Force Design 2030, 2035, 2040 …

Understanding emergent technologies into the future

by Mr. Jeremy Kofsky

As the Marine Corps looks ahead to an increasingly complex and technology-driven future, integrating artificial intelligence (AI) is quickly becoming an essential component of its operational strategy. Artificial intelligence promises to transform everything from logistics and supply chains to decision making and combat operations. However, as with any emerging technology, its integration is not straightforward. Understanding this path is crucial to navigating their potential impact. This is where models such as the Gartner Hype Cycle become particularly important as a lens to judge and understand these technologies into the future.

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A Framework for Understanding AI Integration

The Gartner Hype Cycle is a model tracking emerging technologies' maturity, adoption, and social application. It consists of five phases: the *Innovation Trigger*, the *Peak of Inflated Expectations*, the *Trough of Disillusionment*, the *Slope of Enlightenment*, and the *Plateau of Productivity*. The model helps organizations understand where a technology stands in its development and how to approach it effectively—whether in terms of experimentation, scaling, or integration into operational use.

For the Marine Corps, AI is likely somewhere between the *Innovation Trigger* and *Peak of Inflated Expectations.* While there is growing enthusiasm for AI's potential, the technology is still in the experimental and early implementation stages. This means the Corps must carefully assess AI's promise and limitations as it works toward integrating it into the broader vision outlined in *Force Design 2030*. *Force Design 2030* is the Marine Corps' strategic blueprint for future force structure and operational capabilities, and AI's role in this transformation is paramount. By understanding where AI stands in the Gartner Hype Cycle, the Marine Corps can better plan for the next five, ten, and fifteen years, ensuring AI becomes a reliable, integral part of its operations and future readiness.

The Marine Corps and AI in the Next Five Years (2025–2030)

The *Force Design 2030* blueprint is the Marine Corps' roadmap for adaptation and transformation over the next decade. By 2030, AI will begin to see tangible implementation in key areas like logistics, decision making, and warfare strategies. The key developments in these five years will focus on integrating AI systems to assist in low-risk, high-reward environments, particularly in areas where the human toll is high and repetitive tasks abound.

The Marine Corps is expected to make significant strides in automating logistics and supply chain management in the next five years. The Marine Corps faces considerable logistical challenges due to its expansive global reach. The Corps can streamline its supply chains by integrating AI-driven systems such as autonomous vehicles, predictive maintenance systems, and demand forecasting. Artificial intelligence can monitor and predict wear and tear on equipment, reducing downtime and ensuring readiness. Additionally, automated systems like drones and robotic convoys can transport supplies in hazardous environments, improving efficiency while minimizing risk to personnel.

Artificial intelligence's role in enhancing operational decision making will also be a focal point for the Marine Corps. By 2030, the Marine Corps will begin to rely on AI to analyze vast amounts of operational data to support commanders in the field. Artificial intelligence can process satellite imagery, sensor data, and human intelligence to provide realtime insights, allowing commanders to make faster, more informed decisions. The integration of AI in warfighting will not be without challenges, as trust in machine-driven analysis and recommendations may take time to develop. However, with gradual implementation, AI will be embedded into decision making, providing critical support for tactical operations and strategic planning.

Artificial intelligence-powered autonomous systems, including unmanned aerial vehicles and unmanned

ground vehicles, will begin to play a larger role in reconnaissance, surveillance, and tactical operations. By 2030, the Marine Corps will likely have a more robust fleet of AI-driven autonomous platforms capable of operating in contested environments. These systems will enhance reconnaissance efforts, gather intelligence in denied environments, and provide realtime battlefield awareness. The development and deployment of these systems will require integration into the existing force structure with a focus on ensuring AI systems are interoperable with current command-and-control systems.

The Marine Corps and AI in the Next Ten Years (2030–2035)

By 2035, AI will have progressed significantly in integration and operational deployment across the Marine Corps. The force will have moved past early adoption phases and will be implementing AI at a larger scale, specifically focusing on improving efficiency, precision, and adaptability.

Artificial intelligence will play an even more prominent role in warfare strategy and execution. By 2035, the Marine Corps will have AI systems capable of dynamic and autonomous mission planning. These systems will integrate realtime intelligence data and autonomously propose tactics and strategies based on the evolving battlefield. Machine learning algorithms will allow for adaptive and flexible combat strategies, making the Marine Corps more agile and responsive to changing threats. Furthermore, AI-driven systems could enhance targeting capabilities, reduce collateral damage, and improve combat precision.

As warfare becomes increasingly digital, cybersecurity will be critical to maintaining the operational integrity of AI systems. By 2035, the Marine Corps will likely use AI for offensive and defensive cybersecurity measures. Artificial intelligence algorithms will help detect vulnerabilities, defend against cyber-attacks, and even launch countermeasures autonomously. Integrating AI into cybersecurity operations will require a robust ethical framework and strong oversight to avoid unintended consequences and ensure AI systems remain secure from adversary manipulation.

Artificial intelligence-based training systems will be instrumental in enhancing the readiness and proficiency of Marines. By 2035, AI-driven simulations and virtual environments will provide personalized training experiences. These training systems will adapt to individual Marines' learning pace and needs, providing them with realistic, immersive simulations of combat and operational scenarios. Additionally, AI can be used to assess performance, offer feedback, and provide targeted skill development, ensuring Marines remain agile and well-prepared for future combat challenges.

The Marine Corps and AI in the Next Fifteen Years (2035–2040)

By 2040, the Marine Corps will fully integrate AI into its operational and strategic frameworks. Technology will be a seamless component of every facet of the Corps' missions, from training to combat operations, logistics, and beyond.

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In the next fifteen years, AI will have evolved into a critical component of the Marine Corps' command and control systems. By 2040, we can expect the emergence of AI-driven command-and-control systems capable of autonomously managing and coordinating large-scale operations. These AI systems will be able to assess battlefield conditions, execute complex missions, and allocate resources in realtime, all while operating under the guidance of human commanders. Such systems will significantly reduce decision-making time and increase operational efficiency, enabling the Marine Corps to achieve its objectives faster and more precisely.

Autonomous combat platforms, ranging from drones to robotic soldiers, could play a central role in future Marine Corps operations. By 2040, AI-powered combat units will likely be integrated into frontline operations. These platforms could be deployed when human Marines face high risk, such as in heavily contested environments or high-intensity combat operations. These systems will function as force multipliers, allowing the Corps to maintain a strategic advantage.

As AI becomes more deeply embedded in the Marine Corps, ethical considerations around human-AI interaction and autonomous warfare will emerge. By 2040, the Marine Corps will need to establish clear policies and guidelines for AI's role in combat, ensuring the use of AI remains consistent with the Corps' values and ethical standards. The interaction between human Marines and AI systems will be crucial, as trust in AI will be central to the success of these technologies.

Conclusion

Looking ahead to the next five, ten, and fifteen years, the integration of AI in the Marine Corps promises to revolutionize the force's operational capabilities, efficiency, and strategic decision making. While AI technologies will evolve through the stages of the Gartner Hype Cycle, it is clear by 2040 AI will be an indispensable tool in the Marine Corps arsenal. From improving logistics to enhancing combat effectiveness, AI will play a critical role in shaping the future of the Marine Corps, ensuring its readiness to face the challenges of an increasingly complex and contested world. The vision outlined in *Force Design 2030* serves as a roadmap for this transformation, laying the foundation for a more adaptive, technologically advanced Marine Corps. However, the road ahead will require careful consideration of technological, ethical, and operational challenges to ensure AI remains an effective and responsible tool for the Marine Corps' mission.