

MASTER OF SCIENCE IN INFORMATION TECHNOLOGY MANAGEMENT

DISSEMINATION AND STORAGE OF TACTICAL UNMANNED AERIAL VEHICLE DIGITAL VIDEO IMAGERY AT THE ARMY BRIGADE LEVEL

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The Department of Defense Joint Technical Architecture has mandated a migration from analog to digital technology in the Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) community. The Tactical Unmanned Aerial Vehicle (TUAV) and Tactical Control System (TCS) are two brigade imagery intelligence systems that the Army will field within the next three years to achieve information superiority on the modern digital battlefield. These two systems provide the brigade commander with an imagery collection and processing capability never before deployed under brigade control. The deployment of the Warfighter Information Network (WIN), within three to five years, will ensure that a digital dissemination network is in place to handle the transmission bandwidth requirements of large digital video files.

This thesis examines the storage and dissemination capabilities of this future brigade imagery system. It calculates a minimum digital storage capacity requirement for the TCS Imagery Product Library, analyzes available storage media based on performance, and recommends a high-capacity storage architecture based on modern high technology fault tolerance and performance. A video streaming technique is also recommended that utilizes the digital interconnectivity of the WIN for dissemination of video imagery throughout the brigade.

DoD KEY TECHNOLOGY AREAS: Command, Control, and Communications, Computing and Software, Sensors, Other (Information Technology)

KEYWORDS: Tactical Unmanned Aerial Vehicle, Tactical Control System, Redundant Array of Independent Disks, Warfighter Information Network, Tactical Internet, Global Broadcast System

INFORMATION TECHNOLOGY MANAGEMENT

A DECISION-MAKING MODEL UTILIZING INFORMATION TECHNOLOGY: COMBINING THE FEATURES OF THE INTERNET, PUBLIC PARTICIPATION, AND PROVEN DECISION-MAKING METHODS

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This thesis research combines several proven methods by which public participation can be used more effectively in a government decision-making process. The research involved fulfills three primary purposes. First, the research provides a flexible user-friendly internet-based platform, whereby the knowledge level of a disparate group of stakeholders can be improved with respect to a complex technical subject. Second, the research demonstrates a method by which stakeholder consensus is derived. Third, the research exhibits a method by which public values are aggregated, whatever the level of consensus; the data is then provided to the government for use in a decision-making model.

DoD KEY TECHNOLOGY AREAS: Computing and Software, Environmental Quality, Human Systems Interface, Other (Decision Analysis, Decision-Making)

KEYWORDS: Web Technology, Internet, Information Technology, Public Participation, Decision-Making, Value Tree Analysis, Multi-Attribute Utility Theory, Analytical Hierarchy Process, Delphi Method, Median Ranking Method, Hungarian Method, Rank Correlation and Aggregation