



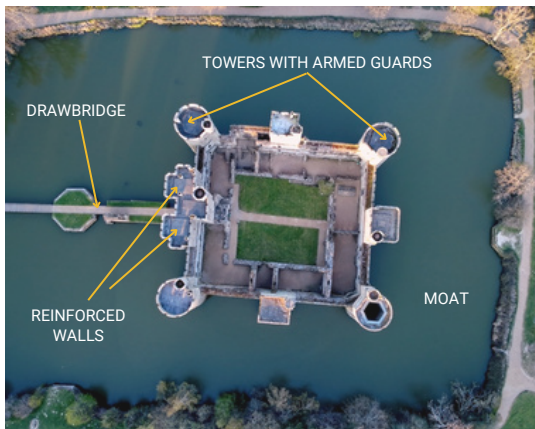
# WHAT IS DEFENSE-IN-DEPTH?



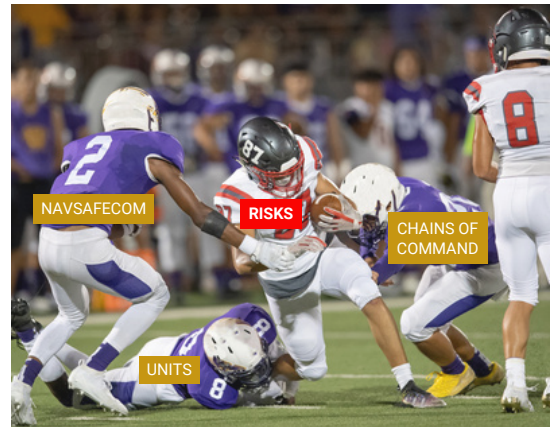
Defense-in-depth is a series of layers that work together to protect something of value.

**Defense-in-depth**, as it relates to risk management, is **designing a system** that helps prevent accidents and mitigates the severity of smaller events. The key is creating multiple independent and redundant **layers of defense** to compensate for potential human and mechanical failures so that no single layer, no matter how robust, is exclusively relied upon to prevent an accident. This approach defends against latent, unrealized weaknesses in a system that can be triggered by active errors (unsafe behaviors carried out by individual parties).

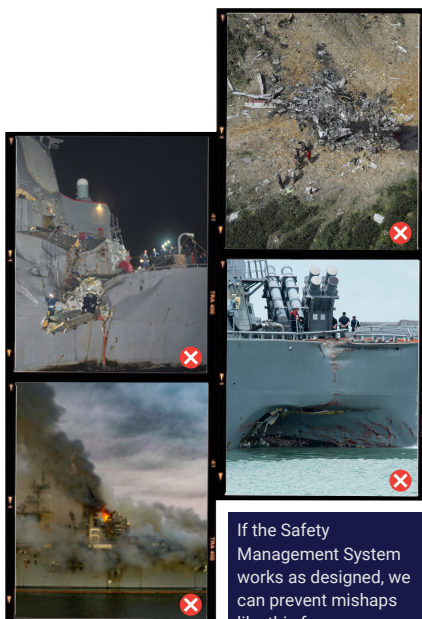
## EXAMPLE



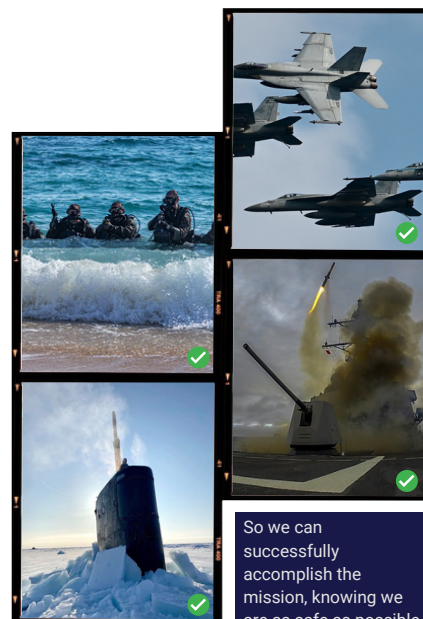
A castle has defensive elements that **work together** to protect it from threats. Lookouts watched for enemies from tall, strong towers. Crossbow defenders shot arrows from battlements atop walls. Moats surrounded castles to stop attackers from coming in. Guards pulled up drawbridges to stop enemies from nearing the castle structure.



Our 'castle' - the things we value - are the **4Ps**: our Places, People, Property/Materiel and Processes/Procedures. Because we want to keep the 4Ps safe, we have a **Safety Management System** where units, their chains of command and organizations like the Naval Safety Command **work together** to identify and mitigate threats and risks, much like a football team.



If the Safety Management System works as designed, we can prevent mishaps like this from happening or should they happen, learn from our mistakes and get better.



So we can successfully accomplish the mission, knowing we are as safe as possible to do so.



# WHAT IS DEFENSE-IN-DEPTH?



The goal of defense-in-depth, as it relates to risk management, is to defend against potential threats and risks toward what we value to achieve desired outcomes. Here are some comparisons to help illustrate.



**Layered defense:** Having multiple barriers (or layers) to protect against risk or “bad things” from happening ensures that if one barrier or layer fails, another is ready to defend against the risk. In the aircraft launch example above, you can see multiple layers, from the pilot in the cockpit to the personnel observing the launch, each looking for risk prior to launch.

**Strategy and tactics:** Military operations are based on strategies (what we want to achieve), and tactics (how we plan to achieve what we want). Sound strategies and tactics require an understanding of both ours, and the adversary’s, strengths and weaknesses. Additionally, what we want to achieve and how to change, or need to be changed, is based on a very challenging and dynamic operating environment. This requires us to be both accepting and flexible when change occurs.

**Teamwork:** Any operation or mission we execute requires teamwork and coordination amongst everyone to ensure we achieve our goal. Ensuring effective defense-in-depth requires collaboration and communication amongst different departments, stakeholders and individuals. In the teamwork example to the right is the Marine inspecting the parachute jumper’s gear prior to jump. By himself, the jumper could have missed something but because the teammate is there and ready to provide his layer of defense, he is ensuring the jumper’s gear is ready.

**Training and preparation:** All of us undergo rigorous training to build the knowledge, skills and abilities necessary to do our jobs. To enable this, we must invest in our people to ensure that everyone is well-versed in risk management best practices and are ready to execute them as part of their day-to-day duties in support of mission readiness.

**Adapting to the opposition:** The risks we face are constantly changing. Successful teams must always assess the effectiveness of their strategies and tactics to maximize our advantages, minimize the strengths of our adversaries and exploit their weaknesses. Similarly, organizations must continuously assess and adapt their risk management measures in response to ever-evolving threats and emerging technologies.

**Risk management:** Maintaining warfighting readiness means everyone involved, from the deckplate to the flag deck, must constantly seek out the risks associated with preparing for, and conducting, operations. Similarly, all organizations must have a comprehensive risk management process that includes risk identification, communication and mitigation to ensure risks are properly accounted for.

**Contingency planning:** To quote the boxer Mike Tyson: “Everyone has a plan until they get punched in the mouth.” Every organization must have backup plans and alternative strategies in case their primary plan doesn’t work.



## PERCEPTION



Safety Management System and defense-in-depth adds requirements and administrative distractions to our Sailors and Marines.

*"We are adding all these extra things for our Sailors and Marines that distract from mission."*

## REALITY



Employing defense-in-depth identifies and addresses risks of organizational drift to ensure we are compliant, safe to operate and operating safely.

*"Ensuring compliance with current standards of mission performance."*

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