

Interaction in Aerial Warfare: The Role of the Mission Commander in Composite Air Operations (COMAO)

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Abstract: This chapter explores the leadership practices of Mission Commanders. The major focus is on key features in leadership practices that contribute to effective *samhandling* in the execution of Composite Air Operations and handling of unexpected events. “Aerial warfare” is the term used to describe the use of military aircraft and other aeronautical equipment in warfare. Air power has become the preferred instrument for politicians and commanders to achieve strategic and operational objectives across a spectrum of conflicts, ranging from humanitarian aid to combat action. Air campaigns like OD/UP and MINUSMA are conducted through a series of parallel and sequential Composite Air Operations (COMAO). COMAO is the term used when dissimilar types of aircraft interact in coordinated actions to achieve defined military objectives within a given time and geographical area. The study indicates that *joint practice* and a *joint process for learning and leadership* play vital roles in the successful conduct of COMAO in war. Joint practice during exercises like RED FLAG provides the opportunity to develop the interactional skills that are needed in modern aerial warfare. Important principles in joint practice are that you train as you fight, you experience a progression in challenge and that all participants participate in the exchange of ideas and lessons learned.

Keywords: *Samhandling*, interaction, training, joint processes, joint learning, aerial warfare, COMAO, unforeseen

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Introduction

“Aerial warfare” is the term used to describe the use of military aircraft and other flying machines in warfare. This includes a wide range of aircraft, helicopters, missiles and unmanned aerial vehicles designed to establish control of airspace, attack targets, maintain air mobility and conduct intelligence gathering, surveillance and reconnaissance (NATO, 2016). Because of its unique attributes, air power has become the preferred instrument for politicians and commanders to achieve strategic and operational objectives across a spectrum of conflicts, ranging from humanitarian aid to combat action. Consequently, the Royal Norwegian Air Force (RNOAF) has deployed air assets to a wide range of operations in Europe, Asia and Africa during the last two decades. Most recently, RNOAF deployed F-16 combat aircraft to operation Odyssey Dawn (OD) and Unified Protector (UP) in Libya (2011), and C-130 transport aircraft to operation MINUSMA in Mali (2016, still ongoing).

Air campaigns like OD/UP and MINUSMA are conducted through a series of parallel and sequential Composite Air Operations (COMAO). COMAO is the term used when dissimilar types of aircraft interact in coordinated actions, to achieve defined military objectives within a given time and geographical area. It normally involves between 20–100 aircraft. In order to achieve effect through interaction in COMAO, a key leadership principle is *centralized control and decentralized execution* (NATO, 2016). Centralized control places the responsibility and authority for planning, directing and coordinating air capabilities with a single commander and his staff. The centralized authority is usually located at a Combined Air Operation Center (CAOC). Decentralized execution involves delegating execution authority to sub-commanders, to make on-scene decisions that exploit opportunities in complex, rapidly-changing or fluid situations. The latter leadership role is referred to as the Mission Commander (MC). The MC is given the task through an Air Tasking Order (ATO). The ATO describes essential task information for the COMAO, such as objectives, participating forces, target, time frame, Rules of Engagement and deconfliction parameters. Even though the ATO contains a lot of information, it serves only as a broad set of parameters for the COMAO. Through planning and coordination

with all participating forces, the MC must develop an air operation plan that enhances interaction, ensures effectiveness, as well as minimizing threats to the COMAO.

Being the MC is thus an extraordinary leadership challenge. The role involves having overall responsibility for the COMAO, in combination with solving specific tasks as a flying crew member within the COMAO. Key leadership qualities needed to succeed are the ability to (Fredriksen, 2012):

- Create effective interaction with professionals within and across organizational boundaries.
- Create and maintain interaction with co-located and geographically-distributed forces.
- Maintain high situational awareness (SA) in dynamic and rapidly-changing situations.
- Make sound decisions under time pressure, with limited information and means of communication.
- Cope with stress.

This chapter explores the leadership practices of Mission Commanders, with the aim of discussing key features in their leadership practices that contribute to effective interaction in the execution of COMAO operations and handling of unexpected events.

Theoretical framework

In this chapter, High Reliability Organizations (HRO) is the chosen theoretical framework, since it fits the description and the development of operations and risk management in the RNOAF. HRO is a theoretical perspective that describes organizations with high complexity, that experience extraordinarily few accidents despite the assumption that complex organizations cannot avoid accidents in the long run (La Porte & Consolini, 1991; Weick & Sutcliffe, 2015). HRO is often portrayed as an opposing view to Normal Accident Theory (NAT) (Perrow, 1984). RNOAF acquired the F-16 as their primary fighter aircraft in 1980. In the period

between 1980–1989, 14 serious accidents, killing six pilots, were recorded. This drew attention to the need for safety and risk management in the organization, and the subsequent measures led to a significant drop in accidents. The latest accident resulting in the loss of an F-16 aircraft was recorded in 2001. Since the year 2000, the F-16 fleet has been continuously updated with new technology. The operational demand has expanded to involve more complex operations, and a shift in Norwegian defense policies has brought the F-16 community to combat action.

In the context of organizational structure, a COMAO can be described as a multi-team system (MTS). An MTS is defined as two or more teams that interact directly and interdependently in response to environmental contingencies, towards the accomplishment of collective goals (Zaccaro, Marks & DeChurch, 2012). While pursuing different proximal goals, all teams share at least one common distal goal; in doing so, they exhibit input, process and outcome interdependence with at least one other team in the system (Mathieu et al., 2001 in Zaccaro, Marks & DeChurch, 2012). Figure 26.1 depicts a typical COMAO organization, where the team level represents the smallest fighting unit in the COMAO. A fighting team in air combat is called a *formation*, and normally consists of four aircraft.

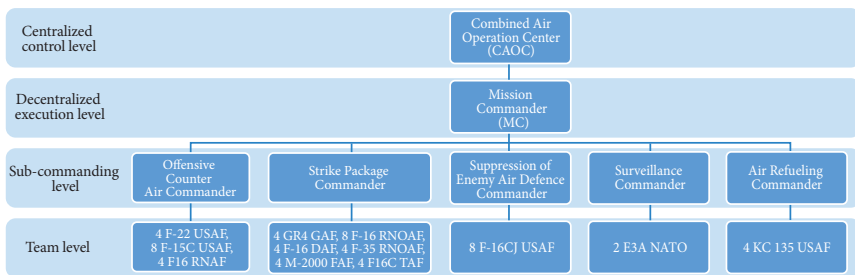


Figure 26.1 An example of the organizational structure of a COMAO.

Multi-team systems are usually formed to deal with highly turbulent environments. They consist of teams from different organizations that may have very different core missions, expertise, norms and operating procedures. Yet, they need to create effective interaction quickly to solve a common task that can withstand critical situations and unexpected

events. In accordance with DeChurch et al., (2001) “..they represent a point on the organizational environment continuum precisely where leaders are most needed” (DeChurch et al., 2001, in Zaccaro et al., 2012). Despite its importance, there is little research on the topic of leadership in MTS.

Research methods

Exploring the leadership practices of MCs, this study takes a pragmatic approach (Creswell, 2009). A pragmatic approach allows for a greater freedom of choice with regards to methods, techniques and procedures for collecting data about the research problem. Data has been collected through observation of COMAO execution, interviewing MCs and pilots to better understand the leadership required to maintain effective interaction and decision-making in the event of dealing with unexpected situations. The leadership practices that will be described are practices that work within the social and historical context of the RNOAF and NATO. They may not apply directly to other professions or organization cultures, but might inspire critical reflection on general leadership practices regarding interaction and handling of unexpected events.

Creating effective interaction in COMAO

Creating effective interaction and handling unexpected events successfully, is the product of many factors. The aim of this chapter is not to explain all of them, but to explore how MCs contribute in making COMAO relatively safe in aerial warfare. In accordance with HRT, the assumption is that they are doing something that others can learn from. They are assumed to be good at it. Observing the field of study, three distinct factors were discovered that enhance interaction in COMAO: a joint practice of COMAO, a joint process for learning, and leadership. Each factor will be explored in detail. Leadership characteristics are described together with joint practice for learning and, in a separate section, focused on trust.

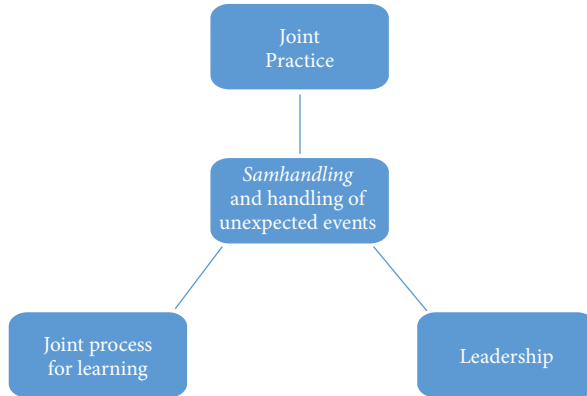


Figure 26.2 Factors developing effective interaction and handling of unexpected events in COMAO.

Joint practice

“(OD/UF Libya) Due to technical problems, we were unable to contact the other participants in the COMAO prior to flight. We only received a coordination card from the Combined Air Operation Center and executed the mission. It all worked out very well since we had practiced COMAO training with the same nations in different exercises previously.”

F-16 pilot, RNOAF

Developing effective interaction in training between formations from different armies and nationalities is the key to success in warfare. In the pilot community, this is referred to as establishing *mutual support*. Since WWII, it has been a well-established practice that mutual support between aircraft is a force multiplier: A formation of two fighters outperform two fighters employed singularly. Even though today’s fourth and fifth generation multi-role aircraft are less specialized than their WWII ancestors, they still operate under the same principle of mutual support. For example, an F-16 has a combat endurance of 1.5 hours, but when it is supported by an air-refueling aircraft, its endurance increases to human factor limits (approximately 6–8 hours). Interaction in COMAO is a matter of establishing mutual support across organizational boundaries.

Interaction – *a skill that can be mastered*

Scholars present different definitions and perspectives on the essence of interaction (Eggen & Nyrønning, 1999; Torgersen & Steiro, 2009). In the practice of aerial COMAO, effective interaction that sustains the demands and threats in a war campaign is viewed as a *skill* that can be mastered through practice. If NATO practices COMAO in peacetime, they will gain experience and knowledge that will also work in war. In other words, interaction and the mastering of unexpected events are controllable factors if you follow certain principles in training. One principle is to *train as you fight*. This implies that the training must be in accordance with what you will actually do in combat. This, which might be viewed as an obvious lesson today, can be traced back to the US combat experience in Vietnam. Prior to the Vietnam War, the US Air Force experienced many restrictions in training. Air crew were not properly prepared for the threats they faced in the war, which resulted in heavy casualties. In order to mitigate these lessons, Exercise RED FLAG was initiated to better prepare aircrew for combat. For the first time, USAF airmen started to train systematically during peacetime, employing COMAO (Norwood, 1994). RED FLAG provided realistic training in a combined air, ground, space and electronic threat environment, and created a learning environment where ideas could be exchanged between participants. Due to its success, RED FLAG is today one of many exercises where NATO aircrew interact in COMAO training. The sole purpose is to reach a level of proficiency that will sustain the demands of modern aerial warfare.

A second important principle of COMAO training is that it needs to be conducted with a *progression in challenge*. Since NATO is the dominating air power in the world, both in terms of numbers and technology, a pitfall in the training is that a realistic opponent in an exercise scenario is an inferior opponent. In other words, you risk facing an opponent who does not challenge your abilities. For that reason, COMAO exercises, which usually last for ten days, are designed with a progression in challenge. They generally start out with realistic best-case and expected scenarios based on likely war scenarios in the world today, and progress to worst-case scenarios and occurrences of unexpected events. In this way,

aircrews are exposed to different interaction problems in controlled scenarios and can learn from different situations.

A third principle is that all participants must be willing to expose their own mistakes to give others a chance to learn from them. As they say, people learn from their own mistakes, but smart people learn from others' mistakes. Hence, joint exercises provide NATO forces with a unique opportunity for *collective learning*, that can be described as a community of practice, according to Lave & Wenger (1991). Joint practicing of the operational skills required for effective interaction in combat leads to a development of standardized concepts of operation, tactics and standard operating procedures (SOP). In most COMAO exercises, participants come together at a common air base. They meet face-to-face for planning and learning processes, and interact in social programs in the evening. All these activities facilitate the development of trust and knowledge about differences in norms and culture (Hislop, 2009:165–175).

Norwegian fighter pilots who served in Libya found that COMAO exercises serve their purposes in war (Fredriksen, 2012). The way COMAO is conducted in war does not change from how it is practiced in training. Knowing the structures of interaction in advance creates a greater opportunity to be successful from day one in a war. It also reduces pilot stress and increases pilots' work capacity, so that they are able to cope with the unique challenges that only occur in war.

Joint process for learning

Every COMAO follows a standardized working process of four phases led by the MC: a planning phase, a briefing phase, a performance phase and a debriefing phase. The cycle lasts about twelve hours: four hours planning, two hours briefing, four hours performing, and two hours debriefing. This process is embedded in the practice, and is comparable to the Experimental Learning Model (ELM) (Kolb, 1984), where the planning, briefing and performing phases can be viewed as the *concrete experience*, the debriefing phase as *reflective observation and abstract conceptualization*, and the following day COMAO as *active experimentation*.

This process is not only embedded in the conduct of the overall COMAO. It is present on all sub-levels in the COMAO hierarchical structure. Parallel to contributing to the COMAO learning process, all air crews need to participate in the learning process on the sub-commanding level, the formation/team level and on an individual level.

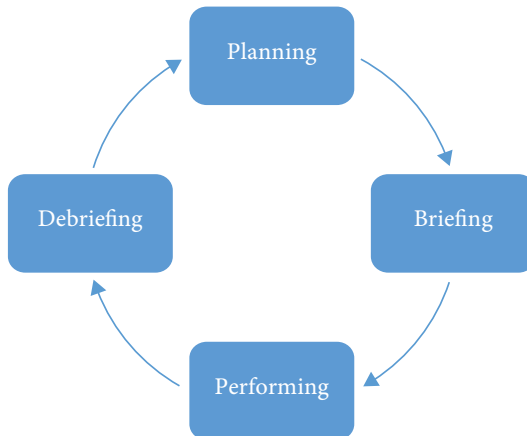


Figure 26.3 COMAO learning process.

Planning

“The planning phase is the most challenging process to lead. First of all, you need to come up with a good plan. Then you have to make sure that everybody shares a common understanding of the plan. If not, there will be misunderstandings and chaos.”

MC, RNOAF

The planning process serves two main purposes: (1) To create a plan that will solve a specific task and meet established safety requirements, and (2) create a collective situational awareness (SA). The former is similar to a rational analytic decision-making process. The MC normally uses a checklist that guides him/her through the most important steps and issues that need to be solved. There are established common MC checklists, but many MCs prefer personal guides that are tailored to their own experience and planning knowledge. Before the actual planning starts, the process begins with a brainstorming session that is often referred to as “the 4 Ts”:

Table 26.1 The 4 Ts brainstorming structure in a COMAO planning process (based on the syllabus in the Tactical Leadership Program COMAO Course, <https://www.tlp-info.org/home/composite-air-operations>).

COMAO Planning process: The 4 Ts	
TASK	Analyzing the task given in the ATO: What is the commander’s intent? What are we supposed to achieve? What is a satisfactory end-state? What are the resources? What are the limitations?
TARGET	What are the goals? Which targets are to be attacked? At what time? What kind of damage level is required?
THREATS	What may stop us from achieving the goal? What can intelligence tell us about the enemy? Weather, clouds, terrain, time of day?
TACTICS	Analyzing task, target and threats: What is a suitable plan for this COMAO?

After having decided upon an overall game plan, the actual planning phase progresses with detailed planning, coordination and decision making, that must be resolved before the COMAO can fly in a safe manner. Representatives from all participating formations participate in the planning process. This practice has several advantages:

- The MC can monitor progress in the planning process and interact with sub-commanders in problem-solving immediately when needed.
- The MC can call for a status meeting (usually lasting only ten minutes) to get and give all participants an overall status of the process.
- All formations flying in the COMAO have one representative who has SA over the process and the overall plan for the COMAO, and who can relay information to planning processes that are happening at formation and individual level.

Together, this contributes to collective SA. About 20 % of the air crew flying in the COMAO are directly involved in the creation of the plan, and

know their own specific task and what role it plays in solving the overall objective of the COMAO.

Contingency planning

A plan will always be the product of many assumptions. If the assumptions are incorrect, it may lead to the occurrence of unexpected events that can be dangerous or reduce the COMAO's ability to achieve its objective. The MC needs to prepare for changes in the assumptions. In the planning process, this is called *contingency planning*. Contingency planning is a risk-assessment and risk-management process, often associated with models and processes like the Bow-tie Model (Torgersen, 2015:48–53) and Operational Risk Management (ORM)(OPNAVINST 3500.39B, 2004). The latter is incorporated as standard procedure for all safety work in the RNOAF (BFL 0101–1). Due to time pressure in the planning phase, a *mental* ORM is performed. This means that the ORM process is carried out verbally, as opposed to a more time-consuming written process. Subject to so many different types of hazards, this may seem inadequate. Since separate contingency-planning processes are completed on all hierarchical levels in the COMAO organization, it actually covers a wide aspect of potential dangers.

The contingency-planning process usually reflects changes in four assumptions: the enemy's expected course of action, the environment, technical equipment and reduction in capabilities (aircraft that perform specific tasks). Changes in any of these factors are compared with what the ATO depicts as an Acceptable Risk Level (ARL) for the COMAO. The ARL is a guideline for how many people and aircraft the commander is willing to lose to achieve the goal of the mission. The MC uses *deduction*, by reflecting on scenarios that may be unique to this specific mission, and *experience*, when reflecting on different scenarios that are known to happen in COMAO. The result of this process ends up in a picture of changes that might lead to a cancellation of the entire COMAO (known as a NO GO criteria), and for changes in the assumption that will require adjustments to the main plan. A complete planning process will therefore result in a main plan, a set of NO GO criteria, and a number of alternative plans that will take effect when unexpected events occur. As a principle, all alternative plans are kept as close as possible to the main plan.

All planning information is written down on a coordination card that all participants receive in the MASS BRIEFING.

Leading the planning process, the MC needs to have enough experience and knowledge of all the capabilities in the COMAO to create an initial plan that makes use of all the resources at hand. The MC must be able to engage in fruitful discussions with sub-commanders and formation leaders, and make decisions that take into account individual needs without hampering effective interaction in the overall COMAO plan. Keeping oversight in the process, delegating and engaging in problem-solving are important qualities. Working under time pressure, the MC needs to demand progress in the work, balancing communication to respect cultural diversity.

Briefing

“What separates the excellent MCs from the others is their ability to convey the plan in the MASS BRIEFING in such a way that everybody understands the big picture and how their task is important in the plan.”

MC, RNOAF

The briefing, or MASS BRIEFING as it is called in COMAO, may be considered the most important leadership process in creating a collective SA (Fredriksen & Moen, 2013:209–212). All participants in the COMAO attend the MASS BRIEFING, as it is considered to be too dangerous to have participants flying who are not thoroughly familiar with the overall COMAO plan. The content of the brief is a repetition of the 4 Ts, that balances the level of details to what is relevant for all the participants. Details that are only relevant at the sub-commander or formation level are covered in a separate briefing held after the MASS BRIEF. At the end of the briefing, all participants should know what the plan is, why, what their individual task is in the main plan, as well as the different contingency plans.

The briefing process follows norms. It always starts punctually with a roll call of all formation members. The briefing is a one-way communication process lead by the MC, and it is supported by sub-commanders and other personnel who have been delegated responsibilities in the COMAO planning phase. In order to ensure efficiency, questions are always addressed at the end, and they are limited to clarifying or confirming information.

Either the plan is safe and sound or the COMAO must be cancelled. At this point in the process, there is no time to make big changes.

The MASS BRIEFING tests the MC's communication skills. The plan needs to be visualized for the participants. They must understand every time-critical interaction that happens in the COMAO, potentially-dangerous situations that can occur with non-compliance, and which events that could trigger changes in the plan.

Performing

“The MC needs to have enough brain bytes available to maintain SA on the COMAO, and not only the action that is going on within his own formation. I have seen many times that trigger events occur that should alter the main plan, but the MC for some reason doesn't act on it.”

MC, RNOAF

In the performance phase, the COMAO plan is set out in reality. In academic terms, this is when the theory is tested. The main focus for the MC is to maintain high SA and to monitor the COMAO. A UHF radio is the means of communication between the different formations in the COMAO. Since radio communication is limited to one person speaking at a time, it is difficult for the MC to give instructions to the other elements during flight. It requires significant communication discipline and a solid communication plan that establishes how information is prioritized on the common UHF frequency. Adherence to the communication plan is the most important factor to maintain a high collective SA.

If the assumptions in the plan are correct, the COMAO will be executed in an orderly fashion with effective communication. The collective SA in the COMAO will be high, resulting in actions being performed without the need for further coordination and communication. This is referred to as implicit coordination (Cannon-Bowers, Salas & Converse, 1993). When unexpected events happen (a trigger event), it is of utmost importance that this is recognized by the MC, and that he/she reacts to it in accordance with the contingency plan. If this is the case, an unexpected event may not create a problem for the COMAO. If not, a dangerous situation might develop, either because formations are flying in

accordance with a plan that is not based on the right assumptions, or because formations are executing different plans. In both these cases, the collective SA is drastically reduced and actual communication increased, making it even harder for the MC to establish control and give instructions. Degraded SA often leads to formation prioritizing safety actions rather than executing the planned task.

The role of improvisation

Since the COMAO planning process covers a lot of contingencies, the occurrence of unexpected events that the MC is not prepared for are rare. During the interviews with RNOAF MCs, all had problems remembering such events. This does not mean that the role of MC can be performed with an absence of improvisation. A COMAO plan almost always requires small adjustments in the performance phase. These adjustments, or improvisations, follow specific patterns. First of all, they are variations on the existing plan. The communication needed to initiate improvised actions cannot be open for discussion or vast amounts of information exchange, due to the means of communication. Hence, it is often transmitted as orders to be recognized and confirmed. The changes implemented in improvised actions are limited to as few as possible, and decision making is delegated to the most suitable level of authority in the hierarchical structure of the COMAO. This action limits the problem-solving process to the formations effected by it, and leaves it up to the specialists to make the right decision. Decisions made in the improvisation process are a balance between obtaining goals and maintaining safety, but safety will always predominate.

Debriefing

“The hard part is to identify the really important lessons that are valid for everybody in the COMAO and communicate them clearly.”

MC, RNOAF

The debriefing is an organized and structured reflection on action (Schön, 1983, 1987; Folland, 2012; Moldjord, 2016). The purpose of this

process is to create learning. As in all steps in the COMAO learning process, the debriefing is conducted on all hierarchical levels in the COMAO organization. The MASS DEBRIEF focuses on the overall execution of the COMAO. The goal is to identify learning points that are relevant for all participants. The later formation debriefings will cover more specific learning points relevant for the formation or individual pilots. In total, the debriefing process will cover a spectrum of operational and tactical learning points, down to individual pilot switch-actions and maneuvers in specific situations.

The air crew uses two terms in the learning process: *lessons identified* and *lessons learned*. The goal of the debriefing is to identify important lessons that the participants can add to their knowledge for future COMAO operations. “Lessons identified” are not considered learned until the application of action has changed. As in most performance cultures, the debriefing is mainly concerned with what went wrong and correcting these errors. The process seldom dwells on the positive aspects of the COMAO, mainly because they have a high-performance expectancy and limited time to cover all possible learning points in the debriefing.

The debriefing process mainly addresses four questions (Fredriksen & Moen, 2013:215–217):

1. Were there any safety issues?
2. What happened?
3. What went wrong? Why?
4. How do we change it next time?

Safety is always paramount in COMAO exercises. What cannot be performed safely in a training environment will become hazardous in the fog of war. In this part of the debriefing, anybody can address issues concerning any aspect of the COMAO. Bringing up safety issues in the beginning of the debriefing has two important functions: (1) Important learning points are identified and can be corrected. (2) Real safety issues evoke emotions. If emotions such as fright and anger are not dealt with, they will have a negative impact on the analytic learning process.

The re-construction of what happened is really the key to create valid learning. In a COMAO scenario where 100 aircraft are performing different tasks in a dynamic air-combat scenario, nobody will have complete SA of what happens. While in war, aircraft are shot down and ground targets are destroyed, in a COMAO exercise, munition drops and missile firings are simulated in the aircraft. Even though these actions are assessed in real time in the air, they need to be validated on the ground after flight, to make sure the assessment was correct. Different tools, like a recorded radar picture, are used to reconstruct the COMAO execution and replay it chronologically for the participants in the debriefing. Munition drops and missile shots are called out at the correct time, with validation by the pilots performing the action. At the end of this run-through, the MC and the COMAO participants have a picture of how the plan was actually executed in the air by the COMAO, which targets were destroyed, how many enemy aircraft were shot down and their own losses. This information is compared to the task and the overall objective of the mission, highlighting what could have been done differently to increase performance.

Leadership trust

“In some cases, my confidence in the MC and the plan have been so low that the mindset leading my own formation has been to avoid collision with other formations and get us all safely back on the ground. These missions have no tactical value, except the learning of how not to do it.”

MC, RNOAF

On all levels, in any organization, leadership is appraised as an important factor in task performance. However, in COMAO, leadership seems to be of the utmost importance to the overall task performance. The main reason for this is the constant time pressure that comes with the task. Time is often described as *your worst enemy*, especially in the planning phase, as the MC needs to keep pushing for results to meet deadlines given in the ATO. Trust is a factor that correlates with interaction and performance, especially in a high-risk and high-stress environment (Costa et al., 2001, Kramer, 1999; Rousseau et al., 1998). Temporary MTS,

like a COMAO, gives very little time to build trust. “Swift trust” building describes a condition where there is too little time to perceive deep relational trust (Meyerson et al., 1996). Expectations and stereotypes are imported from other settings, and play an important role in this process. The initial phase of working together in the COMAO is therefore crucial for establishing trust (Wildman et al., 2012). In the initial planning meeting, the MC needs to give an impression of control over the situation. This is conveyed by demonstrating self-confidence, and by providing an initial idea of how the task and the process can be solved, as well as through the ability to delegate tasks. Further, the MC needs to be open minded to other solutions suggested by participants, challenge new ideas and only accept them if they contribute to a better plan for the overall COMAO. Language skills seem to play a vital role in establishing “swift trust”. The MC needs to be confident in speaking English. He or she should have a good grasp of the basic professional terms used by the different capabilities in the COMAO, and understand typical problems that may degrade their performance. In the planning phase, the MC needs to keep the pressure up in order to achieve results. Showing signs of hesitation will only cause frustration and reduced trust. Therefore, tasks are often delegated to nationalities and formations that have shown solid performance in the past. This type of MC knowledge is only gained through experience and participation in COMAO. Hence, the MC is always a very experienced and qualified pilot.

Conclusion

This chapter has explored the leadership practices of Mission Commanders (MC) in Composite Air Operations (COMAO), giving insight into details in the practices that contribute to interaction and the handling of unexpected events, in an organization that can be described as an HRO and an MTS. The study indicates that *joint practice* and *a joint process for learning and leadership* play a vital role in the successful conduct of COMAO in war. Joint practice during exercises like RED FLAG provides the opportunity to develop the interaction skills that are needed in modern aerial warfare. Important principles in joint practice are that you train

as you fight, that you experience a progression in challenge and that all participants participate in the exchange of ideas and lessons learned. In developing interaction skills, COMAO exercises have a structured process for learning, consisting of four phases: planning, briefing, performing and debriefing. This learning process is present on all hierarchical levels in the COMAO organization. The handling of unexpected events is prepared for in the contingency-planning process. This process is similar to common risk-assessment processes. Actual unexpected events in the performance phase are handled through execution of alternative plans and improvisation. All actions are evaluated and corrected in the debriefing. The role of the MC is vital in all phases of the learning process. Leadership trust plays a significant role in the overall performance of the COMAO. The lack of trust may reduce task-oriented behavior and increase safety-oriented behavior in the performance phase. The development of “swift trust” is established in the planning phase. Self-confidence, language skills, an ability to create ideas and solve problems, make progress, and have knowledge of different capabilities and their special interests are important characteristics in building “swift trust”. Therefore, the role of MC is given to very experienced pilots who are trained in COMAO operations.

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