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## **TYPES OF PROBLEMS STUDENT READING**

### **Cynefin Framework**

The Cynefin Framework helps leaders understand how problems fit into defined categories and what behaviors arise as problems emerge to become increasingly more complex. There are four domains that compose the framework: simple, complicated, complex, and chaotic.

#### **Clear (Simple) Domain: The Domain of Best Practice**

The simple/obvious domain is characterized by stability and clear cause-and-effect relationships that are seen by everyone and are always going to be the same. Often, the one right answer is self-evident and undisputed since patterns are recognizable (if you do X, you're always going to get Y).

In this domain of “known knowns” (there are things that you definitely know, or are easily knowable), decisions are unquestioned because all parties share a common understanding of the issue or problem. Once you solve the problem, you go back to the ‘status quo.’

Properly assessed, simple problems require straightforward management and monitoring. Here, leaders sense, categorize, and respond. That is, they sense by figuring out what's going on... assess the facts of the situation. Then, categorize what they find out (determine what kind of problem it is). Finally, they base their response on established (best) practice.

An example of a simple problem could be you see an Airman outside without his hat on. You figure out what the problem is (sense)... the Airman is in uniform and isn't in a ‘no hat’ area; (categorize what type of problem it is) this is a dress and appearance issue... AFI 36-2903 states that “Headgear will be worn outdoors at all times, unless in a designated “no hat” area.” The right answer is evident: tell the Airman he needs to put on his hat (respond by applying the established rule and/or best practice). Your response is undisputed due to the rules in AFI 36-2903.

#### **Complicated Domain: The Domain of Good Practice**

In the complicated domain, there is a relationship between cause and effect; however, not everyone may be able to see it, so analysis or expertise is required. This domain may contain multiple right answers, many of which may be excellent. Therefore, good practice (as opposed to best practice) is more appropriate. analyze the situation.

This is the domain of “known unknowns” (there are things you know you don't know). Leaders in the complicated domain must sense (figure out what's going on), analyze (examine the facts), and respond. This approach is not easy and often requires expertise to

An example of a complicated problem could be your car has a knocking noise coming from the engine (sense). You don't know what's causing the noise, so you take it to a few mechanics to get expert advice (analyze). Each mechanic can tell you a different way to fix the noise, all of which are viable solutions. So, you decide to go with the cheapest solution (respond).

### **Complex Domain: The Domain of Emergent Practices**

In the complex domain, the cause-and-effect relationship is so intertwined that things only make sense in hindsight...after the situation has occurred and maybe even worked itself out. Right answers can't be flushed out initially...they aren't readily available. It's like the difference between, say, a car and the Brazilian rainforest. Cars are complicated machines, but an expert mechanic can take one apart and reassemble it without changing a thing. The car is static, and the whole is the sum of its parts. The rainforest, on the other hand, is a complex environment...always in constant flux—a species becomes extinct, weather patterns change, an agricultural project reroutes a water source—and the whole is far more than the sum of its parts. This is the domain of “unknown unknowns” (you don't know what you don't know).

Most problems in organizations are complex because some major change—PCSing, a change in leadership, dealing with subordinates' issues, a new mission, etc.—introduces unpredictability and instability into the environment. In this domain, we can understand why things happen only in retrospect...after it has occurred. Patterns, however, can emerge if the leader conducts experiments that are “safe to fail”.

That is why, instead of attempting to impose a course of action, leaders must patiently allow the path forward to reveal itself. They need to probe first (experiment in a “safe to fail” environment), then sense by figuring out what happened based on the experiment (evaluate the results), and then respond. Over time and with multiple experiments, the solution to the problem should emerge.

There is a scene in the film *Apollo 13* when the astronauts encounter a crisis (“Houston, we have a problem”) that moves the situation into a complex domain. A group of experts is put in a room with a mishmash of materials—bits of plastic and odds and ends that mirror the resources available to the astronauts in flight. Leaders tell the team: This is what you have; find a solution or the astronauts will die. None of those experts knew what would work. Instead, they had to experiment with the materials they had (probe), evaluate the results of the experiments (sense), and let a solution emerge from the materials at hand (respond). Of course, they succeeded. (Conditions of scarcity often produce more creative results than conditions of abundance.)

### **Chaotic Domain: The Domain of Novel Practices**

In the chaotic domain, searching for the right answers would be pointless: The relationships between cause and effect are impossible to determine because they shift constantly and no manageable patterns exist—only turbulence. This is the domain of unknowables.

Here, a leader's immediate job is not to discover patterns but to 'stop the bleeding'...stabilize the environment. A leader must first act to establish order, then sense figuring out where stability is and where it's not, and then respond by working to change the situation from a chaotic one to a complex one, where the identification of emerging patterns can both help prevent future crises and discern new opportunities (see the complex domain). Communication is mostly directive in nature; there's simply no time to ask for input.

An example of a chaotic problem could be that you're the NCOIC of a communications work center that maintains the base computer network. Suddenly, the entire system goes down...the base loses internet connectivity and you've never experienced this type of problem before. Everyone is panicking and your phones are ringing off the hook. Your commander just called wanting to know what happened and what you're doing to fix the problem. You know that whatever you do has to be done immediately! So, you and your people work to get the system back up and running (act). Afterward, you try to figure out what happened to cause the system to go down in the first place (sense) and develop countermeasures to cover every contingency in case this happens again (respond).

In this example, by acting first to stabilize the situation, you can then move the problem into the complex domain where you have the time to experiment in a "safe to fail" environment in order to develop those countermeasures...maybe trying to recreate the problem so that you can uncover solutions.

Solving problems is the responsibility of every leader. However, deciding on the type of problem you have first can help you engage in the problem-solving process with more information and a better understanding of the problem itself.