# Wargames for Command Decision Support

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## *ABSTRACT*

*There is a significant investment in the training of frontline personnel such as pilot, gunners, drivers and infantry. This is done through a range of systems using 3D and VR trainers. However, there is a huge gap in the use of wargames and simulations to train and assist the more senior commanders to make better decisions. History shows how important this is and this presentation discusses the need for more focus to train those decisions makers and the opportunity wargames present.*

## 1.0 INTRODUCTION


**Figure 1-1: Slide 1**

Our background means we come at things from a different pserspective to traditional defence companies and its useful to understand to give context. We have 2 brands, Slitherine, which focuses on more mainstream and branded titles such as Starship Troopers or Battlestar Galactica, and Matrix focuses on our hardcore and more serious games, which are of interest to defence. We've released 300 games and they are all strategy and wargames, and everything we do in this niche.

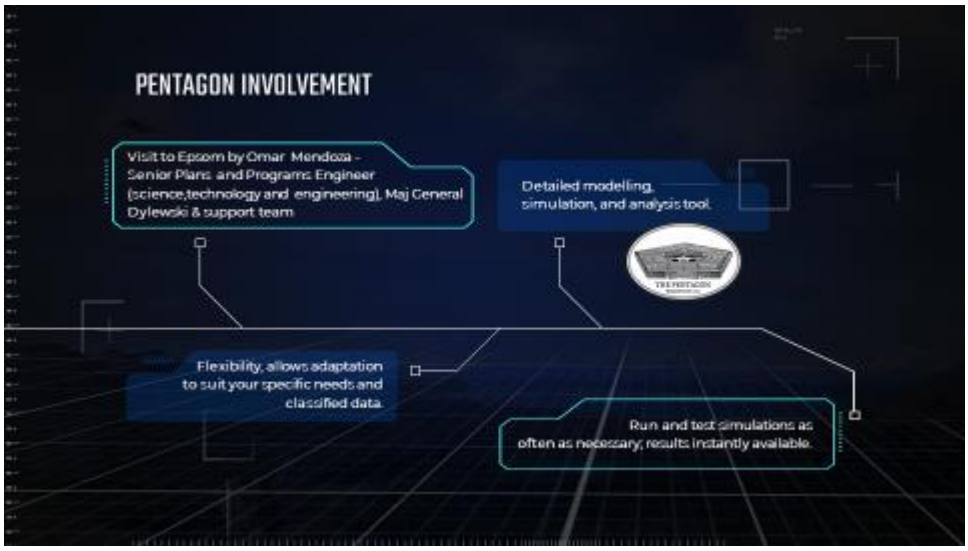


**Figure 1-2: Slide 2**

Our invilvement in defence started 5 years ago when the Pentagon came to us saying they could get more utiliaty from our games they are downloading off of Steam than their own custom simulations. While they had many detailed sims of specific areas they had no holistic battlespace that dealt with the entire picture and this is what we do in all of our simulations.


**Figure 1-3: Slide 3**

This resulted in our first contract with AFRL, where they were looking for a way to evaluate different technologies in a more structured way. They had no way to compare operational benefits from contrasting tech such as something that could fly faster or further vs something that could carry larger payloads. Command gave them a way to evaluate these differences and see the operational benefits of different tech. Since then we've started working with a range of clients such as

- Air Mobility Command, who use Command for all their fuel planning

- Luftwaffe, who train all new offficers using Command
- Munitions Directorate, who we are helping to setup anew wargaming capability
- DSTL on a range of projects
- USMC to support their new wargaming centre

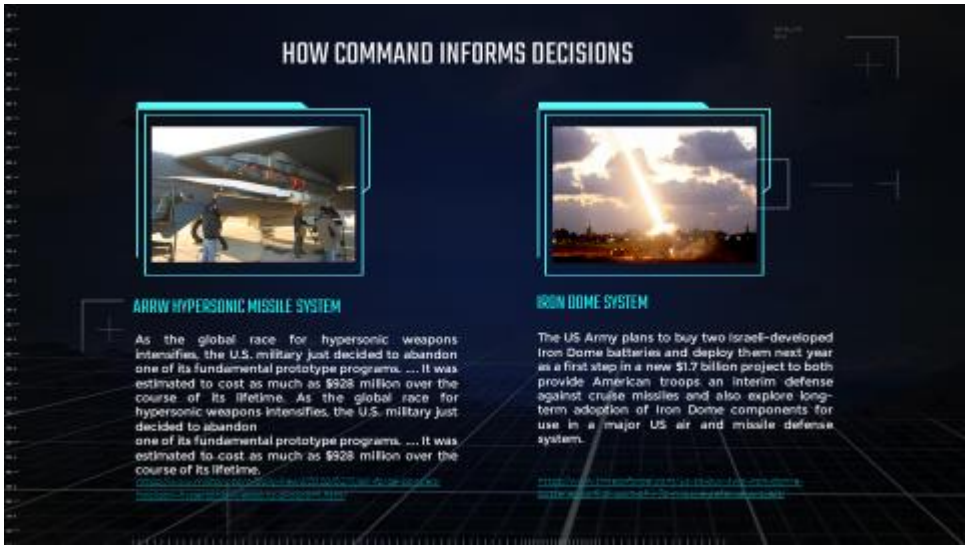


**Figure 1-4: Slide 4**

Some examples of analysis done using Command are the Arrw Hypersonic missiles system and the Iron Dome. We're nto suggesting Command was the only tool used but it formed part of the analysis used in making these billion dollar decisions.


**Figure 1-5: Slide 5**

We provide a range of games in to defence, each with their own focus. We have tactical land focussed wargames like Combat Missions, Operational and physics accurate simulations like Command and more

abstract operational simulation like Flashpoint Campaigns. Its important to use the right tool for the problem you're trying to solve as no one simulation can offer insights on all questions.

## 2.0 HOW DO WE CURRENTLY TRAIN


**Figure 2-1: Slide 6**

The current training is focussed on the pilot, driver, sailor or infantry. It is very much about training the guys ont eh ground in the front line and when you talk about training this is what everyone immediately assumes. People think 3D and VR. The frontline soldiers make up the majority of staff so we have slipped in to training them and onlythem as they are most numerous.

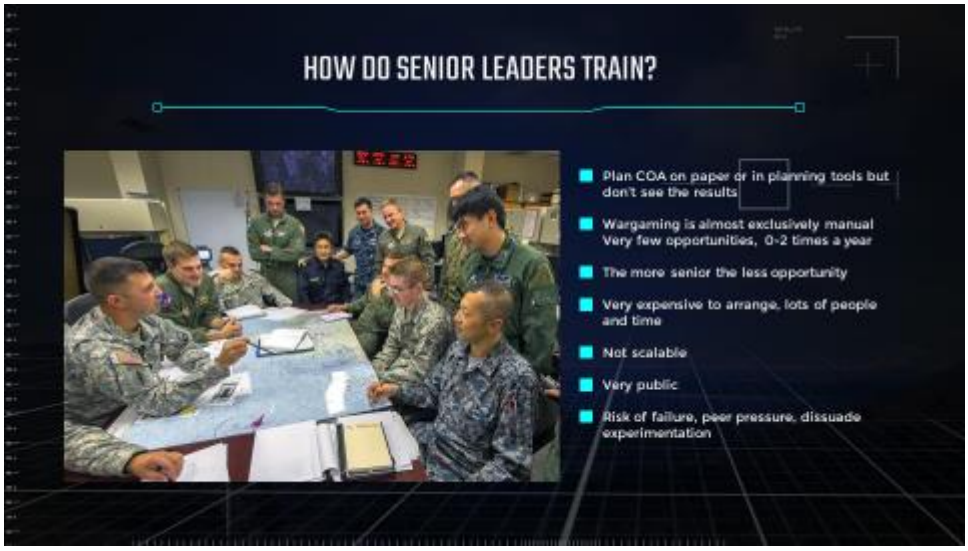


**Figure 2-2: Slide 7**

There is little to no simulation training of more senior commanders. They take course and the plan COA on paper but rarely get to see what the results of their plan would look like. They may get to do manual

wargaming, which is veryuseful, but very rarely due to the time and cost of getting the people together to run those games. It also tends to be the more senior the commander the less opportunity they have to train. There is also peer pressure and an aversion to experiementing with new tactics as everything you do is very visual.

## 3.0 WHY IS IT IMPORTANT TO TRAIN OUR COMMANDERS

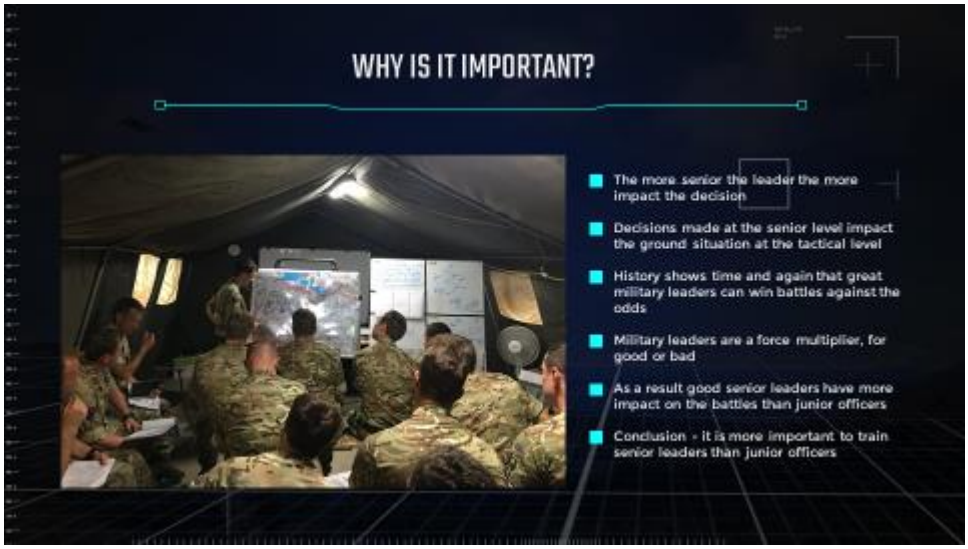


**Figure 3-1: Slide 8**

It is common sense that the more senior a Commander, the more people they have under their command, so the more people their decisions affect. Decisions made by Commanders affect the tactical situation the frontline soldiers find themselves in and this clearly imapcts their chance of success. Good commanders are a force multipler and bad commanders reduce the effectiveness of their troops. Clearly then it means that decisions made by senior commanders have more impact on the outcome of battles than junior commanders and frontline personnel. The conclusion then is that it is more important to train our senior Commanders than our frontline personnel.

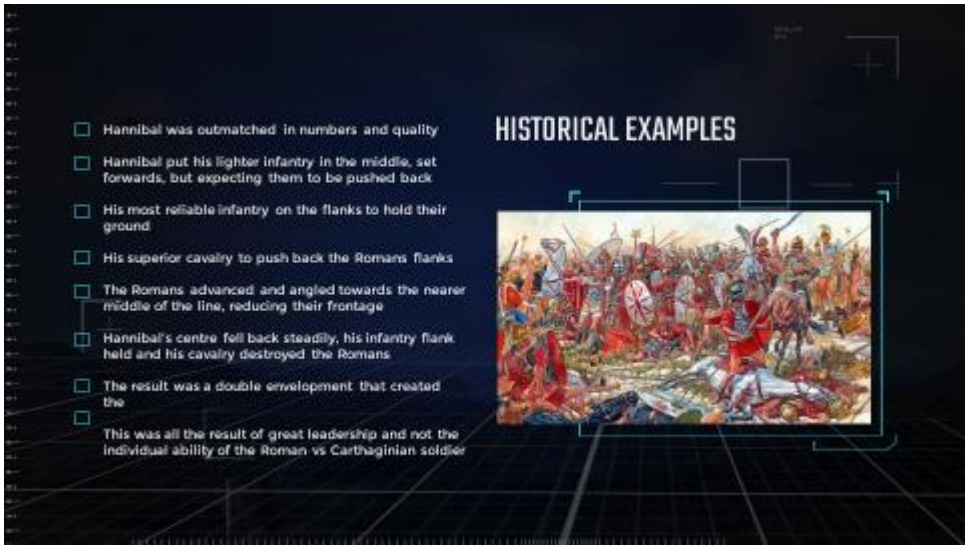


**Figure 3-2: Slide 9**

All military leaders study history and know the storeies of Hannibal and it's a good exmaple. At Cannae Hannibal was outnumbered and outclassed. Man for man his infantry were no match for the Roman legionaries and they were outnumbered. His only advantage was that the Roman cavalry was weak. Hannibal used this to his advantage, expecting his infantry centre to be pushed back while his cavalry envloped the Romans, leading to one o the bloodiest single days of battle up until WWI.


**Figure 3-3: Slide 10**

This is not an isolated exmaple and history is full of such events where great leaders have won against the odds. Napoleon at Austerlitz, Manstein in France. At the time of the invasion, the german tanks were no match at allfor French tanks and couldn't hurt them frontally. In a head on fight the Germans would have lost. Mansteinsplan involved sucking the crack British and French troops in to the low countries and surrouniding them and cutting them from supply making them easy targets. Similary bad decisions can result in massive failure.The French Grand armee that invaded Russia in 1812 was arguably the best in the world at the time and it got annhiliated by the Russian Winter. Hitler didn't learn from this mistake and repweated it in WWII.


**Figure 3-4: Slide 11**

While we normally just supply our software for customers to sue for analysis and training, we also sometimes provide training games for clients. In these games what we've found that players usually have some understanding of blue forces. They sometimes know a bit about allied systems. They rarely know much about red systems. We also found that some basic tactics were bring forgotten such as flying stealth aircraft during the day whereir stealth does not protect them from visually being spotted, overloading air bases with many times as many aircraft as it can handle and not supply tankers to supply long range missions. The light bulb moments you see when players realise their mistake are lessons you can see will stick with them.

## 4.0 WHAT ARE THE PROBLEMS WITH CURRENT TRAINING


**Figure 4-1: Slide 12**

There are a number of problems with our current training. There is far too much fopcus on the front line soldier. Clearly these people need to be trained but currentlyit is at the expense of themore senior commanders. We need to develop systems to allow our commanders and their commanders to train digitally so they can do it in their own time at their own speed and wargames are a great potential tool for this.


**Figure 4-2: Slide 13**

There is a misconception that by making graphcis more detailed and moving to AR or VR there will be benefits for everyone. Whilst this is true for that soldier on the front line, this is less true for a company commander, and absolutely not suitable for operational decision making. The higher up the command chain you are the less you ened realistic views and the more you need an annotized COP. It is important that we do not over focus on VR and 3D and ensure we provide the right tools for the commander. A recent demo I saw had a missile defence system being driven from VR, when in reality the missile defence system would engage the target long before it came in to range and the technology is unfortunately redudent. In some ways realistic views higher up the command chain can be a distraction rather than a decision aid.

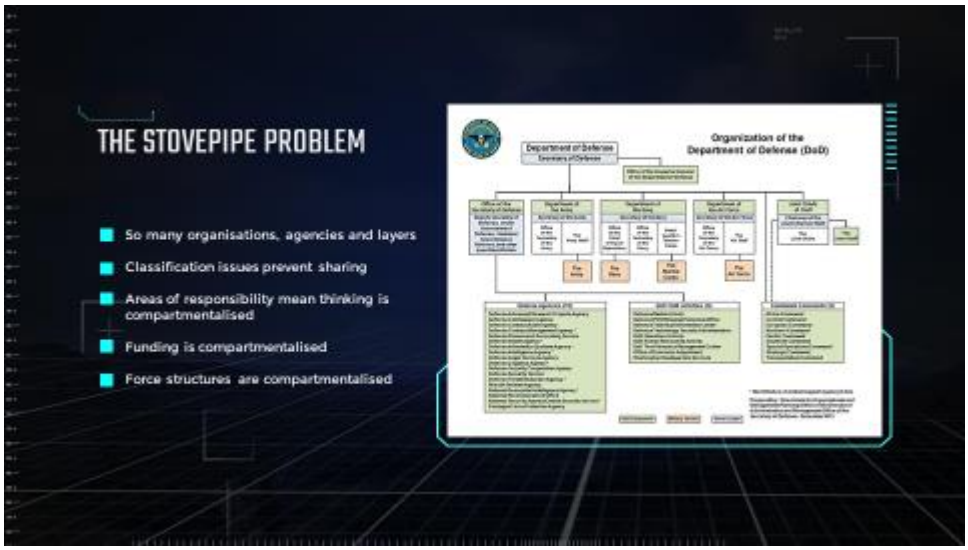


**Figure 4-3: Slide 14**

Another common problem in defence is the stovepipe problem. Each service has its own systems and models and funding paths. The modern battlefieldis multidomain and any simulation needs to model cross service operations and be funded cross service. This is not just a cross service by sub service level. In a recent discussion with the model and simulation team I was pushing for more support for the commanders from the

simulations, not just focusing on the front line soldier. I was told that this is a C2 problem, yet the C2 people have no abilty to produce their own simulations to train in so its not a C2 problem, it's a model and simulation problem. We need a change in culture to look holistically at the problem and develop tools that can be used across domains and across roles.

## 5.0 HOW CAN WE DO IT BETTER


**Figure 5-1: Slide 15**

The future battlespace will have many more sensors all delivering data across multipe domains and the result will be a sea of data. In addition red forces will be using our own system to feed us huge anmount of dummy and decoy data. On top of this the future war will be fight at a pace never seen before with hypersonic missiles and sealth technology meaning there will be seconds rather than minutes to make decisions. These all combine to create an environment that will overwhelm a human brain and require massive amounts of support from AI to elimiate the noise and present the relavant annotated data to the decision maker. These tools can be built ina simulation and be very similar or maybe even identical to tools used operationally.


**Figure 5-2: Slide 16**

## 6.0 CONCLUSION

For the future we need to stop focussing on the front line soldier. We need to understand that the more senior the commander is the more important it is they are making good decisions. We need more focus on training ans supporting the senior commanders. In every other profession we accept that practice makes perfect and you woudlnt dream of letter a doctor read about anatomony and operate on you. Yet we don't put the same level of effort in to allowing our commanders to learn their art and there is a huge opportunity to create a force multiplier by training these people and letting them practice their art. We also need to focus on creating new tools to help digest the vast amounts of data the future battlefield will offer and help the human commander digest the future digital battlespace.