NDC Distributed Intelligence Doctrine

The New Dusk Conclave's Distributed Intelligence Doctrine outlines an AI-based approach to system protection and warfare. The desired result is that any function that does not significantly benefit from being performed entirely by a Sentient shall be automated by a non-sentient AI. Sentients will be used to provide direction, strategy, and to make decisions where an automated system is insufficient.

The goal is to significantly reduce the amount of 'manpower' required for any given need, be it combat or otherwise, while maintaining or even improving the Conclave's military effectiveness.

First introduced in YE 42 as part of an ongoing effort to optimize the NDC's military forces.

Purpose Statement

To increase overall combat effectiveness and reduce overall costs incurred by training, provisions, and general organic necessities, the NDC's collective military forces will continue the success we've seen from the EVE project by relying more heavily on intelligent, secure Artificial Intelligence systems in support of Sentient direction.

In keeping with the NDC's views on true AI sentience, the majority of these AIs will be non-sentient Machine Intelligences. These MIs will operate in a well-modeled, statistically effective fashion, with an element of non-determinism to avoid making our systems predictable to enemy forces. These MIs will operate in a hierarchical fashion, with each child system subordinate to a parent system, and so on, up to one or more primary, decision-making AIs.

These primary AIs will, in most cases, be truly sentient AIs - or Synthetic Intelligences, as they prefer to be called. The use of a sentient decision maker will allow our systems to respond to unpredictable events, manage overall strategy across the system, and more elegantly interface with crew members who have a physical presence, such as a living Captain.

This approach will allow us to field more vessels, with less crew, and reduce the costs of fielding and maintaining said vessels. Our models and war game testing have shown that, so long as the bridge crew and system managers are highly-trained and highly-capable, there is no loss in performance of this approach compared to the traditional model.

Impact on Military Forces

The most drastic, immediate impact is that a ship which once took a thousand crew may now require one hundred - or less. Similar benefits extend to our army forces.

This Doctrine has a number of benefits, most notably:

- Reduced loss of life - In the event that a ship is destroyed, far fewer sentient lives are lost

- Reduced crew size - Assuming a crew of one thousand can be reduced to one hundred, the NDC can field ten ships with the amount of crew that we previously fielded one
- Improved readiness - For new ships, a reduction in the amount of crew required directly correlates to the ship being combat-ready on a shorter timeline. For older ships, only a handful of crew members are required to respond to any given threat.
- Reduced costs - With a significant reduction in provisions and other non-combat supplies, the primary ongoing cost of any ship will now be focused on maintenance. By using a sufficient compliment of MI-based repair and maintenance crew, we can further reduce this cost. In short, we expect to reduce the ongoing cost-per-ship to between twenty and thirty percent of what it was previously.

It is important that we do not alienate or forget about our existing crews and service persons during this transition. Our goal is to move qualified individuals to new ships and retrofit existing ships gradually, such that no one is left without a place. Training will take place to ensure that all of our service persons across all types of service will continue to be capable and effective for many years to come.

Technical Implications

There are a number of considerations that must me made when making a shift of this magnitude. Primary among these are:

- “To what extent will we automate?”
- “How will our automated systems work together?”
- “How will we ensure that our automated systems run in a secure, reliable fashion?”

This section will address each of these concerns; other concerns will be addressed as appropriate.

Extent of Automation

We wish to automate all things that do not require sentient direction and planning. Maintenance systems, repair facilities, food preparation, weapon targeting systems, course charting, craft and drone operation, and so forth are all well suited to operate under the control of a well-designed Machine Intelligence. Sentient oversight will provide corrections and set strategy.

To illustrate, let's consider a number of examples.

Example 1 - Armed Forces and Law Enforcement

Rather than rely on overwhelming numbers of living, sentient soldiers, we should instead be focused on a collection of highly-trained, highly-skilled soldiers/officers who can provide direction to a wide range of automated support units. Sufficient redundancy will be required to ensure that the loss of a single soldier will cripple our operations. Further, in the event that all sentients are lost, remaining units should - and

must - be intelligent enough to accomplish their objectives using the guidance already established.

We can see the success of this with the EVE program. When one of the AI's organic partners became deceased, the AI itself was often able to complete the combat or mission they were deployed to.

As AIs such as EVEs are just as sentient as their organic partner, this is to be expected. We do not wish to populate every drone on the battlefield with sentience, however. The majority of our support units will be Machine Intelligences, with excellent decision trees and a problem solving capability on par with that of a reasonably advanced, near-sentient animal.

A simple comparison would be to police officers with K-9 companions. The dog is well trained and able to execute its intend purpose well. It can also make a number of decisions on its own, such as protecting the life of its companion officer without being explicitly told to. Our MIs will have a significantly wider scope of capabilities, but the paradigm will hold.

Example 2 - Armor and Small Combat Craft

In any given large-scale battle, the average combatant has roughly a similar contribution as any other combatant. Saturation of combat power, technological advantages, tactics, and strategy are typically what win the day. There is also a statistically significant outlier in the form of “Aces” - those pilots and operators whose combat capabilities significantly exceeds the norm.

A sufficiently advanced military AI has been shown capable of generating a number of successful strategies from an initial, early data set. Further, as combat conditions change, the AI is able to respond more swiftly than an average organic strategist. This is most effective when combatants on the field are able to respond in real-time. A variety of battle simulations between advanced AI opponents and seasoned naval servicemen typically show an edge to the AI, assuming all other factors are equivalent.

However, the fact that our sentient, organic crews were able to put up a reasonable fight against their AI opponents was nonetheless impressive. Creativity and good instincts cannot be ignored.

As such, we again see that a combined approach is the winning option. Sentient crews and wing captains, in conjunction with AI-generated strategies and MI support units, were *significantly* more effective in combat than a purely-AI or purely-Sentient approach.

The same considerations that apply to our ground forces must also be considered for our craft and armor - namely, avoid single points of failure and ensure that automated units are able to complete objectives, to the best of their capabilities, without Sentient leadership.

Example 3: Ship Operation

Naval vessels are, perhaps, one of the best opportunities to apply this Doctrine. It is predicted that nearly every function on a ship can be replaced by a combination of Synthetic Intelligence oversight and Machine Intelligence operational capability. Early tests with a fully automated ship were surprisingly successful - whether it be maintenance, piloting, ability to respond to change, or combat performance, the fully automated ship exceeded expectations.

As with our findings on Small Craft, we see that a Sentient crew manning an otherwise fully-automated vessel is noticeably more effective than our traditional approach to ship operation. Even a capital with only its automated systems and a bridge crew appears to suffer no loss in overall capability.

While we could take such extreme measures, we do not wish to completely remove crews from our vessels. All ships will continue to have Engineering staff, Comms staff, and so on, despite the ability to automate these areas. Sentient curiousity, adaptability, and creativity will always provide a benefit that should be taken advantage of.

Efficiency of Interconnected Systems

Security and Reliability

OOC Notes

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 This article is a work-in-progress. Is it not currently approved.