

Abstract

- The purpose of this thesis is to analyze the current and potential applications of unmanned systems in military logistics. In seeking to evaluate uses of unmanned systems, initially, we aimed to define current and proposed unmanned applications in civilian sector logistics and current military logistics challenges.
- Then, justifying uses of unmanned systems in the commercial sector and military, we analyzed the potential advantages and risks of these systems by using archival analysis and case studies. Finally, we addressed recommendations on the current and future uses of unmanned systems in military logistics.



Unmanned Cargo Resupply. Source: Lockheed Martin (2016).

Methods

- **Technology Benefit Analysis:** In our thesis, we implemented the following methodology to find reliable and efficient results for a technology benefit analysis. First of all, we define the recent logistics problem areas of modern militaries. After defining logistics problem areas and needs in the literature review, we collected relevant data about the current and proposed applications of unmanned systems in civilian sector logistics. The Analysis chapter discussed the impact of using unmanned systems on the acquisition cost of products and their potential benefits and risks.
- In addition, we conduct research on the current and proposed applications of unmanned systems in military logistics. We classify these systems' logistics usages according to their platforms such as UAVs, UGVs, and USVs/Unmanned Underwater Vehicles (UUVs). By doing that, we examine existing and emerging unmanned technologies and evaluate the effects of these applications on the future of military logistics. Then, we analyze and process data and define positive and negative impacts of unmanned systems to military logistics in the Analysis chapter by using case studies and archival analysis. In the Conclusion chapter, we recommend the most likely future uses of unmanned systems in military logistics.

Results

- Unmanned systems have been decreasing personnel assigned to logistic facilities such as factories.
- They have been decreasing uncertainty and inventory levels and increasing visibility and flow of information in the military supply chain.
- They have been decreasing risks in logistic delivery tasks.
- Urgent deliveries including medical supplies, ammunition, and gasoline might be implemented even with small UAVs with limited payload capabilities.
- They have been providing significant time and cost efficiencies.
- They have been impacting acquisition processes in a positive way, making them more efficient.



DoDAMM's Super aEgis 2: South Korea's Autonomous Robot Gun Turret. Source: Blain (2010).



U.S. Marines with Combat Logistics Battalion 5 Return from K-MAX. Source: Haddick (2016).



Robot Sentries for Base Patrol. Source: Shachtman (2008).



Members of Submarine Development Squadron Detachment 5 Source: Haddick (2016).