Haperen 2002; Berlin and Carlström 2014). Some argue that organizations ignore the learning processes after an exercise. Related to more realistic crisis simulations, Wybo (2004) concludes that they are “...efficient in creating opportunities for people to work together and to improve their practice of anticipated situations”, but that they do not necessarily

improve the ability of organizations to avoid or manage crises, since “...their analysis is limited to the identification and correction of deviations from the prescribed tasks.”

Similarly, there is a large literature on strategic planning (Mintzberg 2000; Eden and Ackerman 1998), as well as strategic decision-making (Hickson et al. 1986; Eisenhardt and Zbaracki 1992). Following Mintzberg et al. (1976: 246), a strategic decision is defined as one which is “important, in terms of the actions taken, the resources committed, or the precedents set” (Eisenhardt and Zbaracki 1992). Elbanna (2006) gives an overview of strategic decision-making, presenting some characteristics of strategic decisions. For instance, strategic decisions are the responsibility of top management, and they reflect the interaction between an organization and its environment (Ginsberg 1988, in Elbanna 2006). In our view, crisis management exercises are perfect venues for practicing decision-making and decision support.

Mintzberg (2000) discusses what is planning, why plan, and what is strategy. For instance, organizations must plan to be rational, to control, to coordinate their activities, and to ensure that the future is taken into account. According to Mintzberg (2000), strategy is a plan, a pattern, position and perspective. Also, he claims that there are different forms of a strategy. We argue that in between Mintzberg’s (2000) intended strategy and emergent strategy, exercises can be conducted as a means to see what is possible and feasible and thus influence and give added value to the realized strategy. In our view, exercises play an important part in supporting strategic planning processes. Exercises are essential tools in the crisis management working cycle and provide possibilities for testing plans and decision skills.

2.2 The impact of design and conduct on the outcome of an exercise

In comparison to literature on crisis management and learning from real crises, there is less available academic literature on the impact of exercise design and conduct on an organization’s ability to learn from exercises and thus manage crises better. This is perhaps not surprising. Planning and running exercises is in many ways a “practitioner’s game,” where organizations or small communities develop local practices without exchanging their knowledge with external parties, without benchmarking their approaches with others. As discussed in OECD (2014), there are several reasons for this. Crisis management may be a sensitive topic, and both governments and organizations are reluctant to share information about what they do in this area. The result is often that local experts regard their “...knowledge as a canon best passed on through mentor–mentee communication and informal apprenticeship or their designs as proprietary trade secrets best left undocumented and un-diffused” (OECD 2014).

Still, there are some academic works that describe the impact of planning or conduct. Borrell and Eriksson (2013) discuss how discussion-based exercises “... often produce results with very limited applicability,” not least because discussions on exercise content overshadow the learning process. Another example is the discussion in Berlin and Carlström (2014) on how learning and benefits after

collaboration exercises are limited by factors like the exercise scenario (unrealistic, constructed) or time management (too little time set aside for reflection or evaluation).

There are also other available sources of information on exercise design and conduct. One primary source is evaluation reports after exercises, describing what worked and did not work related to the exercise training objectives (e.g., Directorate for Civil Protection 2013a, b; Norwegian Water Resources and Energy Directorate 2014). However, even these reports rarely cover the impact of the exercise design. Some authorities publish tutorials, guidelines or handbooks on how to conduct exercises (see for instance, Swedish Civil Contingencies Agency 2014; Norwegian Water Resources and Energy Directorate 2015). A quick overview of these shows that they generally describe what to do in various steps of exercise planning and execution, but they do not provide a discussion on what will or will not work, or why.

The possible pitfalls of exercise design and execution is discussed in more detail in the consultancy sector. Many experts provide blog pieces or web articles on recurring problems when designing and running exercises. Burton (2015) presents five common mistakes for table tops; not setting clear and achievable objectives, failing to communicate prior to the exercise, not testing equipment well before the exercise, failing to invite the correct participants based on the objectives, and not creating realistic and thought-provoking injects. Berger (2011) describes ways to avoid common mistakes for table tops; using an outside facilitator, prepare the scenarios to be tested in advance, carefully select the participants, split up the exercise in manageable sessions, do more documenting than just taking notes, and do the exercise over. Eisenhower (2014) lists nine steps to design a powerful table top, covering exercise design, conduct, and the learning process. Most of the findings from these articles are similar to our own experiences.

The literature review shows few results where lessons are drawn from a more structured analysis of many exercises, especially related to the impact of exercise planning and conduct. There still seems to be a need for more empirical-based findings on what works and does not (the do's and don'ts) when it comes to planning and running an exercise. In the rest of this paper, we will use data from exercises we have planned and led ourselves the last years to provide an initial answer to this.

3 Methods

Our goal is to identify success criteria for planning and conducting crisis management exercises. To do this, we have used a simple problem structuring approach to study the experiences from 12 exercises in the period of 2008–2015. A similar approach was used in the project ELITE (Elicit to learn crucial post-crisis lessons), funded by the EU Framework Programme 7 (EU FP7) (Maal and Grunnan 2014; Maal et al. 2014). Methods for structured brainstorming were used in workshops with experts in crisis management in order to gather experiences from all phases of a crisis (prepare, respond, and recover). Afterwards, the lessons identified

were categorized and clustered into factors that need to be considered when identifying what can go wrong and what can be improved after a crisis (Grunnan and Maal 2014).

In this chapter, we discuss the method used to draw out and aggregate relevant findings from the exercises related to planning and conduct.

3.1 Categorization of exercises

There are different types of crisis exercises, and similarly there are many ways to categorize them. The vocabulary in terms of how exercises are defined and grouped varies depending on the operating environment. One set of definitions used in one environment is not necessarily valid for all. Often, three general types of exercises are identified; table top, functional and full-scale exercises (Daines 1991; Perry 2004). One framework is given by the Department of Homeland Security (DHS) (2013), which categorizes exercises as either:

- Discussion-based; Seminars, workshops, table top exercises, and games.
- Operations-based; Drills, functional exercises, and full-scale exercises.

Discussion-based exercises are led by a facilitator or discussion moderator, and they are often used to familiarize the participants with plans, policies, and procedures, or even to discuss or develop new ones. Operations-based exercises will typically involve a more realistic response to the exercise scenario than just discussion (for instance, mobilizing resources, working from crisis management rooms, or testing communications). Often, they are run in real-time as simulations of real crises. They are used to train on or validate existing plans, policies and procedures, clarify roles and responsibilities and identify gaps (Department of Homeland Security 2013). However, even operations-based exercises may involve aspects from discussion-based formats (for instance, using table top formats), so the terms are not mutually exclusive.

By using the approach from the Department of Homeland Security (2013), our 12 exercises can be categorized as in Table 1. We have reviewed six exercises each in the civilian domain and the military domain. Our discussion-based exercises are typically tabletop exercises, while the operations-based exercises are functional exercises. The authors have been responsible for planning and leading the exercises.

3.2 Exercise review

We carried out a systematic review of each of the exercises in Table 1. We set up a table for each exercise, to document positive and negative issues related to both the planning/design and the conduct of the exercise. The positive and negative issues were primarily identified by going through exercise documentation, not least reports with lessons identified after the exercises. An example is shown in Table 2 below. The exercise in question was a tabletop discussion with close to 50 participants from 10 organizations, both civilian and military. Initially, each organization worked separately in small groups, with detailed questions related to their own area of

Table 1 Type of exercises reviewed in civilian and military domains

Civilian domain: <i>N</i> = 6	Military domain: <i>N</i> = 6
5 discussion-based	2 discussion-based
1 operations-based	4 operations-based

Table 2 Examples of positive and negative issues related to planning and conducting an exercise

Exercise X	Planning	Conduct
Positive	Clear exercise goals were specified early	Small organization-based groups worked well
	Good dialog with client	Constructive group discussions, familiarity with own turf
	Reference group with stakeholders was established	Familiarity with first scenario
Negative	Stakeholders responsive to requests for information	Plenary sessions gave good cross-sector learning
	Uncertainty over best exercise format	Too many participants in plenary discussions, hard to focus
	Trying to include both discussion and realism	Some relevant participants were not present
	Trying to include both strategic and/or tactical issues	Participants unwilling to explore worst-case scenarios.
	Too many stakeholder-specific exercise goals	Moderation could have been stronger
	Too generic scenario and problem descriptions	Groups seated too far from each other in plenary

responsibility. Afterwards, there was a plenary discussion led by a moderator with aggregated input from all tables. This was done in two rounds.

3.3 Clustering of factors

After all exercises had been reviewed using the approach described in Sect. 3.2, we started clustering the identified issues through a simple problem structuring approach, using the Oval Mapping Technique as described in Eden and Ackerman (1998). The goal of this work was to identify the recurring factors which impacted positively or negatively on both planning and conduct of our exercises. Similar experiences were found in many of the exercises. These recurring experiences, or factors, were grouped into four clusters; exercise goals, set up, scenario, and participant. There are different aspects to all four clusters related to the planning phase and to exercise conduct. As an example, in the planning phase, we have to establish the exercise goals, while during conduct, we have to work to fulfill the goals. The clusters and associated aspects are listed in Table 3 below.



Table 3 Clusters of recurring factors

Cluster	Planning	Conduct
Goal	Establishment	Fulfillment
Set-up	Exercise format	Logistics and infrastructure
Scenario	Selection/development	Presentation
Participant	Selection	Engagement

4 Recurring factors from review of exercises

The factor mapping in Sect. 3 led to four clusters of recurring factors. Here, we discuss the most important findings and identified lessons for each cluster. The clusters enabled us to identify best practices, as well as some pitfalls, which are summarized as success criteria for crisis management exercises in the final chapter. The first part of this chapter addresses the planning phase, while the second part refers to the exercise conduct.

4.1 The planning phase

4.1.1 Establishing exercise goals

One of the most important findings from the review is the need for clear and achievable exercise goals. Having specific exercise goals is essential for further planning of the exercise, for successful conduct, and for learning afterwards. However, care must be taken to ensure that goals are achievable as well as specific. In some of our exercises, there were too many exercise goals, sometimes even conflicting ones. This meant that not all goals could be met during the exercises.

Another important lesson is that exercise goals should be decided as early as possible in the planning process. This results in a more effective process of developing the scenario, choosing the right exercise format and sorting out all details in the exercise preparation. This was a recurring experience for all our exercises. If the client waited too long to determine exercise goals, the result was too little time left to work on the specifics of the exercise planning.

To develop the exercise goals, close cooperation between the client and the exercise planner is preferable, in most cases even necessary. Dialog and cooperation helps manage expectations and enable early decisions on exercise goals. It is essential for the exercise planner to have main points of contact with the client for discussing possible solutions and clarifications. In one of our exercises, the client had assembled a reference group with representatives from all participating organizations. This group was very active and provided a good sparring partner when designing the exercise. Planning meetings were set up immediately after the contract for exercise design and support was signed, and the reference group met regularly for discussions and clarifications with the planners. In the opposite end of the spectrum, there are exercises where the planners have little contact with the client, or where the only cooperation is done to set up a contract for support. This is not a good starting point for exercise planning. Looking at Mintzberg's (2000)

forms of strategy, this is the point in the strategic planning process where the organization can intervene, adding goals suitable for testing specific areas or tasks important for future work on strategies and plans.

4.1.2 Exercise format

There is often uncertainty regarding the most useful format for an exercise. Recurring considerations in our exercises have been:

- Should the exercise be discussion-based or operations-based?
- Is there a need for a seminar-based approach with discussion as the most important aspect of the exercise, or is there a need for strong realism and real-time simulation of the crisis?

To a large extent, exercise format is the clients' choice, but we have seen examples where the clients were simply unable to make a decision. In these cases, the exercise planner has to facilitate a process to determine client expectations and suggest solutions; does the client expect a dynamic or static exercise, which level should be involved (strategic, operational or tactical), does the client expect a crisis simulation or simply a discussion between actors, etc. The choice of exercise format is closely related to the exercise goals, and it is important for the planner to give a solid recommendation to the client about the most appropriate format to ensure a relevant exercise.

4.1.3 Scenario selection and development

Scenario selection and development is an important part of exercise design. The scenario describes the crisis which should be managed during the exercise, with associated problem areas that should be covered. In many cases, the clients have clear opinions on which scenario should be used, or they have an idea that needs to be put into practice by the exercise planner. Other times, it is part of the planner's assignment to find a proper scenario which meets the requirements of the client. Regardless of the assignment, close cooperation and engagement between the two parties will in most cases improve the scenario development process.

If expectations for a specific scenario are communicated earlier, the planner can assemble a scenario development team from relevant knowledge areas early in the planning process. Use of previous scenarios or draft scenarios can reduce the time spent on scenario development, but care must be taken to ensure that the old scenario is suitable for the purpose of the coming exercise.

Scenario selection and development is closely related to the exercise goals. Some goals are easier to achieve within certain exercise formats, which also impacts on how the scenario should be developed and presented to participants. This is a knowledge that the planner should possess and communicate to the client. Receiving detailed feedback on scenario drafts from the client or a reference groups is valuable, and this is another argument for establishing a good and close relationship between the client and the planner.

Another aspect of scenario development is to decide on the necessary level of details and realism. Too many details can lead to information overload for the participants during the exercise. We have seen examples of this during our operations-based exercises, where predefined lists of injects were played out according to a timeline. When many injects were presented in a tight time schedule, the participants became stressed and had problems responding to or managing injects in a timely manner. However, this is not necessarily negative, as managing the crisis with time constraints sometimes is an exercise goal in itself.

Clients will often ask for “realistic scenarios,” as realism is generally believed to enhance the success of the exercise and get the participants to play along. The argument is that if the scenario is deemed unrealistic, it can have a negative impact on the exercise, with participants “fighting the setting.” Based on our own experiences, this is generally valid for operations-based exercises, but less true for discussion-based ones. In our table tops, somewhat unrealistic scenarios have been used in order to fulfill the exercise goals, without any negative feedback from participants. A bigger problem arises if the participants find the scenario too generic. This can lead to problems during exercise conduct, in terms of engaging the participants. One example from a discussion-based exercise revealed that the participants had problems exploring and discussing a scenario they described as too general, because they missed details or specific problem formulations. This leads to statements such as “this will never happen” or “this is not a problem, we can fix it.” In other words, the generic scenario did not put them in the right state of mind, and they were unable to play along and actually exercise.

4.1.4 Participant selection and preparation

The planner should know as early as possible who the exercise participants are and how many will take part during the exercise. The client can usually say which organization(s) will participate, but the number of participants and who they are is often not determined until late in the process. This is a critical information, for many reasons. The number of participants influences on the format of the exercise, for instance the balance between group and plenary sessions. Additionally, the scenario and problem formulations must be adjusted according to whether the participants work at a strategic, operational, or tactical level.

The review shows that the conduct of an exercise depends heavily on how well the participants are prepared before they arrive. In one exercise, a short and simple preparatory note on crisis management principles had been read by all participants in advance, and this helped them focus their work early during the exercise. Participants in another exercise had prepared themselves by reading the organization’s crisis management handbook. However, exercise participants often do not prepare or look at read-ahead material at all, which results in information overload and a high degree of uncertainty when the exercise begins.

4.2 Exercise conduct

4.2.1 Fulfilling exercise goals

There are many considerations to take when working to fulfill exercise goals, but much will be related to how the exercise is led and controlled. The issues we saw in our exercises were primarily related to three areas: The role of moderators (facilitators) in table tops, the use of experts in table tops, and the role of response cells in operations-based exercises.

The moderator is often a “make or break” role for discussion-based exercises. Tasks for the moderator include leading the plenary discussions, involving all participants, and balancing timekeeping and progress with the need for detailed discussions to highlight important issues. To help the moderator prepare for the exercise, we find that it is useful that he or she is part of the planning meetings before the exercise starts.

A strong moderator helps the group focus on the important matters. A weak moderator allows the group to go off on non-relevant tangents, or spend too much time on trivia. We have examples from the reviewed exercises where the first participant who takes the word talks for a long time without being interrupted by the moderator. In other cases, the moderator steps in earlier and manages to stop participants who is fond of listening to themselves and their own ideas rather than discussing with others. Both examples are about the moderator setting the standard early on for the rest of the discussion.

In some tabletop exercises, we have used experts in the areas covered by the exercise scenario to summarize the plenary discussions. The experts do not participate directly in the exercise, but they observe the discussions and give a 5–10 min summary of their own observations at the end, linking what they have seen with their expert knowledge. The experts are often able to provide input on important learning points, without giving a detailed and critical evaluation of the participants and their work. When they strike this balance, their input is generally well-received by the exercise participants. In fact, in exercises when experts have not been used in this role, the participants have sometimes expressed that they missed an immediate expert feedback and summary.

In operations-based exercises with two groups “playing” against each other, we have used experts in mentoring roles during the exercise. There is a risk that the mentors use different strategies when interacting with their groups. Some are very engaged and take their mentoring role seriously, almost to the extent of interfering too much. Others are at the participants’ disposal, but do not take the initiative to contribute. It is vital to make sure the mentors have similar approaches across groups.

The response cell plays an important role in operations-based exercises. The cell is the contact point for the exercise participants when they want information from organizations or actors not participating in the exercise. Our exercises demonstrate that the cell can be used too little, often due to short time frames or scenario overload, or it can be used very actively, resulting in a dynamic interaction between actors. The exercise planners must plan actively for the use of the response cell, and

most importantly, promote it towards the participants and make sure that they are expected to use it.

Furthermore, defining clear roles in the response cell is necessary to ensure that the individual members know what to do and how to respond. In one exercise, roles in the response cell were slightly mixed up, to the extent that role players took command and used information from the exercise scenario before it was introduced to participants. There is often a pre-game for participants before the main exercise, but rarely pre-games to test the exercise control.

4.2.2 Logistics and infrastructure

All exercises require a minimum of logistics and infrastructure in order to be successful, and operations-based exercises with realistic crisis simulation give increased logistical needs. To establish realism in these kinds of exercises, it is important to make sure the participants can work from crisis rooms with necessary equipment (for instance, computers, telephones, maps, or databases) and have access to real means of communication. We have examples of exercises lacking both vital equipment and sufficient role descriptions for those having to play a role (which was not their role in their daily life), resulting in reduced situational awareness for the participants. This subsequently led to reduced learning afterwards.

In discussion-based exercises, the infrastructure demands are usually less demanding than for the operational ones, but there are still many factors to consider. Room set-up and the choice between using groups or plenary discussions are for example critical for involving participants (see Sect. 4.2.4). Also, the size of the room for the table top and the possibility for using adjacent rooms will have an influence of the conduct of this kind of exercise.

An important logistical factor for all exercises is time management. Often, the clients want to do too much in too little time. Some of the exercises only last 2 h, and there is only so much you can do within this time frame. Factors such as exercise goals and participant selection in the planning phase are strongly related to exercise control during the conduct phase to ensure that plans are doable within the set amount of time.

4.2.3 Scenario presentation

In discussion-based exercises, the scenario is usually presented using slides/photos with text handouts. The scenario is presented step by step. After one phase or situation is presented, discussions take place before the next phase is introduced.

In operations-based exercises, the scenario is typically revealed through injects played by the exercise control. However, the participants often receive a short background story in advance, which gives them an idea of what might come.

A recurring issue in our exercises is how to manage time jumps in the scenario. Time jumps help speed up the scenario, so the exercise can cover more aspects of the crisis than a real-time set-up would allow for. Our experience is that time jumps work well in discussion-based small groups working on a well-defined problem. Furthermore, it is easier to explain time jumps in a scenario presentation with a step-

by step approach where the whole story eventually is revealed. On the other hand, it is complicated to play many days or weeks during 1 day of exercise, for instance in operational exercises which doesn't follow a real-time format. It is often difficult for participants to keep up with time jumps in this setting, because the jumps involve a huge amount of scenario details and injects that must be understood to continue the crisis management down the line. Time jumps can lead to reduced realism for participants if not presented well.

Media play is often an important part of exercises, especially the operation-based ones. A huge media component will drive the planning and conduct of the exercise. It gives extra demands in terms of necessary resources, presentation of media input (radio, TV, newspaper article) etc. Because it is resource intensive, clients must consider whether media play should be a main exercise goal or just a small part of an exercise (for instance, to "spice up" the scenario presentation).

4.2.4 Engaging participants

One of the key challenges in exercise conduct is to involve the participants and provide a good learning environment. The participants' engagement depends on several factors. The exercise set-up must not hinder their involvement, the exercise goals should provide targeted key questions, tasks, and discussion points, and the scenario must be presented in a way that increases their willingness to accept it. In addition, we would argue that the participants' preparations before the exercise affect their involvement in the exercise (see Sect. 4.1.4). Our review shows that participants who had prepared well or taken part in briefs in advance, generally performed better during the exercise. They exhibited a greater degree of commitment and understanding.

When the exercise type and format is chosen, the next step is to set up the exercise in a way that will engage the participants the most. For discussion-based exercises, the use of group sessions and plenary sessions can lead to different results. Group sessions tend to be very suitable when there are many participants in the exercise, such as 30–50 people. We have positive experience with dividing the number of participants into smaller groups, with 5–8 people in each, followed by plenary sessions with presentations from each group. Usually we notice that the discussions are livelier in smaller groups and every participant is actively taking part. This is obviously harder to achieve in the plenary session.

Discussions in plenary settings work well in table tops with 10–15 participants. When the number rises above this, we find that the physical distance and the organizational barriers between discussants in plenary tends to be too big. Some participants give more attention to the moderator and talk to him/her, instead of directing their view towards the other discussion partners.

5 Conclusion: success criteria for crisis management exercises

In this paper, we have argued that exercises are key factors in crisis management. In our society with emerging threats, exercises are fundamental parts of preparing and planning for the unexpected. Hence, we have discussed the need for efficient

Table 4 Success criteria for crisis management exercises grouped in four clusters

Cluster	Do	Don't
Goals	<ul style="list-style-type: none"> ...encourage good dialog between the client and the planner to avoid misunderstandings and help manage expectations ...ensure that exercise goals are clear, achievable and non-competing ...use a strong, well-prepared moderator for discussion-based exercises ...consider having a pre-game for the exercise control to test roles and set-up 	<ul style="list-style-type: none"> ...wait too long to decide on the exercise goals ...choose the scenario or exercise format before you know what your exercise goals are ...use experts to help participants unless they know what is expected of them ...be afraid to challenge the client on the purpose and design of the exercise
Set-up	<ul style="list-style-type: none"> ...ensure that the participants have access to all necessary equipment and information ...limit the number of participants in table tops, or separate them into smaller parallel groups 	<ul style="list-style-type: none"> ...start an exercise without having checked room set-up and tested that services and infrastructure work ...try to do too much in too little time during conduct
Scenario	<ul style="list-style-type: none"> ...make sure that the scenario is relevant and specific and that it engages the participants 	<ul style="list-style-type: none"> ...be afraid to use “unrealistic” scenarios if it fits the purpose of the exercise ...use existing scenarios without making sure they are fit for the purpose of the exercise ...use time jumps in the scenario without knowing how it impacts on the participants and the level of realism
Participant	<ul style="list-style-type: none"> ...communicate the purpose and format of the exercise with the participants in advance ...consider a pre-seminar to go through exercise documentation with participants in advance 	<ul style="list-style-type: none"> ...expect too much of participants in the initial phases of an exercise; they often need some time to get started ...overestimate the participants' ability to go through the information material before the exercise starts ...overload the participants with too much information

planning and conduct of crisis management exercises. We have reviewed tabletop and functional exercises in both the civilian and military domain, and the review provides learning points for improving the design, planning, and conduct of exercises, leading to more relevant results and greater benefits for participants. In Table 4 below, we summarize and group the factors according to what works well and what does not for the four clusters identified in Sect. 3. The list of “do’s” and don’ts” in Table 4 can be understood as a list of success criteria for crisis management exercises.

By following these success criteria, we believe that the target audience for the paper will be better equipped to carry out exercises in a more efficient way and that exercise planning and conduct will improve. Taking part in exercises allow the actors to practice decision-making under stress (they are pressed for time and have to handle a complicated situation). These experiences bring added value/input to

strategic planning processes as well as practice and knowledge on how to handle real emergencies.

Often, training or exercises are used to test and improve plans or procedures, but another important purpose of crisis management exercises is the possibility to test decision-making skills and capacity at different levels. For strategic leaders it is about leading a response organization which has to adapt to the current situation (Baubion 2013). This paper focuses on planning and conduct at all levels. Exercises can, however, be designed specifically for the strategic level and for strategic leaders (Stern 2014).

Our objective as exercise planners is to create good exercises for the client, which in turn will use exercise to enhance and improve organizational crisis management capabilities. In our view, exercises are important means for demonstrating what is possible and feasible. Exercises can be used to test plans that have been prepared through strategic planning processes, and to test whether this is consistent with reality before the crisis occurs. We also believe that a well-designed exercise that engages the participants with relevant scenarios in a useful exercise format provides a good arena for learning.

The success criteria are simple, yet effective. Exercise design and conduct is basically about good planning, and our success criteria are based on firsthand knowledge and practical experience. Our empirical contribution gives added value to other literature in the field. Having proven guidelines will be a useful addition to manuals and handbooks of “how to conduct a crisis management exercise,” as their empirical basis are seldom accounted for.

Those who have long and practical experience with crisis management exercises will know many of the issues covered in this paper. However, their insights are rarely written down. This leads us to a last suggestion for a best practice related to crisis management exercises: make sure that experiences from exercise planning and conduct are documented. Without having documented the experiences from our own exercises, we could not have carried out a structured review and written this paper. These documents will constitute valuable input to any strategy and plan.

Acknowledgements We would like to thank our colleagues Frode Rutledal and Espen Skjelland for their review of the paper.

Open Access This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

References

- Baubion C (2013) OECD risk management: strategic crisis management. OECD Working Papers on Public Governance No. 23, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5k41rbd11zr7-en>. Accessed 7 Dec 2016
- Berger B (2011) The lost art of a well-run table top exercise, 21 June 2011. Website. <http://datacentermoving.com/tabletop/>. Accessed 31 March 2016

- Berlin JM, Carlström ED (2014) Collaboration exercises—the lack of collaborative benefits. *Int J Disaster Risk Sci* 5(3):192–205
- Borodzic E, van Haperen K (2002) Individual and group learning in crisis simulations. *J Cont Crisis Manag* 10(3):139–147
- Borrell J, Eriksson K (2013) Learning effectiveness of discussion-based crisis management exercises. *Int J Disaster Risk Reduct* 5:28–37
- Burton R (2015) 5 Common tabletop exercise mistakes. PreparedEx article, 23 November 2015. Website. <http://www.preparedex.com/5-common-tabletop-exercise-mistakes/>. Assessed 31 March 2016
- Daines GE (1991) Planning, training and exercising. In: Drabek TE, Hoetmer G (eds) Emergency management. International City/Country Management Association, Washington, DC, pp 161–200
- Department of Homeland Security (2013) Homeland security exercise and evaluation program (HSEEP). US Department of Homeland Security, April 2013
- Directorate for Civil Protection (DSB) (2013a) Evaluering av øvelse Orkan 2012. Rapport, Tønsberg, DSB (in Norwegian)
- Directorate for Civil Protection (DSB) (2013b) Barents rescue 2013 evaluation. Tønsberg, DSB
- Eden C, Ackerman F (1998) Making strategy. The journey of strategic management. SAGE Publications Ltd, London
- Eisenhardt KM, Zbaracki MJ (1992) Strategic decision making. *Strat Manag J* 13:17–37 (Special Issue: Fundamental themes in strategy process research (Winter, 1992))
- Eisenhauer J (2014) Nine steps to design a powerful tabletop exercise, Nexight Group News & Insights, 30 September 2014. Website. <http://nexightgroup.com/nine-steps-to-design-a-powerful-tabletop-exercise-ttx/>. Accessed 30 March 2016
- Elbanna S (2006) Strategic decision-making: Process perspectives. *Inter J Manag Rev* 8(1):1–20
- Ginsberg A (1988) Measuring and modelling changes in strategy: theoretical foundations and empirical directions. *Strat Manag J* 9(6):559–575
- Grunnan T, Maal M (2014) Creating a holistic framework for lessons learned reports in crisis management. In Kepka P (ed) ELITE: elicit to learn crucial post-crisis lessons. The European Scientific Conference on best practices and lessons learned from natural disasters, Warsaw, 25–26 June 2014. ISBN:978-83-7798-125-2
- Heath R (1998) Dealing with the complete crisis—the crisis management shell structure. *Saf Sci* 30(1998):139–150
- Hickson DJ, Butler RJ, Cray D, Mallory GR, Wilson DC (1986) Top decisions: strategic decision-making in organizations. Basil Blackwell, Oxford
- Lagadee P (1997) Learning processes for crisis management in complex organizations. *J Cont Crisis Manag* 5(1):24–31
- Maal M, Grunnan T (2014) Lessons learned from crisis management of floods. Deliverable D4.4. Elicit to learn crucial post-crisis lessons. FP7SEC. Contract No. 312497
- Maal M, Grunnan T, Gallipoli M R, Piscitelli S, Masi A, Mucciarelli M (2014) Lessons learned from crisis management of earthquakes. Deliverable D4.3. Elicit to learn crucial post-crisis lessons. FP7SEC. Contract No. 312497
- Mintzberg H (2000) The rise and fall of strategic planning. Pearson Education Limited, Harlow
- Mintzberg H, Raisinghani D, Theoret A (1976) The structure of “unstructured” decision processes. *Adm Sci Q* 21(2):246–275
- Norwegian Water Resources and Energy Directorate (NVE) (2014) Øvelse Østlandet 2013. Evalueringsrapport. Rapport 49:2013. Oslo, NVE (in Norwegian)
- Norwegian Water Resources and Energy Directorate (NVE) (2015). Øvelser. En veiledning i hvordan planlegge og gjennomføre øvelser innen energiforsyningen. Rapport 39:15. Oslo, NVE (in Norwegian)
- OECD (2014) Strategic crisis management exercises: challenges and design tools. 4th Meeting of the OECD High Level Risk Forum, 10–12 December 2014, Paris, France. GOV/PGC/HLRF (2014) 9
- Perry RW (2004) Disaster exercise outcomes for professional emergency personnel and citizen volunteers. *J Cont Crisis Manag* 12(2):64–75
- Rosenthal U, Charles MT, Hart P (eds) (1989) Coping with crises: the management of disasters, riots and terrorism. Charles C. Thomas, Springfield
- Rosenthal U, Boin RA, Comfort LK (eds) (2001) Managing crises: threats, dilemmas, opportunities. Charles C. Thomas, Springfield
- Sommer M, Njå Ø (2012) Dominant learning processes in emergency response organizations: a case study of a joint rescue coordination centre. *J Cont Crisis Manag* 20(4):219–230

- Stern E (ed) (2014) Designing crisis management training and exercises for strategic leaders. CRISMART Volume 42. Swedish National Defence College. ISBN: 978-91-86137-39-7
- Sutton J, Tierney K (2006) Disaster preparedness: concepts, guidance, and research. Report prepared for the Fritz Institute Assessing Disaster Preparedness Conference, Sebastopol, California, November 3 and 4, 2006. <http://www.fritzinstitute.org/PDFs/WhitePaper/DisasterPreparedness-Concepts.pdf>. Accessed 7 Dec 2016
- Swedish Civil Contingencies Agency (MSB) (2014) Övningsvägledning. Grundbok – Introduktion till och grunder i övningsplanering. Stockholm, MSB **(in Swedish)**
- Wybo JL (2004) The role of simulation exercises in the assessment of robustness and resilience of private or public organizations. In: Pisman HJ, Kirillov IA (eds) Resilience of cities to terrorist and other threats—learning from 9/11 and further research issues; NATO science for peace and security series 2008, vol 6. Springer, Dordrecht, pp 491–507

Reproduced with permission of copyright owner.
Further reproduction prohibited without permission.