1873 words

THE ACP THEORY

Global climate change is real. Gun violence in the United States is endemic and unfortunately, a regular part of life. Flash mob crime is trending. Pandemics continually prove they will return deadlier. As humans expand on planet Earth, we encroach on areas which have not been exposed to human touch. The Earth, much less the universe, has proven it can and does host extinction events on a recurring basis. That said, humans have to live, work, and hopefully thrive in a tenuous world and the consequences of natural and or human actions associated with their (human) existence. Emergency & Risk Management as a coping mechanism is not in step with natural and current societal changes. Thus, a new way to address crisis and consequence is needed, such as the Adaptive Contingency Process Theory or ACP.

Unlike most Emergency/Contingency Management models, the ACP was developed, modeled, and has been theorized from real-world situations. The main drivers of the theory focus on actions and or experiences from failure to adequately address and account for, the unknown, identity, concurrency, multiplicity, influencing forces, threat / risk movement and threat / risk power. Again, this is a new way of thinking about Emergency and Safety Management. Before we get into the critical parts of the ACP let's look at how it is organized. The ACP follows the KISS principle of Keeping It Simple… That said, the ACP uses and is composed of:

- A Hazards Threat / Risk Vulnerability Matrix
- Four Phases referred to as
    - **Identify**
    - **Adapt**
    - **Control**
    - **Adjust**
- An **ACP Overlay a.k.a. Threat Evolution Risk-chain** for each identified **Threat / Risk Vector** or **TRV** which consists of:
    - The **Phases** of the ACP as Iterations
    - Monitored **EFTFs** or Environmental Factors & Time Factors
    - Perceived & Predicted T/R Vectors (**TRV**) States (forces of pressure)
    - Perceived & Predicted T/R Vectors (**TRV**) Kinetics (forces of movement)
    - Perceived & Predicted T/R Vectors (**TRV**) Magnitudes (forces of potential energy)

These components of the ACP attempt to provide some modicum of understanding the "pressure" leading to "energy", "velocity" or "movement" or "flow" in and outside the perceived Threat / Risk Vector (**TRV**) as it evolves into a real and tangible threat / risk that is ready and capable of releasing its "energy" on a business, a person, people, and or property.

This is the structure of the ACP as depicted by the figure 1. diagram below.

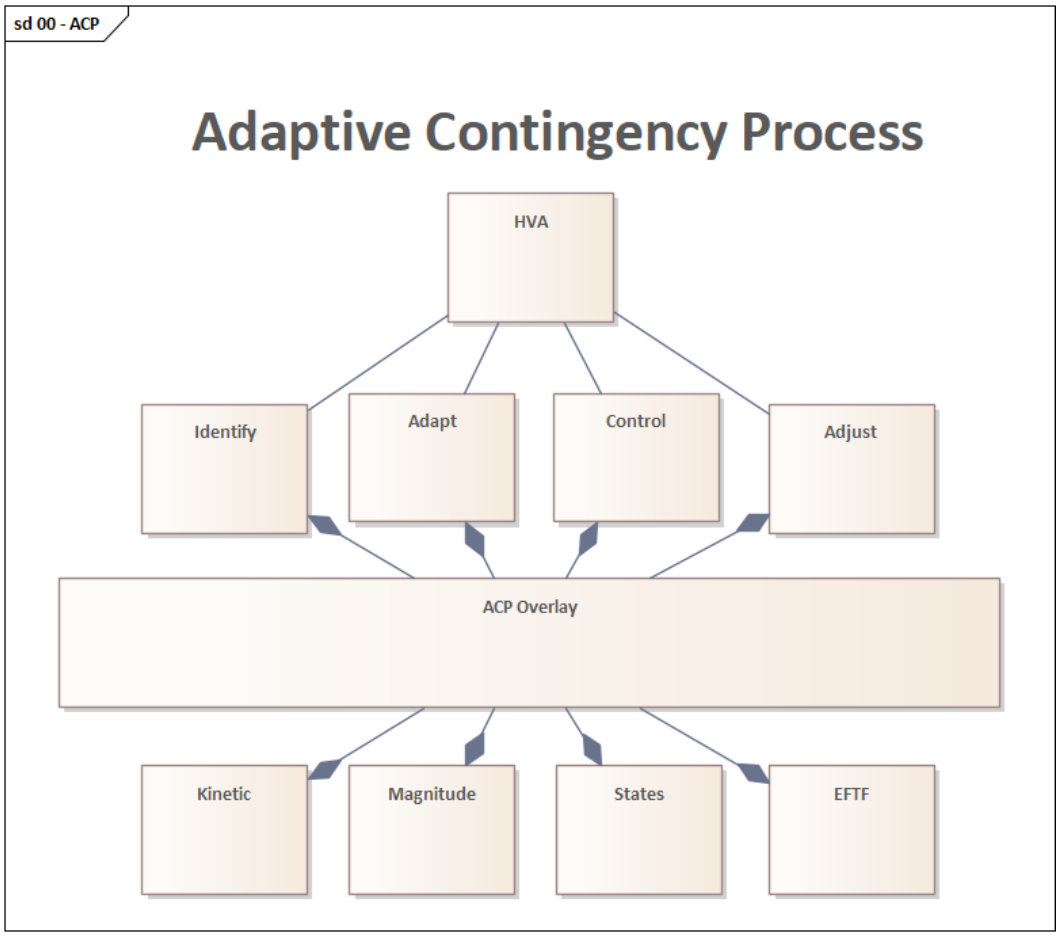

Figure 1.

The following are two (2) real-world scenarios which highlight the importance of the ACP Theory. Briefly, in the Emergency and or Safety Manager role, we know the only constant is change. An Emergency Operations Plan may not be as effective as one thinks and Emergency

and Safety Managers may have to adapt the plan and associated behavior in real-time. Take for example the case of the **US Airways Flight 1549 Inflight Emergency or (IFE).** When a large bird-strike turned this Air Bus jet into essentially a glider, one of the first and immediate actions for the captain was to depart or partially depart from the checklist (taboo) and immediately prioritize and adapt his actions to his changing situational state. The first of which was powering on the aircraft's APUs or Auxiliary Power Units normally used on the ground to generate power. Why? The captain understood that in a fly-by-wire aircraft, electricity was paramount to stay in a controlled flight. Loss of both engines (dual engine failure) that normally supplied electric power for the flight controls, control surfaces, instruments, and avionics, meant the aircraft needed a different source of power ASAP – hence, **Captain Sullenberger** started the APUs inflight that were low or not on the checklist for his type of emergency. Case and point; very few things in life stay the same or develop as expected. Often, they change. Therefore, Emergency and or Risk Managers need to ***continually adjus*t** with adaptive critical thinking facilitated by a means of addressing changing elements and situations in real-time. This is a dynamic behavioral model and not a static structural model. In the extreme example case of **Flight 1549 Captain Sully Sullenberger** and his co-pilot immediately became the airborne Emergency Managers with severely limited resources **Identified** and **Evaluated** their current **State, Adapted** their posture to the situation, brought some means of **Control** into their environment as best they could, and **Adjusted** operations to their new circumstances; all influenced by that pesky and most important "never seen" present forces of Environmental and Time Factors (**EFTF**) affecting the situation. The result of **Sullenberger's** and his copilot's cockpit crew actions turned a "Worst Case Scenario" inro a "Best Case Scenario," the results of

which were evidenced in the saving not only their lives, but the lives of everyone on the plane through sacrificing a multimillion-dollar corporate investment i.e. the plane itself.

Now, let's very take a high-level look at a scenario where the outcome was not as spectacular and resulted in the loss of life, property, and business capability. In this examination cited is the **1982 Alpine Medows Avalanche** which was a vastly different type of emergency born of a vastly different type of threat / risk. Yet both threat / risks had the same prevalent "never seen" force or forces that changed everything. This disaster was more predictable, had a sense of preparedness by affected personal (or so the affected assumed), took longer to develop, and had more planned resources at its (the emergency) disposal than those of **Flight 1549** and had a drastically different outcome. Why? The presence of **Environmental Factors** and **Time Factor** or forces (**EFTFs**) were common to both scenarios. In the case of **Flight 1549**, the **EFTFs** once presented and accounted for, were stable and not rapidly changing much with the exception of the loss of altitude (environment) over very short time. With **Alpine Meadows**, the **EFTFs** were changing rapidly, not adequately accounted for, but over a longer period of time. Thus, we compare the **EFTFs** in both these cases. In the case of **Flight 1549** the **Environmental Factors** or forces after the initial bird-strike event <u>were addressed adaptively</u> and made relatively stable by the aircrew's quick actions. The **Time Factor** or force to **TRV releas**e was rapidly changing i.e. decreasing. In the case of **Alpine Meadows**, the **Environmental Factors** were also constantly changing from the storm's increased snow deposits as was the event **Time Factor,** but stretched out over longer a period and <u>were not addressed adaptively</u>. The time to **TRV** energy release was also decreasing but at a slower rate. Summarily, one had a longer developing **TRV** in this scenario that ultimately led to the release of **TRV** energy and the tragic loss of seven (7) lives as opposed to a shorter and faster

developing **Flight 1549 TRV** scenario where the outcome was as optimal as one can get. Common in both, were **TRVs**, **EFTFs, Phases, States, Kinetics,** and **Magnitudes** resulting in different outcomes.

These two (2) scenarios highlight the reasons behind the development theory of the ACP. The ACP is primarily concerned with a posture of being actively prepared to **Identify** and **Adapt** to changing conditions affected by **EFTFs** regardless of the **Contingency.** Additionally, the ACP emphasizes the capability to apply some modicum of **Control** to a sub optimal situation while verifying the **States** of the **TRV** to provide a reasonable situational understanding of a **TRV's** probable **State** while transitioning toward a release of its stored **Energy**. This also includes recognition of fine and continuous **Adjustments** to actions before, during, and after an event. At the conclusion of events, both scenarios resulted in the release of **TRV** energy as noted. The latter case had a longer period of which to respond to the event i.e. taking longer to develop, with the outcome being significantly worse.

The ACP (shown in figure 2) is inclusive of an **ACP Overlay** a.k.a. **Threat Evolution Risk-chain** for a Cyber Threat / Risk event which is a hybrid **TRV** in that it has human and technology sides.

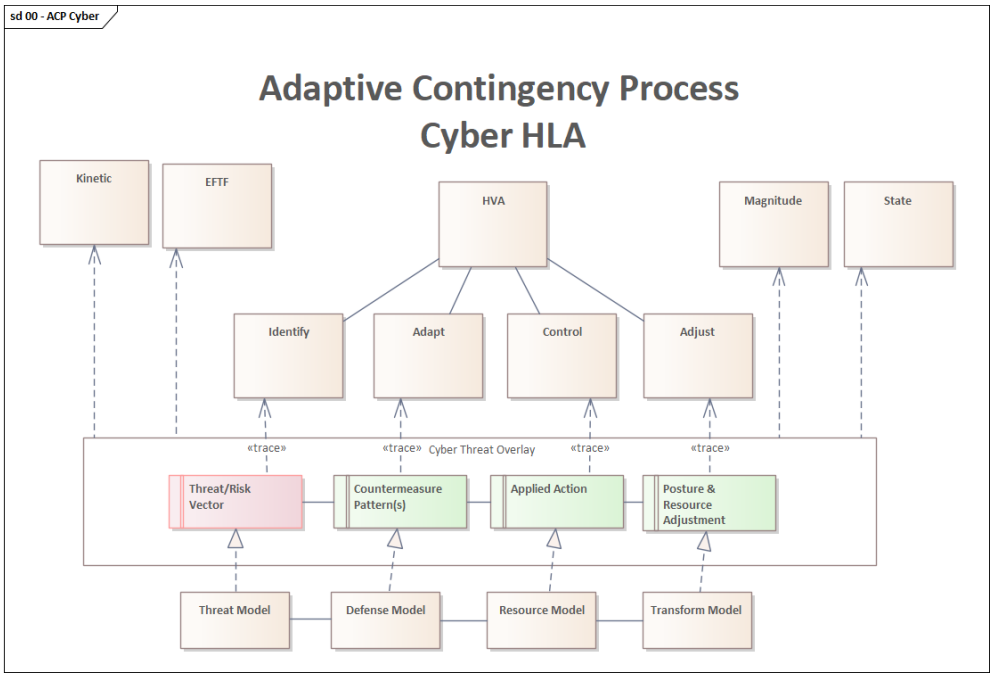

Figure 2.

In this diagram, we see all the basics of the ACP applied to a Cyber event. This diagram as implemented uses the Unified Modeling Language or UML to communicate ACP enhancement through a visual semantic notation. In essence, the open arrowhead dotted lines specify dependencies and the closed arrowhead lines specify behavior. Solid lines depict associations and diamond adornments (figure 1.) show composition i.e. "composed of." The way one can read figure 2 is the **ACP Cyber Overlay** has dependencies on the elements of the ACP which are associated with a **Hazard Vulnerability Assessment** or **HVA.** Also identified by the **ACP Cyber Overlay** a.k.a. **Threat Evolution Risk-chain** is the predicted behavior of **TRV** in **TRV States**, **EFTFs**, **TRV Kinetics** and the **TRVs Energy** or **Magnitude.** The **TRV** in the **ACP Overlay** specifies the behavior of the **Threat Model a**s do the **Countermeasures**, **Applied Actions**, **Posture and Resource** A**djustment** requirements specify the behaviors in the **Defense Model**, **Resource Model** and **Transform Model** respectively. For each **Phase** and **TRV State** specified in the **ACP Overlay** the **ACP Practitioner** iterates through the **Identify**, **Adapt**, **Control**, **Adjust**

phases of the ACP for (x) iterations. As the ACP itself is agnostic, each **ACP Overlay** helps to *customize* the understanding, progression, regression (valving), suggested action(s) while predicting a specific ACP Threat / Risk or **TRV's** release of energy.

The ACP can account for any Threat and any Risk. The ACP is a continuous process which requires critically thinking practitioners as it implies…*change*. At this writing, the ACP has accounted for eight (8) human associated potential Threat / Risk Overlays, nine (9) natural potential Threat / Risk Overlays, and (2) hybrid human associated potential Threat / Risk Overlays. The ACP has and is currently in use by reputable organizations on simulated and real-world events. In conclusion, the ACP promotes **Critical Thinking**, **Decision Making**, **EFTF Understanding / Prioritization**, **Task Shedding**, and **Collaboration** for successful outcomes during a singular event or multiple events.

CONFLICTS OF INTEREST DISCLAIMER.

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