In a recent White Paper, “Mission Command,” General Dempsey underscored the need “to pursue, instill, and foster mission command” (2012, 3) in leadership. Mission command requires commanders to understand the operating environment and associated problem, “envision the end state, and visualize the nature and design of the operation” (4). The ability to frame and reframe complex, ill-structured problems within the context of the operating environment is critical for any military commander. To implement mission command successfully, a shared understanding of the environment, problem, and strategic intent must exist with echelons above and below. Shared understanding ensures purpose is linked to intent (Dempsey, 2012).

The creativity of operational art and the tools of operational design are expressions of insight and foresight that describe and depict shared understanding. Operational design elements form the foundation upon which joint strategies and plans are developed (JP 5-0, 2011). These elements, in total or in part, assist in the development of a design framework. Although the elements of operational design encompass many planning concepts, they fail to address other key facets of planning that mission command requires. The Encarta English Dictionary (2011) defines a facet as “a part or possible aspect of something.” The facets identified here—conditions, the design components of operational environment, defining the problem, and operational approach, and assumptions—are integral to joint planning and provide structure to the elements of operational design. To understand mission command, it is critical to explore these facets in greater detail to gain a better understanding of their relationship to strategy, planning, and the elements of operational design.

**Conditions**

Defined by JP 3-0 (2011), conditions are defined as “those variables within the operational environment or situation in which a unit, system, or individual is expected to operate and may affect performance” (GL-7). It goes on to offer a second definition of “a physical or behavioral state of a system that is required for the achievement of an objective” (GL-8). The characteristics of conditions vary and can take many forms. “Conditions may be tangible or intangible, military or nonmilitary, or physical or psychological. They also may describe or relate to perceptions, levels of comprehension, cohesion among groups, or relationships between organizations or individuals” (Joint Staff, 2011, V-9). As the definition alludes to, conditions are temporal and typically long-lasting. Environmental conditions are affected by activities and the effects of other environmental conditions. An accumulation of effects through multiple activities change or influence the environmental conditions.

Many environmental factors comprise the physical domains of air, land, sea, space, and cyber, such as terrain, topography, hydrology, meteorology, oceanography, distances, the location of bases and ports, and friendly, adversary, neutral, and other organizations or entities (JP 2-01.3 JIPOE, 2009). Operations such as foreign humanitarian assistance account for other types of conditions, such as natural or man-made
disasters, human pain, disease, hunger, literacy rates, per capita income and a whole host of other factors associated with occupational, environmental, geographical, and meteorological conditions (JP 3-0, 2011). Individual or combinations of these environmental factors significantly affect planning, execution, and sustainment of joint operations (JP 2-01.3 JIPOE, 2009).

As the desired future state of the environment must be clearly defined, success hinges on accurately recognizing and describing conditions. Emergent conditions form the basis for decisions on tasks that ensure operations progress consistently toward the objectives that represent the desired state. When determining specific desired conditions, the commander and staff consider higher policy, orders, guidance, or directives. During the early stages of planning and with initial guidance, the JFC and staff determine the current state of the operational environment and the conditions that should exist when operations end. Understanding the current environmental conditions aids the commander and staff in determining if the desired conditions are realistic and attainable. The derived operational conditions should nest within the overall strategic conditions sought. In the absence of desired strategic conditions, operational conditions will serve both purposes.

When planning, the JFC determines conditions, objectives, or events for moving from phase to phase, and develops branches or sequels for potential contingencies (Joint Staff, 2011). “Each phase should have a set of starting conditions (that define the start of the phase) and ending conditions (that define the end of the phase). The ending conditions of one phase are the starting conditions for the next phase” (JP 5-0, 2011, III-38). In execution, the JFC should expect that most operations will undergo an unanticipated change in conditions that will require an abrupt shift in planned operations (JP 3-0, 2011).

The diagram below shows the relationship of conditions to end state, objectives, and phases. Note that several conditions compose the end state. Objectives are developed from these conditions and support the attainment of the end state conditions. Additional clarity is added to the individual objectives by describing the conditions that should be resident when that objective is attained. As previously mentioned, each phase has conditions that describe the transition from one phase to another. The conditions on the far left (in red) are the initial or starting conditions.
Options, and groups of options comprising branches, allow the commander to act rapidly and transition as conditions change throughout a campaign or operation. An integral part of understanding conditions depends upon the assumptions made (JP 5-0, 2011). Both conditions and assumptions form the contextual framework. “Context is the set of circumstances or events (the interrelated conditions) that forms the environment within which something exists or occurs” (Joint Staff, 2011, IV-1). Through forecasting, trend analysis, and scenario development, publications such as the JFCOM Joint Operating Environment (JOE) 2010 attempt to describe future conditions within which U.S. forces will have to operate. The JOE looks at trends such as demographics, globalization, energy, food, water, pandemics among other conditions and their effect on the operating environment. The JOE also looks at the contextual world, or the conditions created by the confluence of trends and actors within the environment. In theory, once the commander has a reasonable understanding of the current and desired operational environments and the nature of the problem, they can work backward from national strategic and military end-state objectives through the conditions necessary to achieve the objectives, and the more specific
actions necessary to create desired conditions (Joint Staff, 2011).

**Operational Environment**

The first frame within the design methodology, the operational environment (see figure below) encompasses the physical areas and factors of the air, land, maritime, and space domains and includes those nations, actors, and organizations friendly, neutral, or adversarial in some way. The operational environment is “a composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander” (JP 5-0, 2011, III-8). An understanding of the operational environment is necessary for the commander and staff to understand the tactical, operational, and strategic contexts properly, from which a cogent description of the problem(s) is developed (JP 5-0, 2011) in relation to the desired end state.

![The Environment Diagram](image)

Modified from Planner’s Handbook for Operational Design (PHOD), Ver. 1.0, JS, J-7 JCW, Suffolk, VA

Developing options for joint, interagency, and multinational operations, requires the commander to understand and envision the network of complex, interrelated relationships existing within the environment (JP 5-0, 2011). Systematic inquiry aids in the development of multifaceted and multidisciplinary frameworks of the environment. A systems perspective facilitates pattern recognition within the complex environment and potential system interactions are better understood and described (McCauley, 2012). An analytical framework such as PMESII (political, military, economic, social, information, and infrastructure) can highlight relevant and critical relationships between the various
strategic factors and actors within the operating environment. This type of analysis aids in understanding the “relevant relationships within and between the various systems that directly or indirectly affect the problem at hand” (JP 5-0, 2011, III-11).

Understanding begins with domain knowledge of the complexities inherent in the systems that make up the environment. One approach to systems understanding is through complexity theory. Complexity theory uses systematic inquiry to develop soft, multifaceted, and multidisciplinary frameworks of reality. Through pattern recognition within the complex environment, potential system interactions can be understood and described. Examples of complex systems are social systems, ecologies, economies, cultures, politics, technologies, and weather (Hogarth & Makridakis, 1981).

Systems do not exist independently (Harrison, 2006) and there are no ending or starting points within interconnected networks (Newman, Barabasi, & Watts, 2006). Within these networks, changes are unpredictable and difficult to assess how or when changes will occur (Miller & Page, 2007). The environment is in a constant state of flux, unpredictable, and interconnected within which feedback triggers internal and external changes to system dynamics (Morgan, 2006). To understand the function and anatomy of each subsystem or entity, the entire system must be observed within its full dynamicity (Lewin, 1999).

In the development of environmental understanding, commanders and staffs analyze the relationships of actors and factors, and study their natural tendencies and potentials. Tendencies are the preferences of actors or factors to think or behave in a certain manner. Although not typically considered deterministic, tendencies serve as models that describe a potential range of thoughts or behaviors of relevant actors. Once identified, staffs assess the tendency’s potential to manifest itself within the operational environment with or without external assistance (Joint Staff, 2011). An actor or factor’s potential is the “inherent ability or capacity for the growth or development of a specific interaction or relationship” (Joint Staff, 2011, V-15) and arise out of the dynamics of the whole (Sanders, 1998). The desired end state must account for relevant actors’ tendencies and potentials that exist within the operational environment.

Commanders and staffs must be aware of environmental changes as they occur and be able to exploit opportunities as they emerge. An organization’s challenge is to characterize the appropriate context, discern its trends and associated potential, and forecast and suggest changes to avoid or minimize adverse effects (Mintzberg, 1994). Organizations that successfully practice a form of systematic understanding reduce the effects of surprise in crises and accelerate the ability to react to emergent opportunities or threats (Weick & Sutcliffe, 2007).

Strategic guidance is a key input that leads to environmental understanding. JP 2-01.3, JIPOE, incorporates analyzing the mission and commander’s guidance as part of defining the operational environment (2009, II-2-4). As well, Clausewitz wrote that policy (to include strategy, which is subordinate to policy) “must adapt itself to the realities of the strategic environment” (Yarger, 2006, 66). The inclusion of strategic direction into any analysis of the environment constitutes defining the task environment (Daft, 2010). The task environment refers to an environment coupled with the strategic direction, goals, objectives, or problems. The given task frames the environmental perspective and allows the environment to be delimited. The task environment plays a crucial role in the development of the problem space and, by extension, the problem-solving approach. As such, a representation of the task environment must contain the essential components of the problem: defined goals, rules, initial conditions, desired goals or conditions, desired intermediate states as well as any other concepts necessary to describe the situation (Newell & Simon, 1972).

A key output of this design frame is the identification of the problem itself. The word “problem” comes
from the Greek word *problema*, meaning “obstacle” and refers to a question or issue that must be examined and solved (Arlin, 1989). Problems occur as a result of the interaction between activity, context, and participants (Jonassen, 2011) when there is an issue or difficulty that requires resolution (Arlin, 1989). Strategic guidance describes a desired end state and includes an initial assessment of a problem or problems.

**Define the Problem**

JP 5-0 (2011) states “defining the problem is essential to solving the problem” and problem-solving involves finding and isolating the root cause of a complex, ill-defined problem. As part of defining the problem, the commander begins with a review of the operational environment and identifies the existing tensions within the operating environment. Derived from this analysis and assessment, the problem statement describes “how the operational variables can be expected to resist or facilitate transformation and how inertia in the operational environment can be leveraged to ensure the desired conditions are achieved” (JP 5-0, 2011, III-12). The problem statement identifies the specific catalyst necessary for transforming current conditions into desired conditions.

Defining the problem (see figure below) extends beyond analyzing interactions and relationships in the operational environment. “It identifies areas of tension and competition—as well as opportunities and challenges—that commanders must address to transform current conditions to achieve the desired end state” (JP 5-0, 2011, III-12).

![Diagram: Describe the Problem](image)

Modified from Planner’s Handbook for Operational Design (PHOD), Ver. 1.0, JS, J-7 JCW, Suffolk, VA
Inherent within defining the problem is describing the problem space, which is a mental representation of the problem. Solving a problem typically means finding a solution within the problem space beginning with the initial starting conditions and ending in a desired condition that satisfies path constraints (Bransford & Stein, 1993). The problem space consists of a symbolic representation of the initial conditions and the desired or ending conditions and the actor(s) within that space. It is the delineation of a goal or task that defines the “task environment” and differentiates it from the environment in general. In turn, the definition of the task environment provides the environmental perspective necessary for problem solving. The goal, task environment, and problem space are interdependent, and it is crucial that all three are provided to the problem solver before problem-solving (Wood, 1983).

Problem-solving depends upon the nature of the problem at hand and what is meant by a solution (Wood, 1983). The first question that should be asked when faced with an ill-structured problem is if that the problem is even solvable. If it is, one must determine how it is solvable and if there available tools and strategies available to solve it. In ill-structured problems, there are typically several, if not multiple, stakeholders, whose perspectives or positions are different or even opposing (Kitchener, 1983). As a result, ill-structured problem end states and path constraints are often unknown or open to negotiation, and there are no established paths (Jonassen, 2011). Any proposed solution must synthesize diverse sets of data and rely upon judgment about evidence (Kitchener, 1983). In these cases, any potential solutions would have to be socially and culturally mediated among stakeholders (Jonassen, 2011) with the goal to reach a reasonable solution for all stakeholders (Kitchener, 1983).

Current military problem-solving models (such as JOPP, MDMP, JOPPA, MCPP, and MPP) assume that all problems are solved in much the same way. Unfortunately, these models are better suited for solving well-structured problems. Although these models can be adapted for ill-structured problems, the current processes often misrepresent domain knowledge and pattern recognition (Jonassen, 2011). Thus, commanders must possess the creativity of mind to adapt these models for ill-structured problem solving.

Solving a problem means finding a path from the current conditions to the desired conditions. To define a problem, problem schema development is necessary. Schemas are basic understandings and form the basis for reasoning (Rumelhart & Ortony, 1977). Schemas are a construct of interpretation and describe what one is thinking or interpret what others are saying. For ill-structured problems, a complete schema may not be possible. Problems vary by structure and thus problem understanding includes two processes: representation of patterns of information and constructing a model that represents the situation in context. Until the problem solver constructs a model of the problem in its context, understanding and learning are unlikely (Jonassen, 2011).

A shortfall of the current design methodology is that it fails to differentiate between different types of problems. The primary reason to distinguish among different kinds of problems is the assumption that solving different types of problems requires different types of skills. Different problems have varying degrees of risk and certainty. As a result, to fully understand specific problem characteristics, the problem solver needs different skills, education, and experiences. Five external characteristics of problems have been identified (Jonassen, 2011):

- Structuredness – is it a well-structured or ill-structured problem?
- Context – defines the situation and provides meaning; ill-structured problems rely upon context far more than well-structured; ill-structured often has overlapping contexts
- Complexity – related to structure and is the interaction between internal and external factors.
  - Component complexity – Number of acts to solve problem.
○ Coordi n ate complexity – Variety of relationships.
○ Dynamic complexity – Change in relationships over time.
- Dynamicity – The change in the relationship of variable or factors over time.
- Domain Specificity – Expertise in different domains develop different domain specific reasoning skills.

Problem-solving varies by context and affects the nature of social interactions as cognitive processing. Learning in new contexts affects the learning experience (Wood, 1985). Whereas most staffs and planners understand the general nature of the military operation in the context of the range of military operations, relatively few understand the range of problem types inherent in all operations. Jonassen (2011) identified 11 different types of individual problems from which six or seven may be resident in any given military operation. Each individual problem has its own internal structure, complexities, and dynamics. The nature of most military operations, however, is that they encompass an aggregate of the problem types, which makes any attempt at accomplishing a mission that much more complex. The types of problems are:

1. **Logic problems** – tests cognitive clarity and reasoning. A specific method of reasoning will yield the most efficient solution.
2. **Algorithms** – common in mathematics; uses rigid and a finite set of procedures with few predictive decisions. Typically no learning occurs and unless students are asked to modify the algorithm, it is a procedure.
3. **Story Problems** – required to: a) represent the unknown by letters, b) translate relationships into equations, c) solve the equations for the unknown, and d) verify the value to see if it fits the original problem. Linear and emphasizes getting the answer vice meaning making. Focuses on surface features.
4. **Rule-using/rule-induction** – many problems have correct solutions but have various rules that govern the process; there is a clear goal that is constrained but not restricted to a specific methodology. Strategy is the essence of rule-oriented problems. It is necessary to figure out how the system works and then to induce the rules that describe systems functions. As multiple strategies are possible, problems assume ill-structured characteristics.
5. **Decision making** – requires problem solvers to select a solution from a set of alternative solutions. There is a defined set of decision criteria that decision makers work through to identify the optimal solution. Higher authorities may provide criteria. The number of decision factors and associated weighting factors can be very complex. However, rational choice decision-making models are not always descriptive of how decisions are made.
6. **Troubleshooting** – one of the most common forms used every day. Associated with technician jobs, but professionals use it, too. A procedure that uses domain and system knowledge as well as troubleshooting strategies. Skills are enhanced through individual experiences and, as experience increases, domain knowledge increases.
7. **Diagnosis-solution** – similar to troubleshooting. Requires identifying fault state; however, in diagnosis there are multiple solutions and solution options imposed by diagnoser, diagnosee, institutions, government, etc. It is the vagueness in solution options that differentiates diagnosis-solution from troubleshooting.
8. **Strategic performance** – entail complex activities in which performers undertake multiple tactical activities to address ill-structured strategic environments, usually under a time pressure. Typically there are a limited number of tactical activities capable of accomplishing the strategy. An expert can improvise or construct new tactical activities to meet the strategy.
9. **Policy-analysis** – most public problems are complex, multi-faceted issues on which multiple perspectives and positions exist. It is not always clear what the problem is or that different entities and agencies conceive of the problem differently. Policy problems are inherently ill-structured and
require an analysis of contextual factors.

10. **Design** – perhaps the most ill-structured problem. Requires a great deal of domain knowledge with a commensurate depth of strategic knowledge. Goals are vague, unclear, or have conflicting constraints and possess multiple solutions with multiple paths. Evaluation criteria are often unknown and require the solver to make judgments and express personal opinions.

11. **Dilemma** – subject to social and ethical contexts. The most complex, ill-structured, and unpredictable because there is no solution that will ever be acceptable to a significant portion of stakeholders. There are many perspectives on the problem although none elicits an acceptable solution that meets the needs of the majority.

An outcome of defining the problem may be a redefinition of the problem itself or the identification of an entirely new problem. When considering multiple stakeholders perspectives with respect to the U.S. perspective, the commander may develop a new set of problems. This new set of problems acknowledges the complexity of any ill-structured problem-solving endeavor and will most likely result in the development of new goals that satisfy other stakeholder needs.

Different types of problems should necessitate a different problem-solving process. As essentially a linear process, commanders must modify the JOPP to incorporate the nonlinear aspects of each problem type. Although problem types span a broad range, it is the aggregation of multiple problem types that makes operational planning extremely complex and inherently ill-structured. Because of problem aggregation, specific parameters are difficult to isolate. Thus, when analyzing any problem within context, it is necessary to identify the individual problems and problem aggregates (Jonassen, 2011). The figure below depicts the types of problems with which the JOPP, essentially a decision-making tool, must incorporate and ultimately “solve.”

![Diagram of problem types](image-url)
JP 5-0 (2011) defines the operational approach as the “broad actions the force must take to transform current conditions into those desired at the end state” (GL-13). The operational environment is reflected in the commander’s visualization of a broad approach that will achieve the desired end state (see figure below). The elements of operational design provide the framework for developing the commander’s operational approach.

There are three reasons to develop an operational approach. The first reason is to provide the commander a foundation for developing more detailed planning guidance. The second reason is to provide a broad model or framework for campaign plan and assessment development. The third reason is to develop a greater understanding of the problem and the environment. In developing the operational approach, the commander assesses the strengths and weaknesses of the various actors, opportunities and threats, desired conditions in the context of the current conditions, and various potential consequences of actions or activities. Assumptions, military end state, termination criteria, and objectives assist in framing and understanding the environment. Depending upon the complexity of the problem(s), the commander may identify centers of gravity for each objective and potential lines of operation or effort. As the commander considers potential options, categories of defeat and/or stability mechanisms may become evident and add fidelity to the visualization process (JP 5-0, 2011).

The operational approach promotes group understanding and unity of effort throughout the echelons of command and partner organizations (JP 5-0, 2011). Externalizing the problem space develops group understanding. As problems increase in complexity, it becomes vitally important for the commander and staff to keep track of all of the information. Experienced problem solvers approach complex problem-solving through the development of external representations (Bransford & Stein, 1993). The commander’s operational approach is a representation of how the intended operations will navigate the
way from the initial conditions through the problem space and attain the desired conditions.

As the commander considers various approaches to problem solving, understanding of the operational environment is assessed in the context of each potential approach. In doing so, the commander should identify potential undesired consequences within each approach and identify any additional assumptions. The figure below is a representation of the problem space without the specific actors or problems identified.

Modified from Planner’s Handbook for Operational Design, Ver. 1.0, JS, J-7 JCW, Suffolk, VA

The concept of causality underpins the development of an operational approach. Causality binds the reasoning process together and enables commanders and planners to make predictions, articulate explanations, develop assumptions, draw implications, and make inferences. Causality is reasoning and depends upon the ability to uncover and describe the causal relationships between sets of concepts. Causal reasoning is the most essential cognitive skill needed in problem-solving (Jonassen, 2011). In the traditional diagram, such as above, planners will have to draw implications regarding the current state of
the environment using plausible cause and effect reasoning. As the commander and staff consider actions or activities, predictions are made regarding the possible effects that may ensue and the probable relationships between causal antecedents and effects. In addition, planners will have to infer or reason backward when a current condition is known, but the causal agent is unknown. The development of the commander’s operational approach is the outcome of causal reasoning.

For complex problem-solving tasks planning bridges the gap between the initial conditions and the desired conditions by providing a manageable set of intermediate steps that negotiate the unique and dynamic nature of the environment. A good plan breaks down ill-structured problems into a group of reasonable, and hence manageable, sub-problems. Higher level plans must be flexible enough to allow subsequent contextual refinement or low-cost reorganizations at lower-levels depending upon the state of the problem (Bryson, Bereiter, Scardamalia, & Joram, 1991).

**Assumption(s)**

Arguably assumptions are the most important component of any planning effort. No operational plan has ever been executed exactly as written. Once made, there is a common belief that assumptions will play out as planned. This type of thinking is a form of intellectual arrogance or laziness that can lead to confusion and paralysis when those assumptions turn out to be incorrect. Commanders and staffs could reduce the error and surprise that results from these incorrect assumptions if the expectations were that some of the anticipated assumptions will be wrong, some partially correct, and some wholly unanticipated (Rumsfeld, 2011).

Leaders and planners both make critical assumptions important for decision-making and planning. The importance of assumptions in organizational decision-making “lies in their ability to sustain certain selective views of reality” (Shrivastava & Mitroff, 1984, 19). Over time, assumptions are “taken for granted” and fundamentally influence the formation and implementation of organizational strategies in several respects. First, assumptions shape the information collection efforts that go into strategy development. Second, because assumptions have a highly speculative component in an attempt to deal with future uncertainties, the interpretation of information is crucial. Thus, assumptions shape the problem formulation process, the generation of solution alternatives, and the choice of final solutions (Shrivastava & Mitroff, 1984).

Assumptions are our beliefs of the world and our place in it. Assumptions give meaning and purpose and frame how we think and act (Brookfield, 1995). There are three broad categories of assumptions:

1. Paradigmatic assumptions are structuring mechanisms used to order the world into fundamental categories and often seen as objectively valid perceptions of reality. Rarely examined critically (Aiken, 2001), paradigmatic assumptions refer to the perceptions of the social world, the nature of accumulated knowledge and how it became known, and what society has deemed important and valuable (Greene, 2008).
2. Prescriptive assumptions are what we think should happen in a specific situation. Grounded in paradigmatic assumption, prescriptive assumptions surface as one thinks about how someone should behave, what a good process should look like, and what obligations people have to each other (Brookfield, 1995).
3. Causal assumptions regard how different parts of the world work and under what specific conditions. These are usually stated in predictive terms and help to understand how the world works and how change can occur (Aiken, 2001).

JP 5-0 (2011) defines an assumption as “a supposition on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to
enable the commander in the process of planning to complete an estimate of the situation and make a decision on the course of action” (GL-5). In the absence of facts, assumptions presuppose the truth about the current situation or future course of events and fill knowledge “gaps” critical for continuing the planning process. Although assumptions should always be challenged if they appear unrealistic, subordinate commanders can treat assumptions made by higher headquarters as true after validation. To ensure validity, an assumption must possess three characteristics: logical, realistic, and essential for the planning to continue (JP 5-0, 2011). Everything in the operating environment will have associated assumptions—actors, trends, tendencies, and strategic factors.

Plans developed during deliberate planning may contain unresolved assumptions until the potential crisis develops. In the meantime, evaluation of assumptions is continuous and updated as conditions within the environment change. In crisis action planning (CAP), even though more facts are known initially some assumptions are necessary. In either case, assumptions are replaced by facts as new information is made known through an information request, such as a commander’s critical information requirement (CCIR) (JP 5-0, 2011). Whenever information is received, it is assumed that the world remained fixed as it existed when the information was first requested. As a result, as an assumption becomes a fact, commanders must be aware if the current conditions are still the same as when the initial information request was submitted. Research shows that people tend to look for confirmation that their existing routine or understanding is still correct and disconfirming evidence is avoided (Weick & Sutcliffe, 2007).

An invalid assumption can undermine a strategy or pose significant risk to the nation or operation. Typically a branch or sequel plan is developed as a result of an invalid assumption and commanders often use red teams to challenge assumptions (JP 5-0, 2011).

Typically the J-2 staff formulates reasonable assumptions based on historical or current facts to fill in the knowledge gaps. Assumptions regarding the operational environment and an adversarial, neutral, or friendly actor must be realistic. One must avoid constructing assumptions deliberately designed to support premature conclusions or conceptual bias that favors one COA over another (JP 2-01.3, 2009). Every deliberate action taken is an assumption about how the environment will react to what occurs. Virtually all deliberate actions are based upon expectations that serve as unspoken assumptions that shape behavior and provide structure for daily life. Assumptions suggest probable courses of events and direct attention to certain aspects or features of an event. Many expectations are reasonably accurate and tend to be confirmed through experience. Therefore, one tends to seek out that evidence that confirms one’s expectations and avoid disconfirming evidence. This bias sets two things in motion: 1) overlooked accumulating evidence that events are not developing as expected or hoped; 2) overestimation of the validity of expectations (Weick & Sutcliffe, 2007).

Changes in the operational environment or the nature of the problem during execution can require the JFC and staff to review and adapt the approved operational approach as necessary. These changes can trigger the requirement for a redesign effort that revisits earlier assumptions, “reframes” the operational environment and the problem facing the JFC, revises the operational approach, and adjusts current operations (Joint Staff, 2011). Assumptions are not incontrovertible fact although they shape viewpoints. Assumptions are perceptions and observations – suspending assumptions means to hold them up so that they are constantly accessible for questioning and examination (Senge, 2006). This is especially true when undertaking an analysis and assessment of the environment and why multiple perspectives are necessary for understanding. The mind, however, wants to keep fighting this method of suspending assumptions as it is difficult to relinquish perspectives and rigid opinions that one feels compelled to defend (Bohm, 1965).
The genuine power of suspending assumptions is the dialogue that it creates when there are different viewpoints. Choosing to view adversaries as colleagues with different viewpoints has the greatest benefit. Further observation, probing, etc., underscores that there is more in the world than what we knew, and exposes that one’s vision of the world can be false as a result (Bohm, 1965).

**Conclusion**

Commanders have a responsibility to ensure shared understanding is resident throughout the chain of command. Mission command facilitates intent, clarifies guidance, empowers subordinates, and fosters trust and understanding. The five planning facets of conditions, assumptions, understanding the environment, understanding the problem, and developing an operational approach aid the commander in developing effective mission command.

Conditions, whether expressed as current conditions or as the desired conditions, are primarily nonlinear and form the basis for the components of design as well as the majority of the elements of operational design (end state, termination, objectives, center of gravity, forces and functions, etc.). Nonlinear conditions directly relate to assumptions and each of the design components. Assumptions are the foundation of any strategy or plan, but military planners often fail to cite them or apply the passionate and rigorous consideration they require. The failure to scrutinize planning assumptions properly, which forms the foundation of any subsequent planning effort or operation, can begin the planning process using incorrect assertions and develop perfectly logical yet incorrect conclusions (Rumsfeld, 2011). Conditions and assumptions provide the lateral limits of the three components of design.

The three design components incorporate the elements of operational design into a logical framework that supports understanding, problem identification, and potential solutions. Defining the problem, however, is not as easy. Understanding the problem must begin with understanding the environment and the type of problem or problems addressed. A decision-making problem encompasses many problem types that encompass diagnosis-solution problems to strategic performance problems to policy-analysis problems to dilemmas. Each problem is extremely complex, but military operations are typically composed of an aggregate of these problems. As a result, complex problems quickly become ill-structured problems. Based upon the natural inability to predict future causal relationships accurately or to infer them from the past, the development of an operational approach that satisfies the dynamicity and complexity of any problem is suspect.

Commanders must be comfortable with ambiguity and this is expressed through the development of a range of potential options that has the flexibility and resiliency to adapt to the changing environment. As such, commanders must have a full understanding of the facets that frame and give structure to military planning efforts.

**References**


---

**About the Author**

**Dan McCauley**

Dan McCauley is a National Defense University assistant professor at the Joint Forces Staff College located in Norfolk, VA. Prof McCauley is a retired United States Air Force pilot and has served in various course director capacities such as air operations, strategy, and theater campaign planning.


**Links:**

{1} [http://smallwarsjournal.com/author/dan-mccauley](http://smallwarsjournal.com/author/dan-mccauley)