The SAR Planning 'P' Process

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Abstract

The Planning P is a familiar framework to Emergency Management for transitioning from the Initial Response for a more a formalized, structured response. In this presentation a SAR-specific P framework is proposed that retains the simplicity of the OODA Loop and Six Step Response Process in the Initial Response Period, with a critical decision point to continue as is, or activate the Incident Management Team in a more Formalized response for Second Operational Period and beyond. Each step and the associated Goals, Objectives, Strategies and Tactics will be explored through to the Subject being located, or Search Suspended.

Keywords: Planning P, OODA Loop, Six Step Process, Search Management

Introduction

THE IMPORTANCE OF SEARCH AND RESCUE (SAR) PLANNING.

In typical SAR Missions, the initial response or attack often evolves with limited initial resources targeted through short term decision tools such as the OODA Loop and situational awareness/incident management tools such as the Six Step (SCORPA) Tool. As a search evolves through operational periods there is need to transition from informal to formal planning structures that assure the key steps are addressed, and that documentation is done to ease the transitions between operational periods. Planning models such as the Planning P are a common tool in emergency management literature. In this paper the authors present a SAR Planning P model that is reflective of the specific needs of SAR.

Search is an emergency. While the incident response should be focused on doing everything possible to save life, it cannot ensure the subject(s) will be found: the incident response may not have the capability to detect the subject(s) even if in the search and rescue area, the subject(s) may be somewhere else, or

something other than becoming lost/stranded/injured may have occurred. The initial response develops based on the initial objectives.

The tempo and intensity of the response is that which is appropriate to achieve these objectives. There may be periods (or there will come a time) when there are no established objectives related to actual searching. During these periods (or at that time) resources should be assigned against other planned objectives developed through a formal planning process.

All search and rescue operations follow similar patterns presented in Table 1 and there are many well-articulated Initial Response Models that address the urgency and initial tactical response. The initial response and first operational periods are targeted at high probability (and often high risk areas for the subject). As a search moves into the second operation period, there is need to transition to a more formalized strategic planning process, that takes into account the initial flow of information from initial attach resources.

TABLE 1. Common SAR Event patterns

PHASE	**TARGET**
INITIAL RESPONSE: This phase of the response to a search and rescue mission can be the most difficult. In general, it is:	• Aimed at high probability areas. • Approached with speed as a priority. • The first few hours of the mission, this can last from a couple of hours to 24 hours.
FIRST OPERATIONAL PERIOD: This phase of the mission includes the initial response phase and is generally:	• Aimed at high probability areas that have been determined by the initial response. • Approached with speed and efficiency as priorities. • Considered the first day's search and rescue effort. It usually ends at either 18:00 hrs. (6 p.m.) or 06:00 hrs. (6 a.m.) depending on when the initial SAR response took place. Generally, from 4 to 24 hours.
SECOND OPERATIONAL PERIOD: This phase is normally after the initial response and will start the formal advance **planning process using the Planning P**. From this point on the operational periods usually last 12 hours in duration, until the end of the search and rescue mission. Generally it is:	• Aimed at NEW high probability areas and secondary search areas that have been previously covered. • Approached with efficiency and thoroughness as priorities. • Terminated at either 18:00 hrs. (6 p.m.) or 06:00 hrs. (6 a.m.) depending on when the initial response was started and then continues for 12 hours.

SUBSEQUENT OPERATIONAL PERIODS: This phase of the search mission will probably follow the planning process started during the first full operational period regardless of when it was started. This phase is generally:	• Aimed at high and low probability areas simultaneously • Approached with efficiency and thoroughness. • Involves 12 hour periods of time throughout the rest of the search and rescue mission. • Review, and if necessary, revise the search and rescue objectives, resource needs, subject profile, urgency, etc. • Involves more formal advanced planning.

Planning, both pre-incident and search and rescue action planning, reduces the time needed to conclude the emergency by speeding up the transition from reaction to responsive and proactive management. Planning keeps search and rescue operations responsive to emerging information and data.

Planning is the glue that binds SAR resources together, producing a coordinated, effective emergency response transforming the search and rescue objectives into realistic strategies and tactics (actions) to resolve or control the SAR mission. The use of planning structures ensures effective, efficient use of available and potential SAR resources applied to the problem, reducing redundancy and confusion, evaluating success, and focusing efforts directly on solutions for the event at hand.

Planning is a key component of operational success. Planning should include a conscious, continuous cyclic process (**The Planning P**) with the flexibility to modify and adjust plans based on information flow and coordination. Situational awareness is generated through the use of the Six Step Process, which then allows for the modification and adjustment of strategy and tactics as the mission unfolds. The Incident Commander and all members of the Overhead Team should continuously use the OODA loop throughout each step of the Planning Cycle and the Planning 'P' for decision making. This will continue to reinforce the decision-making process each step of the planning cycle, and maintain situational awareness for the IC and other members of the planning team. Even though you are using the planning process and the incident response process you must continuously make decisions each step of the way by synthesizing information, correlating and turning it into useful intelligence so you can not only maintain situational awareness but be able to make decisions.

Decision makers are encouraged to utilize the planning P as a guide to fully develop and implement the Incident Action Plan (IAP) including the definition of the incident and impacts, establishment of objectives and processes to address those impacts, dissemination and implementation of the plan, and evaluation and revision of the plan based on the outcomes. The Advance Planning Unit should be activated to prepare for multiple operational periods, with the requirement for producing multiple IAP's.

GAP ANALYSIS - ASSESSING THE INITIAL RESPONSE

Since the inception of search management concepts in the 1970's, curricula have struggled to define an effective process for determining when to significantly de-escalate an incident after sustained efforts fail to locate the subject(s). Over the years, suggestions have included 'Suspending the Mission', 'Limited Continuous Search', and the use of probability estimations such as Probability of Success, Shifting Probability of Area, and Cumulative Probability of Detection all of which have left opportunity for improvement. The terms 'suspending the mission' and 'limited continuous search' have been interpreted by families to infer that the agency having jurisdiction and/or incident personnel are giving up or have lost interest, and are now abandoning their loved one. As for probabilities, the father of one missing woman expressed family perspective very well when he stated before a television camera 'They're figuring their job from the odds, I'm figuring my job from saving my daughter's life'. The gap analysis process described here avoids these perceptions. It is objective ('What else can be done?') rather than opinion ('It's time to suspend') based, and through its methodology cultivates consensus.

A gap analysis is useful for determining and achieving agreement among critical allies and stakeholders for future actions when efforts have failed to locate the missing subject(s). While a gap analysis exercise may result in consensus when to significantly de-escalate, its purpose isn't to convince others the time has come to de-escalate. Because it is an objective process, it facilitates the identification of what has been missed or still needs to be done. One possible result can be identifying additional objectives justifying continued sustained efforts to the degree that the incident's tempo remains the same or even increases. Under such circumstances multiple gap analyses may be necessary over the incident's evolution before a consensus to de-escalate is reached.

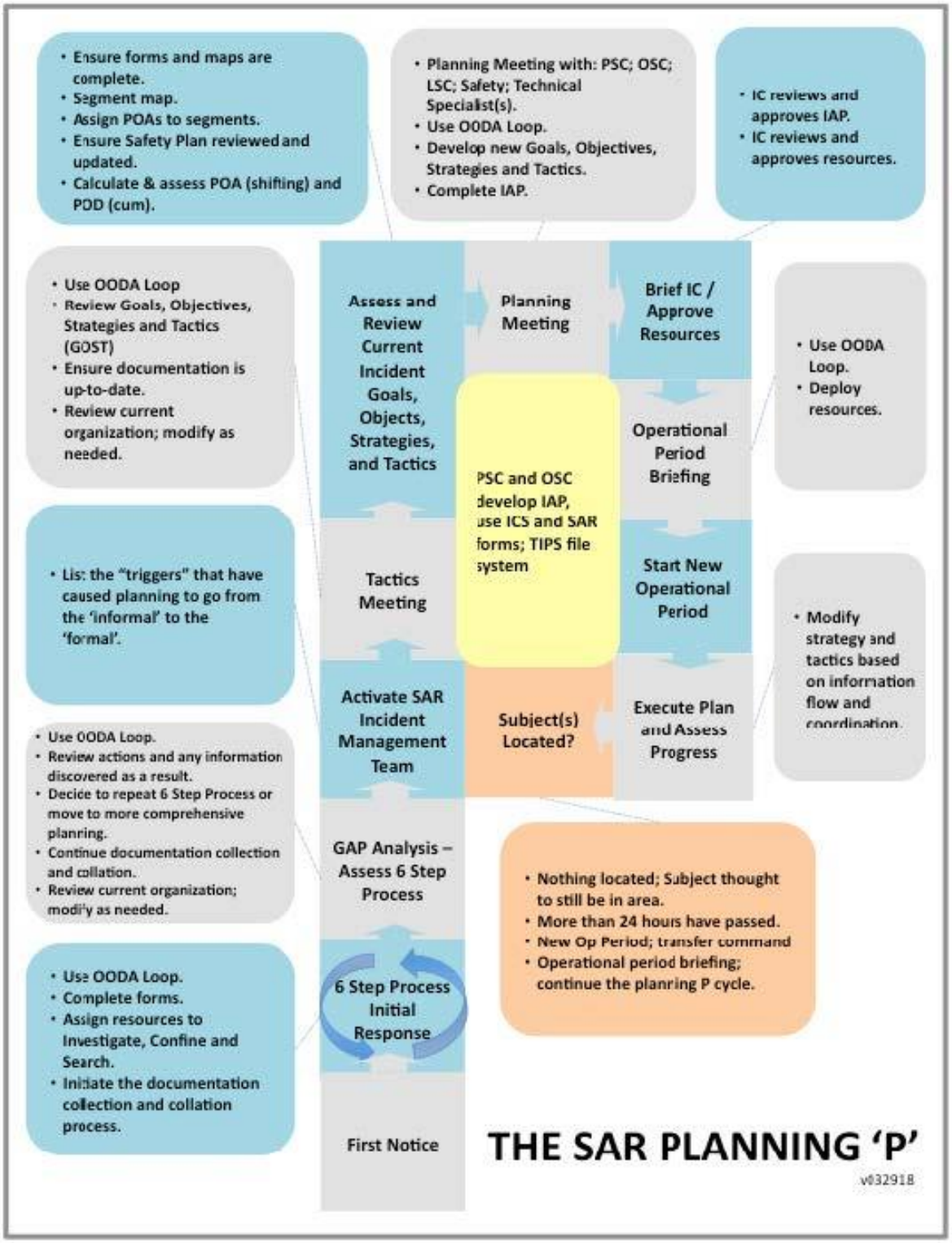
• Ensure forms and maps are complete.
• Segment map.
• Assign POAs to segments.
• Ensure Safety Plan reviewed and updated.
• Calculate & assess POA (shifting) and POD (cum).
• Planning Meeting with: PSC; OSC; LSC; Safety; Technical Specialist(s).
• Use OODA Loop.
• Develop new Goals, Objectives, Strategies and Tactics.
• Complete IAP.
• IC reviews and approves IAP.
• IC reviews and approves resources.
• Use OODA Loop
• Review Goals, Objectives, Strategies and Tactics (GOST)
• Ensure documentation is up-to-date.
• Review current organization; modify as needed.
Assess and Review Current Incident Goals, Objects, Strategies, and Tactics
Planning Meeting
Brief IC / Approve Resources
• Use OODA Loop.
• Deploy resources.
PSC and OSC develop IAP, use ICS and SAR forms; TIPS file system
Operational Period Briefing
• List the "triggers" that have caused planning to go from the 'informal' to the 'formal'.
Tactics Meeting
Start New Operational Period
• Modify strategy and tactics based on information flow and coordination.
• Use OODA Loop.
• Review actions and any information discovered as a result.
• Decide to repeat 6 Step Process or move to more comprehensive planning.
• Continue documentation collection and collation.
• Review current organization; modify as needed.
Activate SAR Incident Management Team
Subject(s) Located?
Execute Plan and Assess Progress
GAP Analysis – Assess 6 Step Process
• Nothing located; Subject thought to still be in area.
• More than 24 hours have passed.
• New Op Period; transfer command
• Operational period briefing; continue the planning P cycle.
• Use OODA Loop.
• Complete forms.
• Assign resources to Investigate, Confine and Search.
• Initiate the documentation collection and collation process.
6 Step Process Initial Response
First Notice
THE SAR PLANNING 'P'
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TABLE 2. The Primary Components of the SAR Planning P

SAR Planning 'P' Process

From the Informal to the Formal

Planning Step	Actions	Forms/Job Aids
Six Step Process (Initial Response) (SEE APPENDIX 1 – Decision Making)	• Use OODA Loop • Develop Objectives • Complete forms. • Assign resources to Investigate, Confine, and Search. • Initiate the documentation collection and collation process. • Ensure Safety Plan developed.	• Initial Response Forms 1-8. • **ICS 201**, 203, 204, 205, 206, 207, 208, 211 + Risk Assessment Worksheet (215A). • Maps. • Weather statement/bulletin. • Safety Plan (ICS 208). • Filing system for documents (folders, accordion files etc.).
GAP Analysis - Assess 6 Step Process	• Use OODA Loop. • Review actions and any information discovered as a result. • Decide to repeat 6 Step Process or move to more comprehensive planning. • Continue documentation collection, and collation. – Review current organization; modify as needed.	• Completed forms, maps, and investigative information. • Forms for new 6 Step cycle.
Decide to repeat 6 Step Cycle or move to formalized comprehensive planning. **If formal planning is initiated for multi-operational periods, then proceed to next steps in the SAR Planning P**		
Activate SAR Incident Management Team	• List the 'triggers' that have caused planning to go from the 'informal' to the 'formal'. • Identify formal (unified) Command Structure	• Completed Forms – Incident Action Plan (IAP). • Maps. • Completed ICS 209 (Incident Status Summary).
Tactics Meeting	• Use OODA Loop.	

SAR Planning 'P' Process *From the Informal to the Formal*		
Planning Step	**Actions**	**Forms/Job Aids**
	• Review Goals, Objectives, Strategies, and Tactics (GOST). • Ensure documentation is up-to-date. • Review current organization; modify as needed.	
Assessment Meetings **Assess and Review Current Incident Goals, Objectives, Strategy, and Tactics (GOST)**	• Ensure forms and maps are complete. • Segment map. • Assign POAs to segments. • Ensure Safety Plan reviewed and updated. • Calculate and assess POA (shifting) and POD (cum).	• Maps. • Forms. • Modified Mattson Consensus forms. • Resource Management – sufficient, capable, and effective. • Safety Plan (ICS 208).
Planning Meeting with: PSC; OSC; LSC; Safety; Technical Specialist(s)	• Use OODA Loop. • Develop new Goals, Objectives, Strategies, and Tactics. • Complete IAP.	• SAR Management forms. • ICS forms. • Maps. • Other supporting documentation.
Brief IC on IAP, and Approve Resources	• IC reviews, and approves IAP. • IC reviews, and approves resources.	• IAP. • Supporting documentation.
Operations Briefing	• Review Goals, Objectives, Strategies, and Tactics (GOST).	• IAP. • Supporting documentation
Start New Operational Period		

Execute Plan and Assess Progress	• Use OODA Loop. • Deploy resources. • Modify strategy, and tactics based on information flow, and coordination.	• IAP. • Team assignments. • Manage information, documentation, debriefing reports.

SAR Planning 'P' Process

From the Informal to the Formal

Planning Step	Actions	Forms/Job Aids
Begin a New Planning Cycle?	• Nothing located; Subject thought to still be in area. • More than 24 hours have passed. • New Op Period; transfer command. • Operational period briefing; continue the planning P cycle.	• All information, and documentation reviewed, and 'on the table'.

A gap analysis can be especially useful when elements of critical allies or stakeholders propose the time has come to significantly decrease active search efforts, but where such a decision might be opposed by other elements. Under these circumstances such a decision can cause significant strife and anger between opposing camps if made unilaterally by the incident commander or agency having jurisdiction. The gap analysis process minimizes such conflict by building consensus and ownership in the decision.

The gap analysis process is a broadly used business development and problem solving technique. The method described below has been adapted for search and incorporates techniques successfully used in incidents - especially when it was necessary to achieve the consensus of stakeholders and critical allies.

A key point is that all identified objectives are to be completed. (Remember, objectives are flexible. If the original objectives are unrealistic, modify, adjust, and revise them so they can be achieved. But do not leave objectives uncompleted).

The Gap analysis explores the past, present and future, using the same logical decision making process as SCORPA (See Appendix 1) structured in a formal meeting setting. As used in the search and rescue incident context it explores two questions: 'What has been accomplished?', and 'What else can we do to ensure we've done everything possible to save the subject(s) life?'.

The Gap Analysis Process

Prepare for a Gap Analysis Meeting

- ❑ Determine the key stakeholders and critical allies to be represented.
- ❑ Select a time and location that will maximize attendance of the invitees.
- ❑ Invite the key stakeholders and critical allies, and ensure they understand the purpose and desired product, which is to identify of all reasonable tasks remaining to be completed.
- ❑ Select a facilitator. The default ICS function for this designation is the Plans Section Chief. However, if a level of conflict exists among the stakeholders and critical allies to the degree it could hamper the process; a neutral person may be preferred.
- ❑ Select the persons to make presentations, and ensure each understands what he/she is expected to speak to.
- ❑ Control the presentation of investigative intelligence, and of information that might be *embarrassing* to the subject(s) and family (a family member could be suspect in a criminal investigation). Such information should only be presented as necessary, and in a sensitive manner.
- ❑ Limit attendance to invitees only. Media attendance is normally not appropriate as candid and confidential opinions will be encouraged.

Part I of the Gap Analysis Meeting: What has been accomplished?

- ❑ Following a prepared agenda, a series of speakers with subject matter expertise brief the attendees on all relevant information uncovered since First Notice. This may include subject(s) profile information, possible scenarios that could have caused the subject(s) to become missing, subject(s) known and possible actions, the process by which the search and rescue area boundaries were defined, containment actions, investigative results, search efforts and outcomes including quantitative analysis (cumulative PODs, shifting POAs, etc.), clues found and how resolved, search and rescue resource capabilities, terrain and vegetation, safety concerns, hazards, weather, and psychic reports.

Part II of the Gap Analysis Meeting: What else can we do to ensure we've done everything possible to save the subject(s) life?

- ❑ Establish ground rules:
  - Brainstorming is encouraged.
  - Everyone is expected to listen to ideas with an open mind.
  - Negative criticism and argumentative challenges are inappropriate.
  - Confidentiality is expected. What is said at the meeting stays at the meeting.
- ❑ Facilitate brainstorming. Attendee ideas are listed on a whiteboard or laptop without critical analysis.

Part III of the Gap Analysis Meeting: Develop an action list from the ideas generated through the brainstorming.

- ❑ Review and encourage discussion regarding the items identified in the brainstorming

session.

- ❑ Establish consensus as to which will be acted upon.
- ❑ Assure the attendees the selected ideas will be prioritized and completed.
- ❑ Adjourn the meeting.

Implement the consensus items developed in the Gap Analysis Meeting.

- ❑ The Planning Section function incorporates the list of consensus items into the SAR Incident Action Plan(s). Objectives are established, resource needs identified, and assignments developed.
- ❑ As SAR resources become excessive to the need, they are released. For example, once no more flights are needed all remaining aircraft are released.
- ❑ Discovered clues or other information are investigated and resolved. Additional SAR resources are mobilized if appropriate.
- ❑ Once the objectives identified by the gap analysis (and any other objectives developed as the result of additional intelligence) near completion, arrange a subsequent gap analysis meeting, or implement a SAR demobilization plan to the significantly decrease active search and rescue efforts.
- ❑ At some point all identified items will be completed and there will no longer be any search and rescue resources in the field. In effect, active search and rescue efforts will stop. But that doesn't mean that the search and rescue mission is permanently ended. The agency is not 'giving up'. Any information or clues that may be uncovered in the future will be aggressively resolved.

THE SEARCH AND RESCUE INCIDENT ACTION PLAN (IAP).

Every SAR mission must have a written SAR plan as it will aid law enforcement agencies (AHJ) in their missing person investigations. The SAR plan may be shared when:

- Several agencies are involved.
- More than one jurisdiction is involved.
- More than one operational period is involved and it is unified command.

The SAR IAP defined: A plan for successfully resolving the search and rescue incident:

- Must be dynamic (flexible).
- Must be updated for each operational period.
- Must be only one plan for the operational period.

The role of the SAR IAP in Operations is extremely important to the overall SAR management effort. It should provide the operations function with the following:

a. Defined operational periods.

b. Written search and rescue objectives reflecting the policy and needs of all jurisdictions.

c Divisional and area assignment lists (tactical assignments).

d. Organizational chart, based on the Incident Command System.
e. Search and Rescue maps delineating assignment areas.
f. Communications plan.
g. Resource status and availability.
h. Mission situation/status reports.
i. Weather information.
j. Situation predictions.
k. Medical plan.
l. Transportation plan.
m. Subject profile for lost/missing person.
n. Safety considerations for weather, hazards, etc.

> **"A SAR IAP is where the snowshoe meets the snow, and the planning effort gets its report card."**
>
> **- Snowshoe Thompson, 1856**

OVERVIEW OF A SAR INCIDENT ACTION PLAN (IAP) DEVELOPMENT.

a. Developed by the Plans Section in consultation with the general staff.
b. Initially prepared at first planning meeting.
c. The Incident Commander (SAR Manager) establishes information requirements and reporting schedules for all organizational elements.

d. The Incident Commander (SAR Manager) presents general control objectives and alternatives which define legal, policy, resource, and fiscal constraints for the SAR mission in accordance with the preplans and policies of the involved jurisdictions.

e. Operations and objectives are discussed with general staff relative to:

- Resource status and availability.
- Situation status including hazards, risks, work accomplishment.
- Situation predictions. What is the best guess (SWAG) at what is likely to happen?
- Communications capabilities.
- Weather.

f. Plans Section then takes this information and develops the SAR IAP:

- Coordinates strategies and tactics with the Operations Chief.
- Coordinates resource support and service needs with the Logistics Chief.
- Develops the SAR IAP in written form with alternatives.
- Presents plan to the Search and Rescue Manager/IC for approval.

g. Plans Section conducts briefing of general staff.

h. Plans Section makes necessary adjustments to the plan and duplicates and prepares for distribution at field SAR team leader briefing.

"The key to making a plan work is the ability to vividly paint clear mental images of the plan and tasks to be done in the minds of the people who need to know and who will have to respond and act."

- Snowshoe Thompson, 1856

CONSIDERATIONS INVOLVED IN SAR PLANNING.

Avoiding Alligators - As the prophet said: "When you are up to your armpits in alligators, it is difficult to remind yourself that your initial objective was to drain the swamp." Good planning is alligator control. Proper management of information can avoid irritations and distractions, and allow all aspects of the search to focus on draining the swamp.

In some jurisdictions, the Operations Section Chief will be the SAR Manager and the AHJ or police service will be the Incident Commander. The incident commander and the SAR manager may also be one of the same, depending on the jurisdiction and the number of resources available at the start of the initial response phase. Information management - A good deal of search and rescue planning involves the management of information. Properly managed information can reveal guideposts to logical actions (i.e. a plan). Among the items the Plans Section Chief considers when developing strategy includes:

- Investigation results from interviews and deductive reasoning.
- Subject profile compiled from investigation.
- Lost/missing subject behavior data from local and national data bases.
- Search and rescue resources available: types, how many, for how long, and training.
- Terrain and vegetation analysis.
- Weather, both past, present, and predicted.
- Outside political pressures from critical allies or external influences.

This is a lot of information, and it can be overwhelming. But if organized and filtered correctly it provides clear direction and ensures effective use of SAR resources. Some ideas on how to collect and manage this information follow.

> **Note:** **During the initial response many of these actions are done 'informally' using the 6-step process. Once the decision is made to move from informal to formal planning all of the following formal planning actions need to be considered.**

Assign a SAR Incident Management Team when you transition from informal to formal and include additional ICS functions to manage the information flow and coordination.

SITUATION UNIT. To manage the expected flood of information the Plans Section Chief should immediately assume or assign someone the responsibilities of Situation Unit Leader. This person manages all data through the use of maps, resource status cards, assignment summaries, computer software programs, and other tools discussed in detail below. Delays in establishing a Situation Unit will result in loss of data caused by poor documentation. The Situation Unit Leader is normally a full-time responsibility.

RESOURCE UNIT. The other critical Plans Section position is the Resources Unit Leader. This person maintains current records on the status of all SAR resources, including assisting and cooperating agencies. This may be a full-time position, or it might be combined with the responsibilities of Check-In Recorder, Timekeeper, or Situation Unit Leader.

Determine appropriate action. Identify the range of possibilities that might have caused the person to become lost/missing or overdue. Then prioritize response to the potentially most life threatening or serious possibility. For instance, on a lost/missing child report, several high priority possibilities might become apparent, such as a water accident or kidnapping, abduction. Thus a high level of response is warranted to investigate these two possibilities, and less urgent responses aimed at dealing with the others.

- This worst-case concept has applicability in all planning sequences, and is especially useful in the initial response when either available information indicates a low overall urgency, or limited resources force a focusing of efforts.

Develop a lost/missing subject profile. This profile will be useful in:

- Defining search and rescue objectives.
- Estimating SAR resource needs.
- Determining strategy and tactics.
- Mapping the search and rescue area.
- Providing planning data and searching data.
- Briefing search and rescue teams.

Establish Search and Rescue Objectives. These should address the following questions:

- How much time do we have to find the subject alive? (Consider weather, subject profile, statistics and any other subject survivability factors.)
- How large an area will we ultimately search?
- What final POD can we accept (how thoroughly will we search)?

When these objectives are accomplished, the search and rescue mission generally de-escalates. Therefore, the search and rescue objectives usually prescribe a level of thoroughness for searching a large area. However, these objectives must be developed and approved in concert with the SAR Manager/Incident Commander.

Determine and staff the boundaries of the search and rescue area. Consider theoretical, statistical, deductive and subjective methods, search objectives, subject profile, and lost subject behavior data.

- Apply all reasonable and necessary confinement techniques.

Segment the search and rescue area.

- Use features that are visible in the field whenever possible. Features can include ridgelines, streams, fences, roads, vegetation changes, string lines, and streamer lines.
- Make the segments small enough to permit assigned resources to cover entire segments in a 4 to 6 hour period. This will vary depending on terrain and topography.
- Segment boundaries must not be realigned once SAR efforts begin. Any realignment complicates cumulative POD and shifting POA computations. However, combining and subdividing segments can be done if necessary. Erase, add, but do not reroute boundaries. Computer programs are available to assist with this task.

Once the segments have been determined and identified determine the probability of area of each. This is done utilizing the Modified Mattson Consensus Method. Prioritize segments. Consider subjective, statistical, investigative and deductive factors, subject profile, debriefing information, and compare this data with search priority ranking. By now a few segments will begin to appear as having the most likely chance of containing the subject (since he/she/them have not been located in the initial response search areas). Consider the intended destination of the lost missing person. When you have identified the 50% and 95% percentiles based on statistical data, then if the lost missing subject had an intended destination determine the angle of dispersion from that indented destination based on the available data. See Section IX, Chapter H.

Estimate area of the segments. Use a template to determine the size of each segment. Knowing the area of each segment is necessary for determining Probability Density, and is required to calculate the time needed for resources to complete their assignments.

Note: **It is important to determine the size of the area in relation to the POA. SAR resources will have a greater success in a smaller area than a larger one.**

Determine Probability Density. Probability density (PDEN) is the probability that the lost person is in a given segment, divided by the size of that segment (PDEN = POA/Size). The higher the probability density, the greater the chance of finding the subject faster; i.e. a higher POA per square foot (or yards or meters, depending on the measure). Consideration should be given to searching segments with the highest PDEN's first.

Resources. Work up an estimate of the total SAR resources needed to achieve the search and rescue objectives. See Section IX, Chapter 9, Search Tactics and Resources. Consider:

- The type of SAR resources needed or available.
- How long each is available.
- Time available versus area to be covered.
- Estimated POD or POD Tables for each SAR resource.

Encourage Input. Do not plan in a vacuum. SAR personnel, family, and locals will have good ideas, some of which you may not have considered. Obtain their input by methods such as:

a. Directing agency and family liaisons to solicit suggestions and forward these ideas to the Plans Section.

b. Organize a brainstorming session:

1) Invite key people to participate, including the SAR Manager/IC, Operations Section Chief, selected family members, representatives of participating organizations, individuals with special knowledge of the search area, persons well skilled in strategy and tactics, and free-lance locals (First Nations, hunters and trappers).

2) Provide a briefing.

3) Allow each person two to five minutes to make and justify recommendations. List each of these on a flip chart, whiteboard, or laptop.

4) After everyone has made recommendations, provide a certain amount of time for discussion.

These techniques allow everyone the opportunity to provide input, draws the locals into the operation, provides for the family to participate, identifies original ideas while still allowing decisions to be made in a timely manner, and saves time.

Prepare SAR Assignments. SAR assignments must be written.

a. The use of GIS systems for tactical mapping and planning will greatly aid in this process.
   - Write and display all SAR assignments on Chart paper or use a laptop and projector.
   - Combine all documentation of SAR assignments for one operational period on a map and photocopy, photograph, and use overlays to enhance documentation and presentation for briefings.
   - Additional instructions are written on search and rescue management forms or SAR ICS forms.
   - Date and time stamp each map and instructions.
   - Both the photocopied map and the instructions are prepared as decisions are made.
   - A copy of the map and instructions, together with other information such as subject profile, operational period objectives, communications plan, and debriefing questionnaire serve as the briefing packet to be given to each team leader by Operations.

b. This method minimizes preparation time, provides for fast briefings, serves as documentation, can be carried into the field, minimizes confusion, and lets everyone know what everyone else is doing.

c. Also, list SAR team assignments in large letters on flip chart paper or whiteboard and post for quick reference at Plans. Include columns for status, and accomplishments. These charts allow for quick reference, and comparisons.

Coordinate with Operations for implementation of the SAR plans.

Plan for Operational Periods: Always plan at least 12 hours in advance and use the planning ‘P’. Outline a general plan for the next shift, subject to revision as further information is received. Meet with Operations and Logistics and lay the groundwork for the following phases:

Debrief. Debrief returning SAR team leaders (or teams). Document debriefing information can be placed on transparencies overlaid on a master map.

Crunch Numbers. Prepare a summary (SitRep) of shift efforts:

- Calculate cumulative POD for each segment.
- Calculate shifting POA for each segment.

- Recalculate Search Priority for the next shift.
- List highlights of the shift.

The new cumulative POD's, shifting POA's and Search Priority will indicate new segments to be searched; These are critical to updating strategy. The calculations are not difficult, but they are repetitive. It can take hours to compute by hand cumulative POD's and shifting POA's for a search area having ten segments, and most search areas have more than ten segments. A computer can shorten the time needed to compute the calculations to a few minutes. Programs to accomplish these calculations are available from various sources.

However, it's not always necessary for Plans to be active 24 hours per day. In most search and rescue missions the Plans Section can complete its responsibilities in 15-16 hours. This may be preferred as it allows for greater continuity, avoids the need for time consuming briefings to the relief shift, and releases persons to other tasks.

Termination of a Response

It is critical to preplan the termination of a response process. Inherent in the Planning P is the “subject found” or “response concluded” process. It is recommended that these steps include (but not be limited to); briefing command on the termination activities, establishing demobilization priorities, establishing resource release stages, verifying deactivation procedures, and implementing demobilization processes. It would be a major error to not emphasize the need and values of the debriefing process, ensuring the identification of lessons learned, and application of these learnings to subsequent events.

Discussion

EDITORIAL COMMENTS, SUGGESTIONS AND OBSERVATIONS ON THE PLANNING P

Avoid letting the management of the search and rescue mission generate its own special problems. Troubleshoot early, and encourage everyone to keep sight of the search and rescue objectives.

There is an inverse relationship between level of responsibility and workload; the higher the

responsibility, the less the workload. SAR Managers key role is to think forward, not participate in tactical implementation. The SAR Manager, and to a lesser extent, the Plans Section, Operations Section, and other Chiefs are encourages to reserve themselves for the main events and refuse to be drawn into trivia. As Chiefs they need to be available to their subordinates, and have time to evaluate, and think ahead. Effective Chiefs and managers delegate as much as possible so they are prepared to handle the additional problems that are sure to appear.

The only thing worse than a bad decision is indecision. There is no such thing as a 'bad' decision if it is made in good judgment based on available information.

Search and rescue missions are great opportunities to receive on-the-job training in managing large scale incidents. Take advantage of this by assigning inexperienced persons to various overhead operations to learn by 'shadowing' a mentor.

APPENDIX 1

Decision Making adapted from "SEARCH AND RESCUE MANAGEMENT – Initial Response through Extended Operations (Best Practices by Experienced Practitioners) March 2018. Produced published and copyrighted © 2018 by ERI International and SARI – SAR Branch. Reprinted and used by written permission for JSAR.

DECISION MAKING

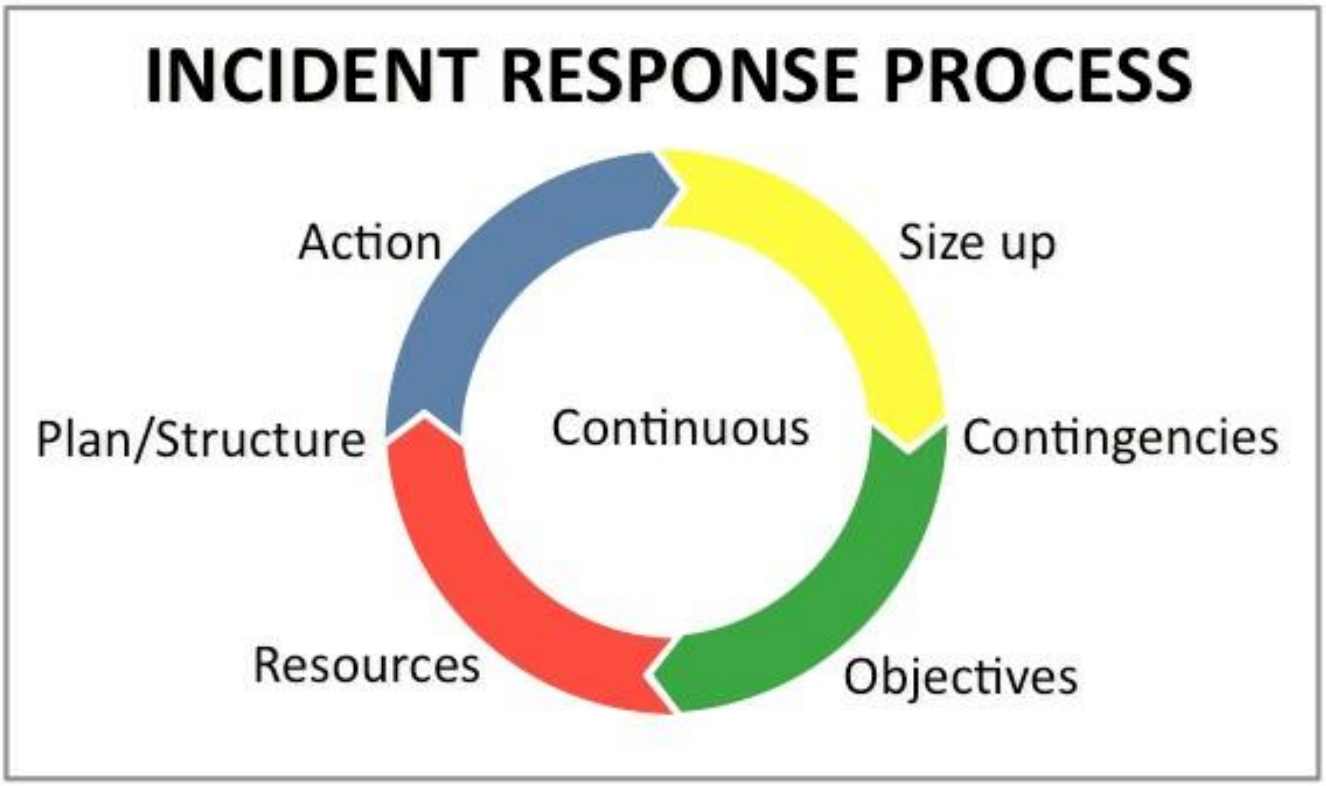
> **"Failure Is Not An Option."**
>
> **- NASA Flight Control, Apollo 13**

1.0 THE SIX STEP PROCESS.

1.1 This 'Six Step Process' (also known as the 'Incident Response Process') was developed by the International Association of Chiefs of Police as an approach for solving an operational problem. It is designed to provide a systematic and logical method whereby incident commanders and managers are able to make rapid decisions on tactics and the application of resources. As the incident evolves and more information becomes available, the Six Steps are repeated. It is a continuous, cyclic process.

1.2 The Six Step Process is extremely versatile; it is just as valuable as a quick mental technique for the individual responder as it is as a means of structuring a more formalized response to a larger incident. As the user gains experience it will become an instinctive process that can be applied automatically and continuously. The generic process:

1. Size–up the Situation	a. What is the nature of the incident? b. What hazards are present? c. What hazards exist for response personnel and the public? d. Do warnings need to be issued? e. Are there injured people who need to be treated or assisted? f. Is evacuation required? g. How large an area is involved? h. Can the area be isolated? i. What location would make a good staging area? j. What entrance and exit routes would be good for the flow of response personnel and equipment?
2. Identify Contingencies	a. What could have happened to cause this situation? b. What could happen to make the situation worse?
3. Determine Goals and Objectives	SMART Objectives developed through, Investigation Objectives, Containment Objectives and Search Objectives.
4. Identify Needed Resources	a. What resources are needed? b. Where will we get them? c. How long will it take them to get here? d. Are there any special resource requirements?
5. Build a Plan and Structure	a. Responsibilities and tasks. b. Chain of command. c. Coordination.
6. Take Action	a. Implement your action plan. b. Supervise/coordinate. c. Continue collecting and analyzing additional information (Step 1 (Size Up) of the next cycle).



1.3 This generic process is adaptable to virtually any incident. It is especially useful in the Initial Response Phase of a SAR mission. For example, a hasty team leader arriving at a trailhead from which a reported lost person departed, quickly runs through the process to determine where to employ available resources: which trails to run, buildings to check, high hazard areas to check, etc. Then the Incident Commander, while the Hasty Team is still in the field, uses the process to plan the first operational period of the search.

1.4 In the event the mission continues into multiple operational periods, the process is useful to organize an expanded, more formalized planning process.

1.5 Section III will detail the Six Step Process from the point where you are notified through to the conclusion of the first Six Step Cycle. For each of the Six Steps it gives you:

- A complete list of all the activities to which you need to attend.
- Any supporting information that you might need, in the form of text or tables.
- A list of 'recommended actions' – these are activities that we think you must deal with.
- References to any documentation that you will need to complete. The documents for this can be found at the back of the workbook.

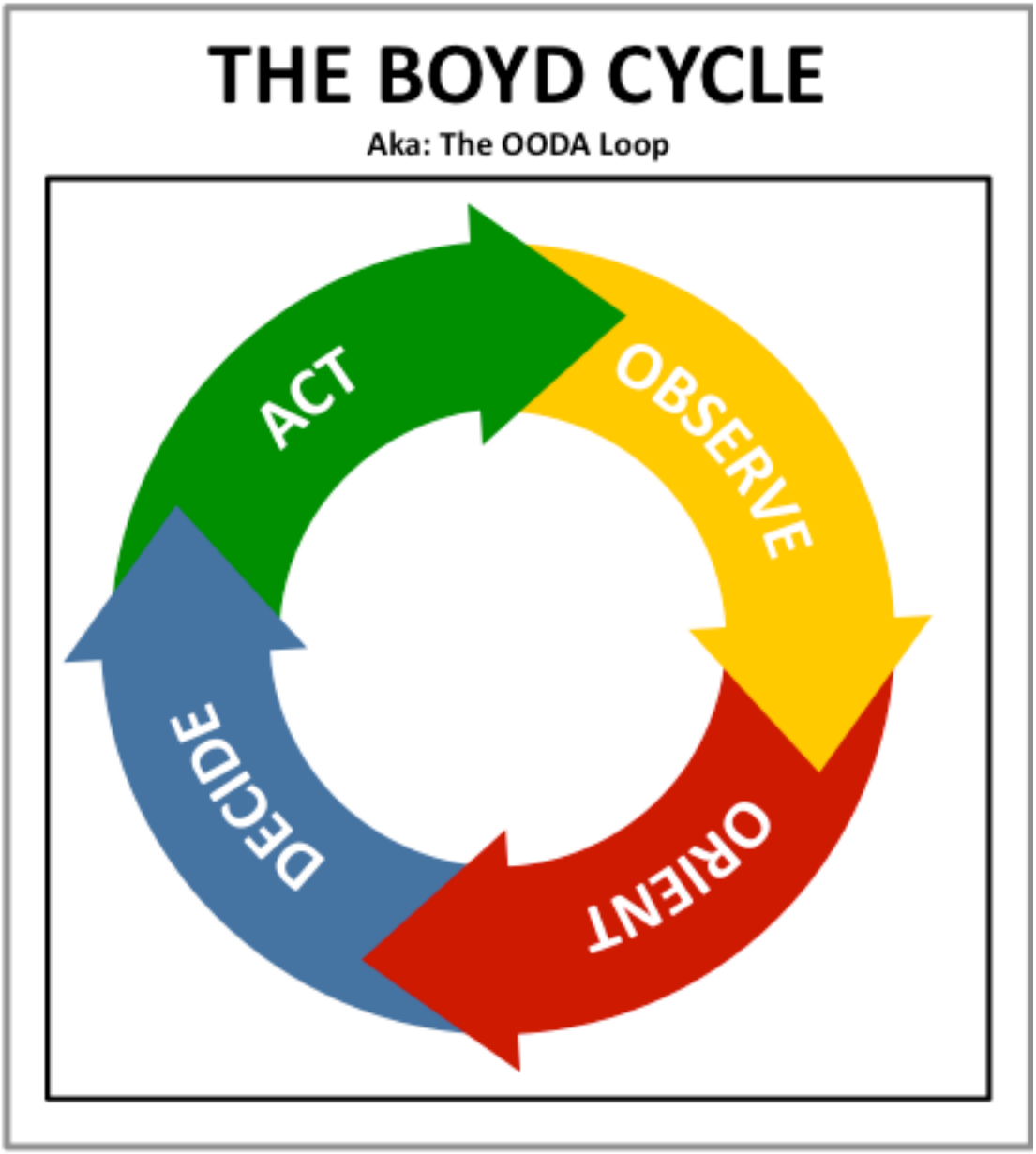
2.0 THE OODA LOOP.

2.1 The study of command and control theory starts with a simple model of the command and control process known as the OODA loop (after Col. John R. Boyd USAF). The OODA loop applies to any two–sided conflict, whether the antagonists are lost, missing persons, wildland fire, or an armed and barricaded individual. OODA is an acronym for observation, orientation, decision, and action, which describes the basic sequence of the command and control process.

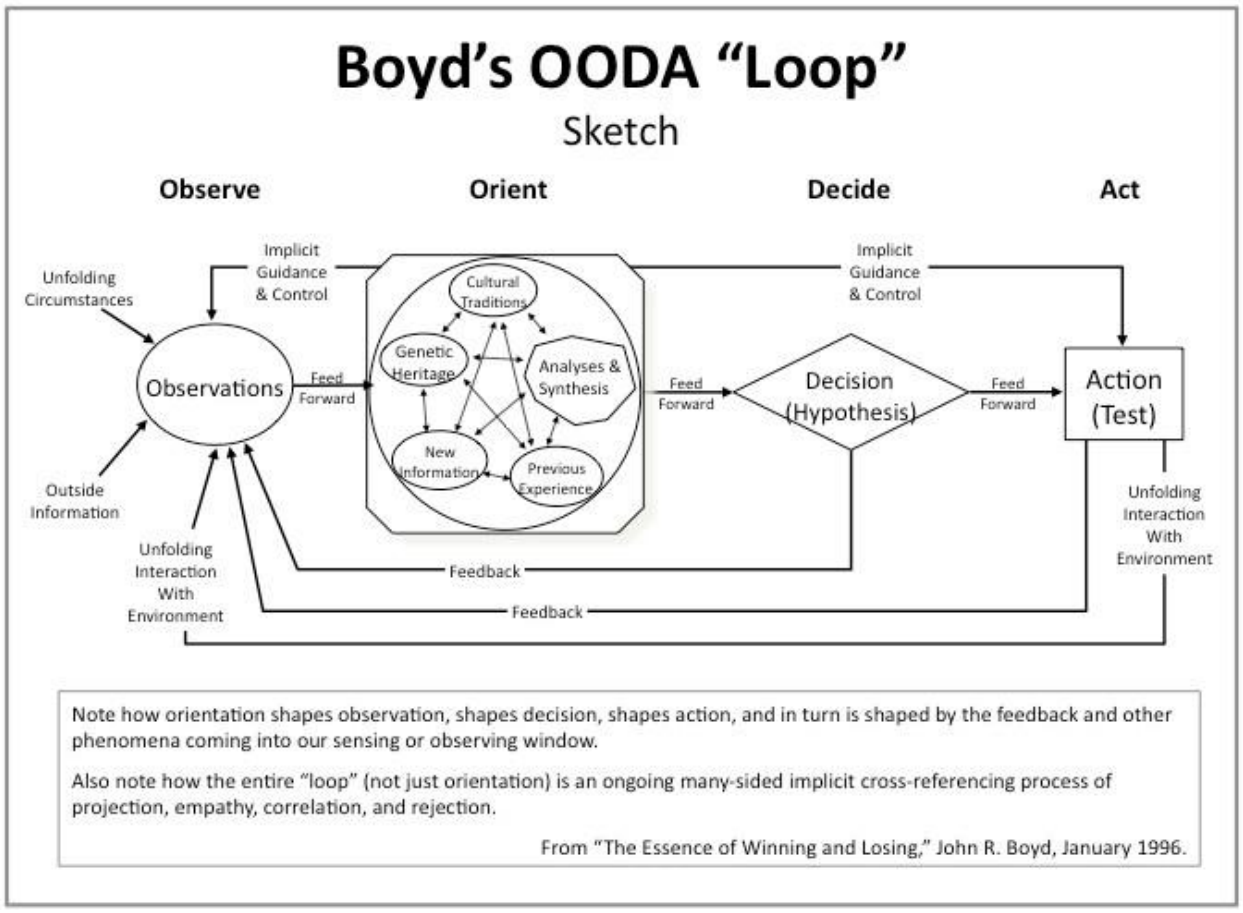
2.2 When engaged in a critical incident, we first observe the situation that is, we take in information about our own status, our surroundings, and our antagonist. Sometimes we actively seek the information; sometimes it is thrust upon us. Having observed the situation, we next orient to it, we make certain estimates, assumptions, analysis, and judgments about the situation in order to create a cohesive mental image. In other words, we try to figure out what the situation means to us. Based on our orientation, we decide what to do, whether that decision takes the form of an immediate reaction or a deliberate plan. Then we put the decision into action.

2.3 This includes disseminating the decision, supervising to ensure proper execution, and monitoring results through feedback, which takes us full circle to the observation phase. Having acted, we have changed the situation, and so the cycle begins again. It is worth noting that, in any organization with multiple decision makers, multiple OODA loops spin simultaneously, although not necessarily at the same speed, as incident commanders exercise command and control at their own level and locale.

2.4 Importantly, the OODA loop reflects how command and control is a continuous, cyclical process. In any critical incident, the antagonist who can consistently and effectively cycle through the OODA loop faster, who can maintain a higher tempo of actions, gains an ever– increasing advantage with each cycle. With each reaction, the slower antagonist falls farther and farther behind and becomes increasingly unable to cope with the deteriorating situation. With each cycle, the slower antagonist's actions become less relevant to the true situation. Command and control itself deteriorates.



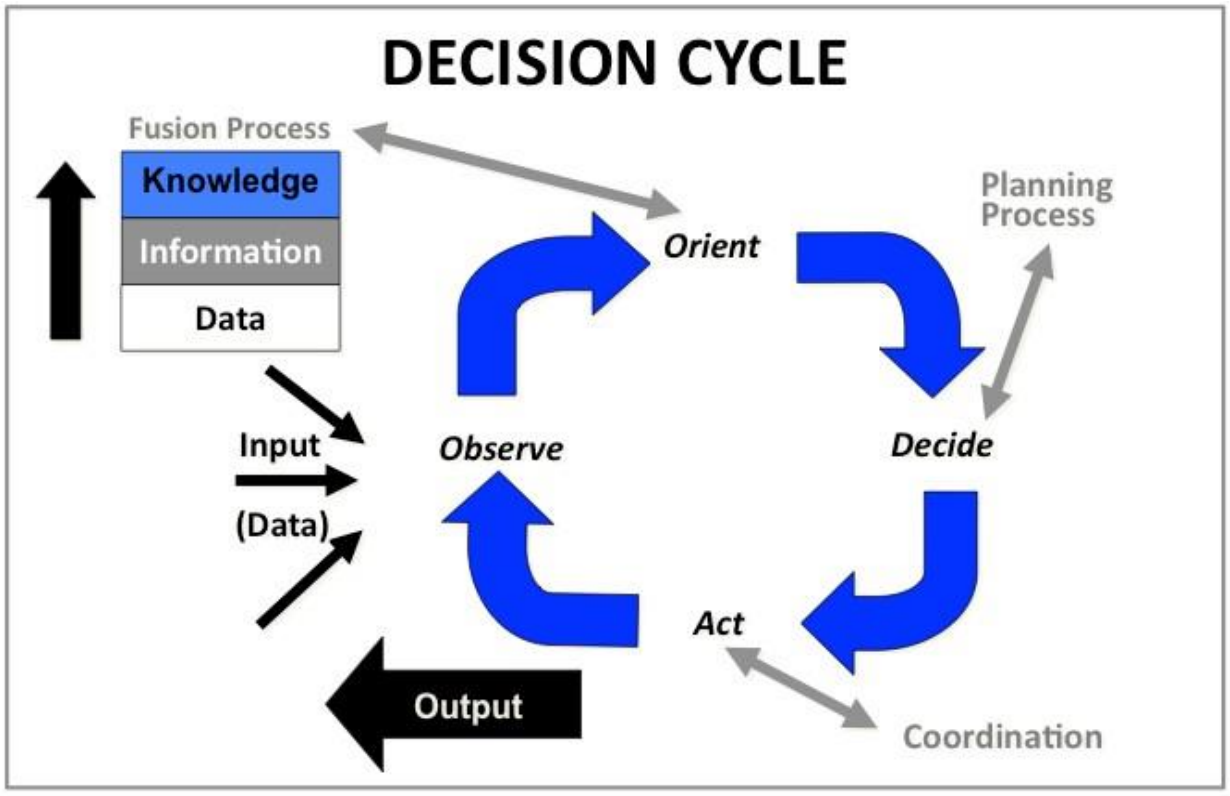
2.5 The lesson of the OODA loop is the importance of generating tempo in command and control. In other words, speed is an essential element of effective command and control. Speed in command and control means shortening the time needed to make decisions, plan, coordinate, and communicate. Since search and rescue missions are dangerous, dynamic, complex, and confusing with the lost missing person being ever evolving and ever changing, it is not absolute speed that matters, but speed relative to the person you are looking for: the aim is to be faster than our antagonist or the person you are working for, which means interfering with the person's command and control as well as streamlining our own processes.



You need to constantly make a decision faster than the other person. The speed differential does not necessarily have to be a large one: a small advantage exploited repeatedly can quickly lead to decisive results. We should recognize that the ability and desire to generate a higher operational tempo does not negate the willingness to bide time when the situation calls for patience. The aim is not merely rapid action, but also meaningful action. The OODA loop principals are based on synthesizing information and the situation, and not analyzing. Under stress during critical incidents you are far better off looking at all of the parts that you have, synthesizing, and then making up the whole, then analyzing the situation, which means you break the whole down into parts. Critical incidents are by their very nature, dangerous, dynamic, complex, and confusing. When speed and process are essential, being a synthesis and not an analysis is a superior process and behavior. To maintain peak situational awareness, you must continue to synthesize, correlate, and turn the information into useful intelligence. The OODA loop gives you this tactical advantage over your adversary, as it is a process of making a decision faster than your opponent.

2.6 The backbone of modern day decision making is situational awareness. Incident

commanders and team leaders can increase their decision confidence by maintaining good situational awareness. Incident commanders and SAR leaders can increase their confidence by using time efficiently. In the search and rescue environment, decisions have serious consequences and often have life or death implications for others. With so much at stake, we have a responsibility to understand the decision–making process, the components, the flow, the effect of time, and to develop the skills and confidence that enables us to make the best decision possible with the information and time available.



2.7 From command and control, leadership, and decision making to management requires a more formalized response process. The Six Step Process is extremely versatile; it is just as valuable as a quick mental technique for the individual responder as it is as a means of structuring a more formalized response to larger incidents. The Six Step Process allows the user, once they gain experience to complete the process intuitively, to apply it automatically and continuously.

Abbreviations

ERI	Emergency Response Institute
GOST	Goals, Objectives, Strategies, and Tactics
IAP	Incident Action Plan
ICS	Incident Command System
JSAR	Journal of Search and Rescue
OODA	Observation orientation decision action
PDEN	Probability density
POA	Probability of Area
POD	Probability of detection
SCORPA	Size Contingencies Objectives Resources Plan Action
SWAG	Scientific Wild-Ass Guess