Applying Commercial Procedures and Technology to the United States Navy's Material Inventory

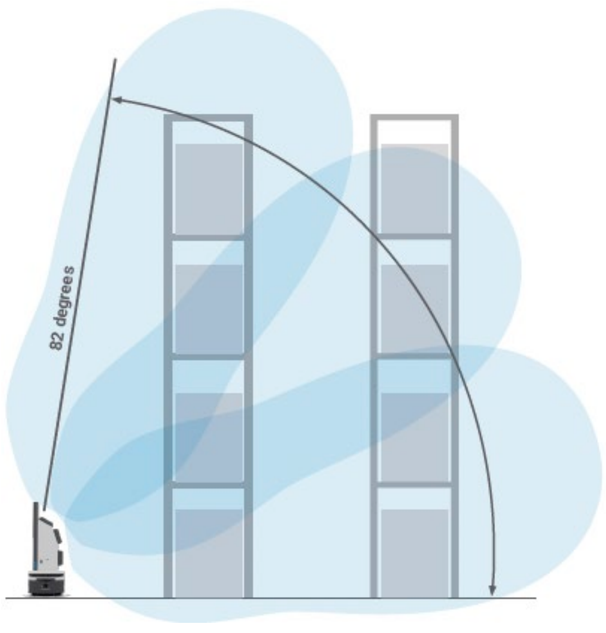
Naval Postgraduate School

Abstract

The Department of the Navy (DON) is faced with the need to improve inventory accuracy in order to increase readiness in multiple theaters. There are many commercial logistics organizations that excel at warehousing, supply chain management, and transportation; the DON has the opportunity to evaluate whether to adopt innovative technologies to improve their material accountability and readiness. This study examines the logistics model of high-profile, successful organizations to identify processes and technologies that would be potential adoption candidates to enable real-time audit for the DON. Further, the study conducts a cost-benefit analysis to determine the best value technological tools for acquisition by the DON. The findings suggest that purchasing Automated Mobile Robot (AMR) technology by Fetch Robotics is the most beneficial alternative for real-time inventory accountability.

A TagSurveyor AMR designed by Fetch Robotics on display at the Navy's 2019 Sea Air Space Expo.

Source: https://scnewsltr.dodlive.mil/2019/07/30/navsup-showcases-innovation-at-sea-air-space-expo-2019/



A TagSurveyor AMR's reading angle.

Source: A. Chivalette (email to author, April 16, 2021).

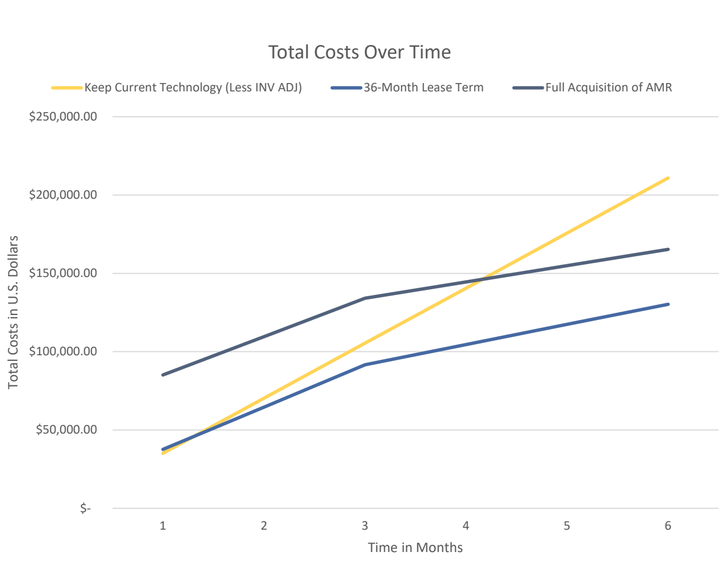
Methods

- Literary Review of the Navy's current inventory accuracy metrics and published cost-benefit analyses for the adoption of military technologies
- Review of the Navy's currently adopted technologies/processes and how they meet current inventory accuracy metrics
- Exploration and cost-benefit analysis of TagSurveyor AMR technologies available in the commercial sector and their applicability to the Navy's inventory processes

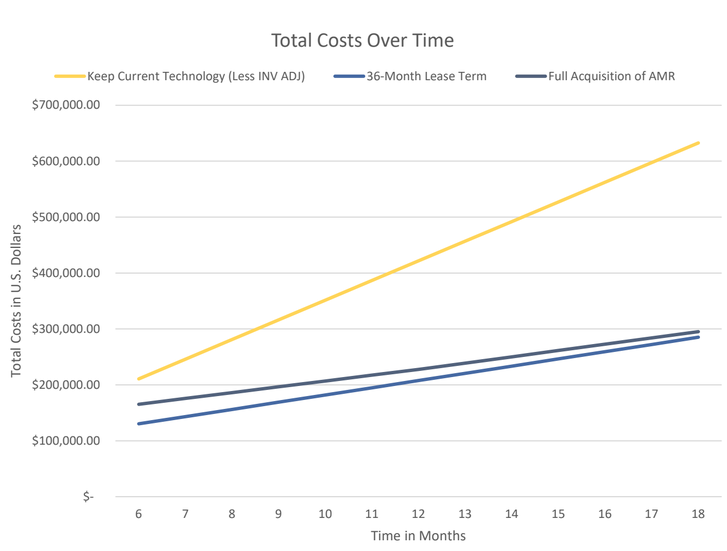
Results and Recommendations

A cost-benefit analysis using shore-based labor rates from FLC Jacksonville, projected trends of inventory rework based on human error, and the capabilities of TagSurveyor AMRs was conducted.

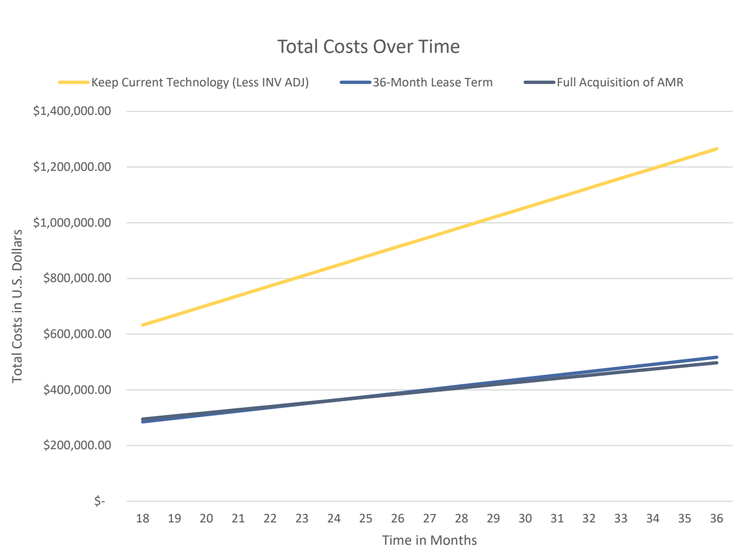
Fully acquiring one TagSurveyor AMR for each FLC site in the contiguous United States and Hawaii yields the most benefits after 2 years.



Total Costs over 6 Months



Total Costs between 6-18 Months



Total Costs between 18-36 Months

Acquisition Research Program
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