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CMMI MATURITY LEVEL 3

## Navy Optimizes Flight Planning with Terminal Procedures and Geospatial Data Support from Avineon

### Summary

To automate workflow, Avineon is responsible for the applications development and enhancement of NAVFIG's Navy Terminal Instrument Procedures (NAVTERPS) applications software. To enhance NAVFIG's ability to identify terrain/obstacles, Avineon developed AVNAVTERPS, a geographic information systems (GIS) tool that flight procedure specialists use to analyze digital terrain elevation data and create images for Federal Aviation Administration (FAA) flight inspections.

### THE CHALLENGE

The Naval Flight Information Group (NAVFIG) develops, reviews and validates terminal instrument flight procedures (TERPS) at worldwide Navy and Marine Corps air stations and at certain host nation airports when operating around airfields under instrument flight rules. Additionally, NAVFIG arranges for their publication in the Department of Defense (DOD) Flight Information Publications (FLIP).

In 1998, NAVFIG began looking for improved technical and analytical support necessary for TERPS procedure evaluations. The group required installation of new technologies to improve business processes in order to achieve the mission and future goals.

NAVFIG had existing Navy Terminal Instrument Procedures (NAVTERPS) applications software used in the design and modification of TERPS. NAVFIG needed to migrate NAVTERPS from an increasingly obsolete database platform to a more modern, flexible and robust database architecture.

In addition, NAVFIG wanted to enhance the existing software program with analytical capabilities that would complement NAVTERPS and complete a paperless TERPS workflow. Desired capabilities included an automated analysis of terrain/obstacles and automated map production.

NAVFIG also required support with the validation and submission of aeronautical information regarding U.S. Navy and Marine Corps and host nation air facilities for publication in the DOD and Federal Aviation Administration (FAA) Flight Information Publications.

### THE AVINEON SOLUTION

After evaluating options available for information technology support services, NAVFIG contracted with Avineon, Inc., a provider of IT, engineering, geospatial and program management services.

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## Leveraging Geospatial and Workflow Technology to Support Naval Aviators



### BENEFITS

- Optimized business process and workflow to improve efficiency by 60%
- Created effective source for up to date terminal flight procedure and flight planning information
- Allowed NAVFIG to meet FAA, DOD and Navy criteria and standards
- Provided the functional ability to utilize new and existing data sources

### APPLIED TECHNOLOGIES

- ArcView
- XML
- Microsoft Access
- Visual Basic
- ASP



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Avineon had the qualified personnel necessary to design and produce all the programming requirements to fulfill the aeronautical flight information required of the Navy.

Avineon provided applications re-engineering services to migrate NAVTERPS from an outmoded user interface to one that is state-of-the-art, Windows-compliant. The new robust architecture can easily incorporate data from the National Geospatial-Intelligence Agency (NGA) and Avineon provides ongoing enhancement and maintenance support to incorporate new criteria requirements. For instance, Avineon has included enhancements to accommodate NGA data format changes.

To help automate NAVFIG's workflow, Avineon provided continued application development and implementation support of NAVTERPS. Developed by Avineon using Microsoft Access and Visual Basic for Applications (VBA), NAVTERPS is a client-server application. NAVTERPS clients can retrieve data from, and store data

to, an Access database residing on a Windows server over the NAVFIG local-area network. The NAVTERPS application enables Flight Procedure Specialists (FPS) to design and evaluate the instrument procedures using industry criteria and includes utilities to assist in the analysis of runway calculations, obstacle evaluation, terrain and coordinate conversions.

To enhance NAVFIG's ability to identify terrain obstacles, Avineon developed AVNAVTERPS, a GIS tool that Flight Procedures Specialists use to identify NGA's Digital Terrain Elevation Data (DTED) and create images for FAA flight inspections with flight schedules. Using ESRI's ArcView GIS and supporting software products, Avineon's programmers created an easy-to-use, customized interface that enables the user to import NAVTERPS data, analyze DTED, determine the highest DTED cells and transfer selected cells to the NAVTERPS obstacle table. The obstacle evaluation areas are drawn on digital maps to complete the workflow and are submitted to FAA for flight inspection purposes.

Avineon's aeronautical information specialists research, analyze, evaluate, compute and compile textual and graphical aeronautical data for inclusion in DOD flight publications, and also review, revise or delete previous publications. Aeronautical information specialists also provide support in processing notices to airmen, developing aeronautical radar video maps, and maintaining air field records.

In 2006, NAVFIG awarded Avineon a new contract to continue development and innovation in the mechanics of how instrument flight procedures are designed today and in the future. Avineon will use new tools provided by the FAA on the commercial side to develop an integrated methodology and toolset for superior mission support to the war fighter. This will allow U.S. military forces and the FAA to have automated means to better communicate and leverage information on flight procedures and provide flexibility regarding air control, both commercially and within the DOD.

