N39430-20-F-4227
ExPO Product Support Package (PSP) Acquisition Tracking System (ATS)
A004 - PSP ATS Analysis of Alternatives

DISCLAIMER:
This report is intended to provide information to NAVFAC EX4 Leadership on the PSP ATS User Requirements in fulfillment of CDRL A002.

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1.0 Overview

The Naval Facilities (NAVFAC) Engineering and Expeditionary Warfare Center (EXWC) Expeditionary Programs Office (ExPO) requires a technical solution that supports a number of use-case scenarios, including but not limited to, product support management, internal Product Support Package (PSP) development, external In-Service Engineering Agent (ISEA) PSP tied to ExPO assets, inventory procurement management, external database ingestions and extractions, reporting, and buy plan/spend plan management. Synectic Solutions, Inc. (SSI) has conducted exploratory research to find the best alternatives to fulfill the use cases use cases and user requirements provided.

The ExPO PSP Acquisition Tracking System (ATS) shall provide support for each of the use-case scenarios outlined in Section 2 Use-Case Scenarios. Each use-case scenario is broken down into user requirements outlined in Section 3 User Requirements. The system architecture requirements, Section 4 System Architecture, were not provided to SSI and therefore shall be analyzed once the technical solution has been determined. Constraints, limitations, and risks associated with purchasing and using an ATS technical solution are considered in Section 5 Constraints, Limitations, and Risks. In Section 6 Analysis of Alternatives, we provide various matrices that compare the ExPO ATS solution options against user requirements, costs, and timelines. We further describe the best ATS technical solution options in Section 7 Technical Solutions Focus. In Section 8 ATS Solution – SSI Recommendation and Section 9 Conclusion, we make our final recommendation on ExPO's best option to move forward with. Lastly, we have included various vendor documents provided to SSI as Appendices at the end of this report.

2.0 Use-Case Scenarios

The following table further outlines the various use-case scenarios the PSP ATS solution shall support:

Product Support Management	• Configuration Identification/Specifications • Expeditionary Programs Office (ExPO) Program Alignment • Product Support Package Modernization (PSPM) Identification/Alignment/Assignment • Life Cycle Management Plan (LCMP) (ExPO/TYCOM) • Material Fielding Agreement (MFA) (ExPO/TYCOM/UNIT) • LOG Demo

Internal PSP Development POA&M	• PSP Dates/POA&M
	  • Planned
	  • Actual
	• PSP Costs
	• PSP Alignment to Assets
	• PSP Unique Identifier Assignment

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Buy Plan/Spend Plan Management	

Table 1: Use Case Scenarios

3.0 User Requirements

Each ExPO ATS use-case scenario can be broken down into any number of user requirements. User requirements are the business needs for what users require from the system. These user requirements have been written early in the validation process. They were written by the contract developer and end users, with input from Quality Assurance. Requirements outlined herein will be tested in the Performance Qualification/User Acceptance Testing.

3.1 Product Support Management User Requirements

3.1.1 Configuration Identification and Specifications

- User Requirements
  - ExPO designated Technical Support Activity (TSA) Procured Configuration; Information on the year, make, model, and vin number of any given vehicle.
  - Planned Fielded Configuration: Information on the baseline of an asset by modifications added as part of initial procurement to meet defined user requirements or by other designated TSAs after initial delivery but prior to full fielding.
    - (E.g. is it armored? Unarmored? Does it have a winch? Was there any provisioning? Does this asset already exist in inventory? Do we need product support?)
  - The ability to tie specifications to applicable assets.

- Justification

- ExPO as the designated Program Office supporting the Navy's Expeditionary Supported Command needs to know the full configuration of assets to support the warfighter.

3.1.2 Expeditionary Programs Office (ExPO) Program Alignment User Requirements

- User Requirements
  - The ability to tie an asset to the program office it falls under.

- Justification
  - Funding and maintenance support—who is responsible for any issues identified and which program office does it belong.

3.1.3 PSPM Identification/Alignment/Assignment

- User Requirements
  - The ability to identify the PSP and whether it is developed by ExPO for their designated TSA responsibilities or it is developed by another TSA who has been given other designated TSA requirements, align it to the program, and assign it to the individual assets.
  - The ability to have PSP under one umbrella.

- Justification
  - Proper configuration status accounting. Funding and maintenance support— who is responsible for any issues identified and which program office does it belong.

3.1.4 Lifecycle Management Process Plan

- User Requirements
  - The ability to track and update the lifecycle.
  - The ability to take the focus to the PLM tool.
  - The ability to house documents or forms in the system and track updates.

- Justification
  - Proper configuration status accounting. Funding and maintenance support— who is responsible for any issues identified and which program office does it belong.

3.1.5 MFA Agreement

- User Requirements
  - The ability to track and update the lifecycle.
  - The ability to take the focus to the PLM tool.
  - The ability to house documents or forms in the system and track updates.

- Justification
  - Proper configuration status accounting. Funding and maintenance support (e.g., who is responsible for any issues identified and which program office does it belong.)

3.1.6 LOG Demo

- User Requirements
  - Logistics demonstration for a given asset to show product support, APL, parts, and show-and-tell of logistics support.
  - Top-down breakdown to see what is tied to the asset to make sure the user is full informed and not missing anything.
  - Validation effort to validate logistics documentation.

- Justification
  - Proper logistics management accounting and validation.

3.2 Internal PSP Development POA&M User Requirements

3.2.1 PSP Dates/POA&M (Planned and Actual)

- User Requirements
  - Information and tracking on internal and contract dates.
  - Information on internal development or tasking to SSI.
  - Information on when the user started work and when its available.
  - Information on the validation date, kick off of contract, timeline, initial RCM, LOPVBC, final.
  - Information on the complexity of the asset to determine timeframes.
  - The ability to auto-populate planned dates and manually punch in actual dates to see how far the user if off or how quickly it turns around.

- Justification
  - Metrics and forecasting. (How long would it normally take?)

3.2.2 PSP Costs

- User Requirements
  - The ability to auto-populate cost for development (estimate versus actual).

- Justification
  - Fiscal Forecasting.

3.2.3 PSP Alignment to Assets

- User requirements
  - The ability to align all PSP to specific assets.

- Justification
  - Logistics management

3.2.4 PSP Unique Identifier Assignment (PSP ID)

- User Requirements
  - The ability to type in the PSP ID and see all associated information. The NSN and last two characters make it unique (this is organic to ExPO).

- Justification
  - Logistics management

3.3 External ISEA PSP Tied to ExPO Assets User Requirements

3.3.1 PSP Identification/Alignment

- User Requirements
  - The ability to identify PSP as external and align to assets individually.
  - Information on external PSP on internal equipment.
  - Information on what parent asset the equipment is installed on.
  - Information on the point of contact (POC).

- Justification
  - Configuration status accounting.

3.3.2 PSP Alignment to Asset

- User Requirements
  - The ability to identify PSP as external and align to assets individually.
  - Information on external PSP on internal equipment.
  - Information on what parent asset the equipment is installed on.
  - Information on the point of contact (POC).

- Justification
  - Configuration status accounting.

3.3.3 ISEA Ownership of PSP

- User Requirements
  - The ability to identify PSP as external and align to assets individually.
  - Information on external PSP on internal equipment.
  - Information on what parent asset the equipment is installed on.

- Information on the point of contact (POC).

- Justification
  - Configuration status accounting.

3.4 Inventory Procurement Management User Requirements

3.4.1 Inventory Volume

- User Requirements
  - Information on items (e.g., quantity of items, item status).
  - Information on equipment, product support associated, and whether it has been completed.
  - Information on where the item belongs.
  - Volume information.
  - Information on who has the item, how long they have had it, and why they are holding it.
  - Item backlog.

- Justification
  - Closed loop tracking and visibility.

3.4.2 Asset Delivery Dates/Schedules

- User Requirements
  - Information on the dates in which assets are sent.
  - A schedule of how long it takes to send assets.
  - Forecasted logistics support and how much will it cost.
  - Estimated completion dates.
  - Contractual dates for product support to make sure its completed and available to the user by the time it arrives.

- Justification
  - Logistics management tracking

3.4.3 Delivery Location Information

- User Requirements
  - Information on the UIC, who the user sends an asset to, and who is responsible for the command of the asset.
  - Preloaded (nice to have) but editing new UICs will be necessary.

- Justification
  - Logistics management tracking

3.5 External Database Ingestions and Extractions User Requirements

3.5.1 MBPS/CDMD-OA

- User Requirements
  - Ensure closed loop capability from external database to provide new information in the chosen system.

- Justification
  - Closed loop tracking.

3.5.2 Navy ERP/EXMIS

- User Requirements
  - Ensure closed loop capability from external database to provide new information in the chosen system.

- Justification
  - Closed loop tracking.

3.5.3 EGAT

- User Requirements
  - Ensure closed loop capability from external database to provide new information in the chosen system.

- Justification
  - Closed loop tracking.

3.5.4 eProject

- User Requirements
  - Ensure closed loop capability from external database to provide new information in the chosen system.

- Justification
  - Closed loop tracking.

3.5.5 PTC Windchill

- User Requirements
  - Ensure closed loop capability from external database to provide new information in the chosen system.

- Justification

- Closed loop tracking.

3.6 Reporting User Requirements

3.6.1 PSP/Asset/Location Cross Reference Report

- User Requirements
  - The ability to generate a report to see the current configuration.
  - Logistics status of assets and cross references to the specific asset itself. Depending on the information, the user will change the reports/direction.

- Justification
  - Metrics, data management and reporting.

3.6.2 PSP Cost Evaluation

- User Requirements
  - The ability to see one set of costs compared to the other before he or she can make a comparison.
  - All information needed to plug it into quotes (not only cost information, but delivery and how quickly its being developed).

- Justification
  - Metrics, data management and reporting.

3.7 Buy Plan/Spend Plan Management User Requirements

3.7.1 Buy Plan Spend Plan Management

- User Requirements
  - The ability to ingest data, pull out what it is the user needs for product support.

- Justification
  - Fiscal management and reporting. Financials. Forecasting.

3.8 Number of Supported Users and Assets User Requirements

3.8.1 Users and Assets

- User Requirements
  - The ability to support 150 users and 150,000 assets at any given time.

- Justification

- 150 (+/-) users will use the software.
- 150,000 (+/-) assets will be tracked.

3.9 User Training User Requirements

3.9.1 User Training

- User Requirements
  - Training provided for 150 users.
  - Training schedule/plan.
  - User Guide(s) and/or Help Center.

- Justification
  - 150 (+/-) users will use the software and require the knowledge and capability to use all software modules, features, and functionality.

4.0 System Architecture

4.1 Architecture Overview

The ExPO PSP ATS will be used by EXWC leadership and technicians to support several functions such as:

1. Product support management
2. Internal Product Support Package (PSP) development
3. External In-Service Engineering Agent (ISEA) PSP tied to ExPO assets
4. Inventory procurement management
5. External database ingestions and extractions
6. Reporting
7. Buy plan/spend plan management.

4.2 System Architecture Requirements – NMCI Requirements

To be determined. SSI did not receive the System Architecture Requirements for NMCI. These requirements will need to be analyzed once the appropriate solution is determined.

4.3 Logical Architecture Overview

The main goal of this logical architecture overview is to define the components that will make up the ATS and to define the interfaces through which they will communicate and interact with one another. The primary decision-making factor behind defining the system components is the need to isolate the components that are likely to change from the rest of the system. By clearly defining the interfaces of these components and hiding their internal implementations from the rest of the system, the impact of expected changes can be minimized.

4.4 System Architecture Capabilities

Below describes the rationale of the software architecture in terms of capabilities:

- Performances (for example response time, user mobility, data storage, or any functional performance which has an impact on architecture)

- Protection against misuse
- Maintenance
- Adaptability, flexibility
- Scalability, availability
- Backup and restore
- Software security: fault tolerance, redundancy, emergency stop, recovery after crash etc.
- Administration
- Monitoring, audit
- Internationalization

5.0 Constraints, Limitations, and Risks

5.1 Design Constraints

The proposed solution will be hosted on the cloud and/or in an application hosting and data center. Performance, storage, security, and access can be easily scaled to meet the minimal number of additional resources the proposed solution will require.

5.2 Financial Constraints

The largest financial constraint for the implementation of the project is the design and development of architecture required of the proposed system. The full implementation of the project could be financially significant.

5.3 Technical Constraints

Specific skills and technical understanding of the technical solution will be required. This knowledge and skillset is very specific and narrow. Detailed business requirements and use cases will assist in minimizing this challenge.

Because the application will be hosted and managed on the cloud, we do not envision any technical computer hardware, network, internet, or database maintenance challenges.

EXWC requires a design with specific functionality to model internal business processes, workflows, and external data ingestion. EXWC does not require a design that allows EXWC to own the software application but does allow EXWC to own all data stored therein.

5.4 Risk Analysis

There are a few significant risks or concerns with using these tools. First, the initial expense and/or time to migrate data from current tools to any of these systems should be adequately assessed and approved to provide a rapid transition. Second, implementation and training time is required to provide users with confidence when utilizing the tools. Without proper implementation and training, users will not gain the benefits of using an ATS. Third, the business rules and requirements for user access to data storage need to be fully assessed. To create the appropriate dynamic and collaborative working environment, these tools should not be limited to only special or select user groups but allotted for the entire enterprise-wide team.

6.0 Analysis of Alternatives

6.1 ATS Solutions Researched

SSI conducted research on the following ATS solutions:

1. CMPRO
2. AUTODESK
3. Systecon OPUS Suite
4. PTC Windchill
5. Tyler Technologies Entellitrak
6. Aras
7. Oracle SCM
8. Dassault Systems

While each of these technical solutions could fulfill some, most, or all of ExPO's user requirements, two (2) solutions stood out with the ability to comply with *all* user requirements: Tyler Federal Entellitrak and Systecon Opus Suite. These two vendors worked closely with SSI through the entire course of research, whereas all other vendors dropped out of contact throughout various stages of research.

Additionally, Tyler Federal and Systecon both have previous and current experience working with the United States Navy (further explained in Section 7 Technical Solutions Focus).

In the following Analysis of Alternatives matrix, SSI compares Tyler Federal Entellitrak, Systecon Opus Suite, and a Custom-Built solution against ExPO's user requirements.

6.2 Analysis of Alternatives Matrix – User Requirements

The following user requirements matrix includes user requirements compliance information provided by Tyler Federal Entellitrak, Systecon Opus Suite, and SSI (Custom-Built solution). This information is also available in the attached vendor documentation.

ExPO Use Case	ExPO User Requirement		Tyler Federal Entellitrak	Systecon Opus Suite	Custom Build
Product Support Management	Configuration Identification/ Specifications	ExPO designated Technical Support Activity (TSA) Procured Configuration; Information on the year, make, model, and vin number of any given vehicle.	Comply. The Entellitrak ExPO ATS solution can track any required element for NAVFAC, including year, make model and VIN number of any given vehicle. Additionally, the solution can be configured to track asset baseline information, as well as modifications added as part of the initial requirements, prior to full	Comply. Opus Suite can record specific information about unique systems by VIN number.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		Planned Fielded Configuration: Information on the baseline of an		Comply. Opus Suite can model individual configurations of the same system. It	

		asset by modifications added as part of initial procurement to meet defined user requirements or by other designated TSAs after initial delivery but prior to full fielding.	fielding. This can include items such as "armored vs. unarmored," "winch," "provisioning," "does the asset exist in inventory," "product support needed," etc. Further, the solution provides the ability associate specifications with applicable assets. Any data element within the solution can be linked or associated to any other data element, as NAVFAC requires. Linkage will be configured during JAD sessions.	can analyze the cost and performance benefits of planned modifications. Opus Suite can provide optimal spares for initial procurement or for an already fielded system.	
		The ability to tie specifications to applicable assets.		Comply. Opus Suite can model specific modifications and unique characteristics of systems.	
	ExPO Program Alignment	The ability to tie an asset to the program office it falls under.	Comply. The solution provides the ability associate an asset with the specific program office it falls under. Any data element within the solution can be linked or associated to any other data element, as NAVFAC requires. Linkage will be configured during JAD sessions.	Comply. Opus Suite can tie assets to POs. With CATLOC, in depth cost analysis of an individual PO's managed assets can be calculated too.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
	Product Support Package Modernization (PSPM) Identification/ Alignment/Assignment	The ability to identify the PSP and whether it is developed by ExPO for their designated TSA responsibilities or it is developed by another TSA who has been given other designated TSA requirements, align it to the program, and assign it to the individual assets.	Comply. The various types of PSP can be identified and marked in the system via drop down menu, or similar simple method. After identification, the user may select from a list of assets with which to associate it. Further, the PSP can be under one umbrella or not, as the NAVFAC wishes to configure the viewing.	Comply. Opus Suite supports Product Support Management in a myriad of ways. The configuration of each individual platform can be specifically identified in Opus. Each specific platform can therefore be individually modeled to show the differences in performance from other configurations. Ingestion of data can be automated by use of an API to a data source (like Windchill).	Comply. A custom-built solution can be custom tailored to fit any user requirement.

		The ability to have PSP under one umbrella.		Comply. Opus Suite contains three tools (OPUS10, SIMLOX, and CATLOC) for, broadly speaking, optimized spares, simulating performance, and in-depth cost analysis; a full capabilities brief is available for specifics. All tools interplay with one another and platform models can easily be transferred from one tool to another.	
	Lifecycle Management Process Plan	The ability to track and update the lifecycle.	Comply. With a custom workflow, the Entellitrak ExPO ATS solution can track and update the lifecycle and take the focus to the PLM tool. Additionally, content management (the ability to house documents and forms in the system) is an off-the-shelf capability. Tracking updates can be performed with custom configuration	Comply. The Opus Suite forecasts performance, cost, sparing levels and more. Independent models are easily created so that the impact of updated information (data) may be assessed against pre-changed periods.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		The ability to take the focus to the PLM tool.		Comply. Product lifecycle management is the core of which Opus Suite capabilities are built from. A full capabilities brief is available for specifics, but as a summary, the Opus Suite offers: - Model and simulate impact of decisions (design, performance, cost, risk, etc.) - Simulate ability to handle scenarios, peak loads, endurance, deployment, etc. - Simulate utilization of technical systems and resources - Fleet level risk management with a	

				dual focus on cost and performance - Location of Repair Analysis (LORA XT) - Consequence & sensitivity analysis - Resource Dimensioning - facilities, personnel, equipment - Set and evaluate requirements in PBL based support contracts - Identification/translation of requirements - Optimization of logistic support organization - Spares optimization – assortment & allocation - Identification of cost drivers and availability drivers - Identify bottlenecks and weak links - Lifecycle cost analysis, budgeting and forecasting	
		The ability to house documents or forms in the system and track updates.		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	
	Material Fielding Agreement (MFA) (ExPO/TYCOM/UNIT)	The ability to track and update the lifecycle.	Comply. With a custom workflow, the Entellitrak ExPO ATS solution can track and update the lifecycle, and take the focus to the PLM tool. Additionally, content management (the ability to house documents and forms in the system) is an off-the-shelf capability. Tracking updates can be performed with configuration.	Comply. The Opus Suite forecasts performance, cost, sparing levels and more. Independent models are easily created so that the impact of updated information (data) may be assessed against pre-changed periods.	Comply. A custom-built solution can be custom tailored to fit any user requirement. .
		The ability to take the focus to the PLM tool.		Comply. Notes The ability to take the focus to the PLM tool.	

				Product lifecycle management is the core of which Opus Suite capabilities are built from. A full capabilities brief is available for specifics, but as a summary, the Opus Suite offers: - Model and simulate impact of decisions (design, performance, cost, risk, etc.) - Simulate ability to handle scenarios, peak loads, endurance, deployment, etc. - Simulate utilization of technical systems and resources - Fleet level risk management with a dual focus on cost and performance - Location of Repair Analysis (LORA XT) - Consequence & sensitivity analysis - Resource Dimensioning - facilities, personnel, equipment - Set and evaluate requirements in PBL based support contracts - Identification/translation of requirements - Optimization of logistic support organization – Comply. Spares optimization – assortment & allocation - Identification of cost drivers and availability drivers - Identify bottlenecks and weak links - Lifecycle cost analysis, budgeting and forecasting	
		The ability to house documents or forms in the system and track updates.		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	

	Logistics Demonstration	Logistics demonstration for a given asset to show product support, APL, parts, and show-and-tell of logistics support.	Comply. Tyler interprets demonstration here to mean reporting. The Entellitrak ExPO ATS solution can demonstrate any combination of data elements required by the NAVFAC, including product support, APL, parts, and show-and-tell of logistics support. Our advanced searching capability provides for this detail, and all of these fields can be associated with a specific asset page as well. Further, the asset page can be configured to show the breakdown NAVFAC needs to insure user is completely information. Information can be validated against any database interface required to ensure appropriate documentation.	Comply. Opus Suite has interactive visuals to show how products and individual items are supported throughout the supply chain (shipping times, lead times, repair times and repair stations). Opus Suite Game Mode can show an overall view of the modeled scenario either in form of a support organization plot or a geographical map over the scenario region. Moreover, Systecon can build customized dashboards to showcase modeling information and outputs in any desired format.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		Top-down breakdown to see what is tied to the asset to make sure the user is full informed and not missing anything.		Comply. Opus Suite visuals shows the product breakdown from a physical or functional perspective. Item and LCN indenture levels are displayed for a graphical understanding of the platform.	
		Validation effort to validate logistics documentation.		Comply. Before running an optimization or simulation, Opus Suite validates all input data for mathematical accuracy, which can identify input errors. Upon inputting individual data points when building the model, data validation checks are performed in real time which can also identify input errors before running a model.	
Internal PSP Development Plan of Actions and Milestones (POA&M)	PSP Dates/POA&M (Planned and Actual)	Information and tracking on internal and contract dates.	Comply. The Entellitrak ExPO ATS solution can track and store information, such as internal and contract dates; internal vs. SSI	Comply. Systecon can leverage the BESST tool for asset tracking, data storage or	Comply. A custom-built solution can be custom

		The ability to see if its internal development or tasking to SSI.	development; work start data and availability start date; validation and kick off dates, etc; and information on complexity of asset. Planned dates can be auto-populated, with the ability to add actuals, and auto-calculate the delta to calculate turnaround time. These capabilities will be provided via a custom workflow and advanced configuration	document control; or utilize any other customer-provided tool.	tailored to fit any user requirement.
		Information on when the user started work and when its available.			
		Information on the validation date, kick off of contract, timeline, initial RCM, LOPVBC, final.			
		Information on the complexity of the asset to determine timeframes.			
		The ability to auto-populate planned dates and manually punch in actual dates to see how far the user if off or how quickly it turns around.			
	PSP Costs	The ability to auto-populate cost for development (estimate versus actual).	Comply. Entellitrak ExPO PSP ATS has the ability to auto-populate predesigned cost estimates for development, and then track actuals to show estimate vs. actual via reporting.	Comply. Whether it is planned, or actual, CATLOC can ingest costing data and display it in the standardized DoD format, with each funding type and line easily identified. This help align timeframes with funding lines/colors of money.	Comply. A custom-built solution can be custom tailored to fit any user requirement
	PSP Alignment to Assets	The ability to align all PSP to specific assets.	Comply. Entellitrak ExPO PS ATS provides the capability via configuration to search for the asset, pull up the standard option PSP list associated with that asset, and select to align all PSP to specific assets.	Comply. Opus Suite models also may serve as a working record of systems configurations. While use of a dedicated IDE contains current configurations, the data from Opus is easily extracted to show past configurations, their sustainment costs and performance against newer configurations.	Comply. A custom-built solution can be custom tailored to fit any user requirement

	PSP Unique Identifier Assignment (PSP ID)	The ability to type in the PSP ID and see all associated information. The NSN and last two characters make it unique (this is organic to ExPO).	Comply. Entellitrak ExPO PS ATS provides capability for unique identifier, which can provide all associated information that the individual user is authorized to view when entered. That unique ID can be auto generated or custom to NAVFAC's needs, such as NSN and last two characters.	Comply. Opus Suite tables are like a relational database with unique identifiers commonplace. This makes it easy to search for all information related to a PSP ID.	Comply. A custom-built solution can be custom tailored to fit any user requirement
External ISEA PSP Tied to ExPO Assets	PSP Identification/ Alignment	The ability to identify PSP as external and align to assets individually.	Comply. Entellitrak ExPO PS ATS can be configured to track and align assets and asset relationships as needed by NAVFAC. Specific needs will be identified in JAD sessions and configured accordingly.	Comply. Opus Suite can model individual assets with their unique modifications and specifications.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		Information on external PSP on internal equipment.		Comply. Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.	
		Information on what parent asset the equipment is installed on.		Comply. Opus Suite can model the indenture levels and locations (via LCN) of items on a system.	
		Information on the point of contact (POC).		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	
	PSP Alignment to Asset	The ability to identify PSP as external and align to assets individually.	Comply. Entellitrak ExPO PSP ATS is a highly flexible system that will provide the ability to identify PSP as external and align it to assets, then provide information on the external PSP, as well as the parent asset. The solution is highly flexible, and the data model can be designed to meet the configuration of NAVFAC as needed, and associate any/all data	Comply. Opus Suite can model individual assets with their unique modifications and specifications.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		Information on external PSP on internal equipment.		Comply. Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.	
		Information on what parent asset the equipment is installed on.		Comply. Opus Suite can model the indenture levels and locations (via	

			elements desired for capture.	LCN) of items on a system.	
		Information on the point of contact (POC).		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	
	ISEA Ownership of PSP	The ability to identify PSP as external and align to assets individually.	Comply. Entellitrak ExPO PSP ATS is a highly flexible system that will provide the ability to identify PSP as external and align it to assets, then provide information on the external PSP, as well as the parent asset. The solution is highly flexible, and the data model can be designed to meet the configuration of NAVFAC as needed, and associate any/all data elements desired for capture.	Comply. Opus Suite can model individual assets with their unique modifications and specifications.	Comply. A custom-built solution can be custom tailored to fit any user requirement.
		Information on external PSP on internal equipment.		Comply. Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.	
		Information on what parent asset the equipment is installed on.		Comply. Opus Suite can model the indenture levels and locations (via LCN) of items on a system.	
		Information on the point of contact (POC).		Comply. Systecon can maintain information about the POC.	
Inventory Procurement Management	Inventory Volume	Information on items (e.g., quantity of items, item status).	Comply. Entellitrak ExPO PSP ATS can track information on items, equipment, associated products, completion status, information on where the item belongs, volume information, who has the item, how long they have had it, and item backlog. Information requirements will be confirmed during JAD sessions and then configured to meet NAVFAC's needs during development and implementation.	Comply. Opus Suite considers item prices, repair times, lead times, specific maintenance and transit policy information, etc. in its models.	Comply. A custom-built solution can be custom tailored to fit any user requirement
		Information on equipment, product support associated, and whether it has been completed.		Comply. Opus Suite can identify the optimal number of resources and equipment needed to support the fleet, but cannot verify tasks are completed.	
		Information on where the item belongs.		Comply. This is a direct output of Opus Suite optimal spares calculations.	
		Volume information.		Comply. Opus Suite outputs identify the optimal quantity of items at each location, their reorder point, and reorder quantity.	

		Information on who has the item, how long they have had it, and why they are holding it.		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	
		Item backlog.		Comply. Opus Suite can identify which items are expected to be in backlog based off the supply state and logistics support over time.	
	Asset Delivery Dates/Schedules	Information on the dates in which assets are sent.	Comply. Entellitrak ExPO PSP ATS can track all requirements listed, such as dates in which assets are sent, schedules, forecasted logistics support, estimated completion dates, and contractual dates. Forecasting can be automated in the solution using algorithms as well, and is dependent upon the data provided.	Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	Comply. A custom-built solution can be custom tailored to fit any user requirement
		A schedule of how long it takes to send assets.		Comply. Opus Suite can take data about asset delivery schedules and simulate the fleet's performance according to that schedule. What if scenarios and analysis of alternatives can also be compute in this method.	
		Forecasted logistics support and how much will it cost.		Comply. Opus Suite has many cost inputs to its models and can calculate the logistics cost of supporting a platform. Costs can be broken down into cost type categories and costs by PO.	
		Estimated completion dates.		Comply. All delivery dates, repair times, procurement times may be assessed as to their impact on both cost and performance.	
		Contractual dates for product support to make sure its completed and available to the user by the time it arrives.		Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	

	Delivery Location Information	Information on the UIC, who the user sends an asset to, and who is responsible for the command of the asset.	Comply. Entellitrak ExPO PSP ATS can track all the requested information on the UIC, asset, command, etc. To address the preloaded requirement, Tyler can preload a table to provide a drop down, and then system administrators can add or update UICs via administrative privileges.	Comply. Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.	Comply. A custom-built solution can be custom tailored to fit any user requirement
		Preloaded (nice to have) but editing new UIC is necessary.			
		Logistics management tracking			
External Database Ingestions and Extractions	MBPS/CDMD-OA	Ensure closed loop capability from external database to provide new information in the chosen system.	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/RESTbased web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search MBPS/CDMD-OA?" and the data will prepopulate into fields and pull from the system into Entellitrak.	Comply. Opus Suite is already ingrained within MBPS and is the Navy Common Readiness Model (NCRM).	Comply. A custom-built solution can be custom tailored to fit any user requirement
	Navy ERP/EXMIS	Ensure closed loop capability from external database to provide new information in the chosen system.		Comply. Systecon can leverage the BESST tool for this task	
	EGAT	Ensure closed loop capability from external database to provide new information in the chosen system.			
	eProject	Ensure closed loop capability from external database to provide new information in the chosen system.			
	PTC Windchill	Ensure closed loop capability from external database to provide new information in the chosen system.		Comply. Opus Suite is already integrated with PTC Windchill.	
Reporting	PSP/Asset/Location Cross Reference Report	The ability to generate a report to see the current configuration.	Comply. Entellitrak ExPO PS ATS is designed with reporting capability using advanced search to create ad hoc reports. Additional	Comply. The Opus Suit contains the BoM of the system, and can be used to validate and compare other BoMs. There is a	Comply. A custom-built solution can be

			reports can be custom built for NAVFAC as part of implementation.	function that checks the differences between model inputs and provides a report on those differences.	custom tailored to fit any user requirement
		Logistics status of assets and cross references to the specific asset itself. Depending on the information, the user will change the reports/direction.		Comply. Cost evaluation is a native function within the Opus Suite. This is not a static function. As data becomes more mature and readily available on systems, and as costing data changes with time, all models are easily updated, producing new projections.	
	PSP Cost Evaluation	The ability to see one set of costs compared to the other before he or she can make a comparison.	Comply. Entellitrak ExPO PS ATS is designed to provide this information via advanced search to create ad hoc reports. The solution can also integrate with Tableau, Power BI, or a similar Analytics software that NAVFAC uses to provide dashboard information. An optional Analytics product (priced in cost proposal) can be offered as well.	Comply. By comparing iterations of the same model, the PMOs can see the impact on cost and performance individual cost changes have on the overall fleets.	Comply. A custom-built solution can be custom tailored to fit any user requirement
		All information required to plug it into quotes (not only cost information, but delivery and how quickly its being developed).		Comply. Cost and delivery schedule information can originate from Opus Suite outputs.	
Buy Plan/Spend Plan Management	Buy Plan Spend Plan Management	The ability to ingest data, pull out what it is the user needs for product support.	Comply. Entellitrak ExPO PS ATS is designed to provide this information via advanced search to create ad hoc reports. The solution can also integrate with Tableau, Power BI, or a similar Analytics software that NAVFAC uses to provide dashboard information.	Comply. Using all the capabilities of the Opus Suite, a PMO can make decisions that are best suited to the budget, performance requirements, available resources, and time. Moreover, as system elements (cost data, reliability estimates, operational tempo) mature over time, predictions are easily updated, and the impact of those changes can be assessed, allowing the PMO to get in front of problems. The budget of any system can be forecasted through its	Comply. A custom-built solution can be custom tailored to fit any user requirement

				entire lifecycle with current data, making changes as time progresses to account for new data, always allowing that 5-year forecast to be firmly based on current information, and those "might happen" events account for and compared against accepted values. The trade space in any element is easily viewed using Opus so PMOs can assign their limited resources to what will provide the very best performance at a limited cost without guess work or uncertainty.	
Number of Supported Users and Assets	Users and Assets	The ability to support 150 users and 150,000 assets at any given time.	Comply. Due to its Web-based design, multi-tier architecture, and ability to support clustered environments, Entellitrak ExPO PSP ATS is infinitely scalable to accommodate large volumes of users, incorporate additional cases and an increasing number of transactions, and accommodate the workflow of many different case and business process management programs within NAVFAC. The Entellitrak platform has deployed multiple instances of enterprise implementations that support thousands of internal users and external users – at large agencies including the Department of Defense (DoD) and Department of Veterans Affairs (VA). For the DoD, Entellitrak manages cases for 3.2 million employees, processing	Comply. Systecon does not limit the number of unique Opus Suite users nor the number of computers it is installed on, but instead limits the number of simultaneous users to the number of licenses purchased.	Comply. A custom-built solution can be custom tailored to fit any user requirement

			sensitive Personally Identifiable Information (PII) and Personal Health Information (PHI) from up to 10,000 users a day, which is only a fraction of our software's capacity. In addition, the Entellitrak platform provides the centralized human resources management solution for 280,000 VA employees. Entellitrak was heavily load tested for the Eligibility Appeals Operations Support (EAOS) effort and deemed appropriate for use of the high volume of concurrent users anticipated under the new health insurance exchange appeals program. On a current appeals tracking project for the USDA National Appeals Division (NAD), Entellitrak supports 400 gigabytes of data. On another project for the Department of Justice (DOJ), Entellitrak also supports more than 500 gigabytes (half a terabyte) worth of data.		
User Training	User Training	Training for 150 users.	Comply. Tyler has proposed direct training for 150 users and will provide a schedule at the time of contract award, as well as providing user guides during training. The Help Module is embedded in the solution and provides ongoing support. Tyler also provides train-the-trainer training and has provided this as an alternate option in our pricing response to lower the cost for NAVFAC.	Comply. Systecon can train as many users as needed.	Comply. A custom-built solution can be custom tailored to fit any user requirement
		Training schedule/plan.		Comply. Systecon offers 5 different 3-day training courses for different parts of the Opus Suite and depth of Opus Suite knowledge.	
		User Guide(s) and/or Help/Knowledge Center.		Comply. Opus Suite has robust user help guides. Utilizing Systecon analysts is also an option to help with modeling issues.	

6.3 Analysis of Alternatives Matrix – Pricing

The following pricing matrix includes pricing estimates based on 15 concurrent users. The pricing for 1-, 2-, 3-, and 25-year lifecycles are the sum of the base price, training costs, and annual costs, respectively. Please see attached vendor documentation for complete pricing breakdowns.

Technical Solution	Base Price	Training	1-Year Lifecycle	2-Year Lifecycle	3-Year Lifecycle	25-Year Lifecycle
Tyler Federal Entellitrak	**$153,460.73**	**$7,000.00**	**$316,990.68**	**$159,660.55**	**$476,651.23**	**$3,825,973.39**
	With optional items	Train the Trainer sessions	With optional items	With optional items	With optional items	With optional items
Systecon Opus Suite	**$199,135.00**	**$91,040.00**	**$290,175.00**	**$290,175.00**	**$290,175.00**	**$290,175.00**
	- Data - Modeling - Development - Presentation	- Trainers - Classes - Modeling - Program Management	(Unless any additional development is required by ExPO)	(Unless any additional development is required by ExPO)	(Unless any additional development is required by ExPO)	(Unless any additional development is required by ExPO)
Custom-Built Solution	**$ 2,883,000.00**	**$516,800.00**	**$3,499,800.00**	**$3,599,800.00**	**$3,699,800.00**	**$5,899,800.00**
	- Data - Modeling - Development - Presentation	- Trainers - Classes - Modeling - Program Management	($100,000.00 Annual costs for database developer and admin)	($100,000.00 Annual costs for database developer and admin)	($100,000.00 Annual costs for database developer and admin)	($100,000.00 Annual costs for database developer and admin)

6.4 Analysis of Alternatives Matrix – Timelines

The following timeline matrix is based on estimations and includes data migration, development, presentation, and training, some of which are conducted concurrently. Please see attached vendor documentation for complete timeline breakdowns (not provided by Tyler Federal).

Technical Solution	Data Migration	Modeling	Development	Presentation	Training	Total
Tyler Federal Entellitrak	Not provided	Not provided	Not provided	Not provided	Not provided	26-52 weeks
Systecon Opus Suite	6 weeks	6 weeks	16 weeks	17 weeks	4 weeks	22 weeks
Custom-Built Solution	10 weeks	26 weeks	13 Weeks	13 weeks	8 weeks	78 weeks

7.0 Technical Solutions Focus

This section provides overviews for Systecon Opus Suite and Tyler Federal Entellitrak. Please see vendor documentation attached to this report for further information.

7.1 Systecon Opus Suite

7.1.1 Overview

a. Systecon's Opus Suite is a commercial off the shelf (COTS) system optimization, simulation, and analysis software suite that extends far beyond any existing readiness analysis and forecasting capability. This powerful capability improves all levels of decision making from annual fleet forecasting to the day-to-day decisions and challenges in tactical units. Opus Suite provides rapid decision support to understand the impact of any change or alternate course of action on readiness, cost, manpower, and support & test equipment. Having been selected as the US Navy's Common Readiness Model (NCRM) and thorough verification/validation processes, Systecon provides the request for information capabilities and more, out of the box.

b. Opus Suite ties together supply forecasting and depot production forecasts to align with readiness needs that meet NAVFAC requirements. Current supply planning tools use a demand history-based approach (looking backwards) which is less than optimal. Systecon uses tactical parts planning leveraging our existing AI algorithms to predict the next probable maintenance action leveraging historical maintenance data to predict supply demand to ensure Just in Time (JIT) material delivery and availability of support equipment/manpower at the O-level. This provides DoD clients an opportunity to simulate and predict future deployment package requirements, true ASL inventory levels (deployed and at home station), and optimized Time Phased Force Deployment Data, all delivered in a matter of minutes. By including a modification scheduler for tactical parts planning and other causes of downtime (NMCS, NMCM, and Battle Damage Estimates) can increase availability and mission generation rate by 8-9% with no investment required and by upwards of 15-20% with small, carefully optimized investments in parts, mission de-conflictions, etc. Opus Suite takes your demand-based Supply Chain and transforms it to a dynamic, real-time, force multiplier by connecting theater wide maintenance, supply chain, and man-power requirements to provide a highly efficient, enterprise driven Integrated Logistics plan.

c. There are three main data categories that are inputs to Opus Suite models to predict life cycle cost and system performance: technical system data, support structure data, and operations data.

    i. Technical system data consists of data about the configuration: failure rates, bill of materials (BOM) data, preventative maintenance (PM) intervals, pricing information, any redundancies and critical failure information, etc.

    ii. Support structure data is about how the system is maintained to keep it up and running. This consists of repair strategy for corrective maintenance (CM) and PM, spares assortment across the support structure, transportation times, depot information, etc.

iii. Operations data describes how the system is utilized. How many and where systems are located at operating bases, how and when they operate their missions, and the operating environment of those missions is contained here.

d. The Opus Suite consists of three distinct, yet integrated, software tools: OPUS10 for logistics support organization, SIMLOX for performance simulation, and CATLOC for cost analysis.

i. OPUS10 is the world-leading tool for cost effective optimization of spare parts, manpower, and logistic support solutions for complex technical systems. Decision support from OPUS10 can provide increased availability and simultaneously reduces the support costs by 20% or more compared to conventional methods.

ii. SIMLOX is a unique tool for scenario simulation that enables analysis of expected performance over time given a certain support solution and operational scenario. SIMLOX offers superior insight into tactical and strategic mission capability and the ability to prepare for planned operations.

iii. CATLOC is a powerful application for analyzing and estimating Lifecycle Cost/Lifecycle Profit, and other forms of cost analysis and estimation. CATLOC makes it easier to take control over costs of development, procurement, operation, maintenance, and logistics during a system's lifecycle.

e. Model based capabilities of the Opus Suite result in numerous ways programs can realize cost savings, increased performance, and logistics improvements. There are three main categories these capabilities fall under, and some examples are:

i. Predictive Analytics for Lifecycle Sustainment.
   1) Model and simulate impact of decisions (design, performance, cost, risk).
   2) Simulate ability to handle scenarios, peak loads, endurance, deployment, etc.
   3) Simulate utilization of technical systems and resources.
   4) Fleet level risk management with a dual focus on cost and performance.

ii. Analysis of Alternatives.
   1) Location of Repair Analysis (LORA XT).
   2) Consequence & sensitivity analysis.
   3) Resource Dimensioning - facilities, personnel, equipment.
   4) Set and evaluate requirements in Performance Based Logistics (PBL) based support contracts.
   5) Identification/translation of requirements.

iii. Influencing the Current State.
   1) Optimization of logistic support organization.

2) Spares optimization – assortment & allocation.
3) Identification of cost drivers and availability drivers.
4) Identify bottlenecks and weak links.
5) Lifecycle cost analysis, budgeting, and forecasting.

7.1.2 Customer Success

a. The Opus Suite has proven performance in lowering cost and increasing readiness. The average program sees 20% savings on program lifecycle cost. Optimized sustainment solutions also typically result in 15% increases in readiness. The following programs have had great success by implementing the Opus Suite for their platforms.

b. F-35 Joint Program Office (JPO)

i. Systecon is currently providing support to the Naval Aviation Enterprise and the F-35 JPO across numerous product support elements, developing and implementing supply chain and performance optimization strategies, optimizing outcomes, and uncovering and validating affordability initiatives.

ii. Systecon's performance modeling team aggregates data, implements strategies, modifies legacy tools to meet business rules and evaluates the projected performance of Navy Aviation systems (E-2, CH-53, etc.) and the F-35 fleet for specified metrics (Air Vehicle Availability, Mission Capability, Readiness, Life Cycle Cost, etc.) in comparison to historical values to identify best cost and performance improvements.

iii. Systecon implemented complex Information Technology (IT) system (e.g., Joint Affordability Model [JAM]) and led the effort to put F-35 data in a cloud environment, to provide better access to information for senior leaders for contract negotiations with global Original Equipment Manufacturers (OEMs). JAM has validated affordability initiatives that have resulted in more than $5B in cost avoidance.

iv. Systecon also is compiling and evaluating the JPO's input data to build Level of Repair Analysis (LORA) models in Opus Suite, such as creating maintenance candidates to be evaluated which simultaneously optimize supply chain metrics and maintenance tasks. For just the Navy, using our advanced Modeling and Simulation (M&S) capabilities and identifying changes in the repair concept, Systecon identified a savings of $5.6B over the program life. The team has so far uncovered more than $1B in savings due to an inappropriate mix of spares from the OEM as well as pricing discrepancies that added hundreds of millions of dollars to the proposed spares solution.

v. Systecon has worked across the many Integrated Product Teams (IPTs) to establish Logistics and Sustainment modeling ground rules and assumptions based on contract requirements and program performance objectives (key performance parameters/key system attributes). Systecon also leads modeling efforts in the

Affordability War Room to provide rough order of magnitude (ROM) estimates for all affordability initiatives provided by IPTs (currently, Cost Reduction Initiatives).

vi. Our efforts have allowed program leadership to validate, verify, adjudicate, and advocate for the JPO position during contract negotiations with the Services and OEMs for future repair capabilities and act as the analytics power behind the largest PBL contract in history. These modeling efforts have allowed the program to understand and quantify risk to better define acquisition and procurement strategies to ensure PBL contracts measure against best targets (scales) for contracting incentives. Our efforts have reduced the turnaround time for enterprise performance-based assessment studies from 4 months to 9 days with a mix of advanced tools and big data management techniques.

vii. Systecon transformed the JPO Modeling and Simulation organization. Our team reduced the time to produce a performance analysis and cost study from 6 months to 6 days. Additionally, our team uncovered cost savings and cost avoidance on the program that reduced long term program cost estimates by 11% and allowed for current budget totaling over $100M to be diverted to reliability improvement initiatives.

c. Air and Missile Defense Radar (AMDR)

i. During the Engineering and Manufacturing Development (EMD) Phase of the AMDR acquisition program, the AMDR Product Support and Sustaining Engineering Team was challenged to ensure that the radar would meet an extremely high Operational Availability (Ao) Key Performance Parameter of 98.8 percent (well above usual Ao targets) at a defined Operations and Support (O&S) cost Key System Attribute. In response to this challenge, the team developed a revolutionary sustainment strategy with supporting M&S to inextricably link system readiness to cost throughout the design and sustainment of the radar.

ii. The Opus Suite was implemented by Naval Surface Warfare Center Port Hueneme Division (NSWC PHD) whose purpose is to cost effectively, efficiently, and holistically address a technology enabled single business process solution that is meets current operational and budgetary objectives. The AMDR team championed the initiation of the Opus Suite and was key in the allocation of funding and resources that were necessary for the development of this critical capability within NAVSEA. The scope of information spans from product concept to product disposal (e.g. “cradle to grave”).

iii. Specific decision-making deliverables that provided significant cost savings predictions to the AMDR program sponsor are:

i. Identified Fleet Life Cycle cost of $1.1B. This represented a $1B Life Cycle Cost reduction from the status quo.

ii. M&S showed the initial proposed On-Board Repair Parts (OBRPs) would not meet the availability requirement. This sparked additional analysis of the buy list and uncovered $23M in savings.

iii. RAM-C analysis within Opus Suite enabled the identification of the program O&S Cost KSA as the key driver in the program's reliability growth plan. This included the discovery that Mean Time Between Failure (MTBF) to meet A_o requirement was lower than the MTBF required to meet O&S Cost.

iv. Directly impacted Shipbuilding and Conversion, Navy (SCN) 7300 funding by utilizing a bottom-up approach that allowed for the verification of availability requirements therefore focusing on pure readiness allowancing. Using a Lowest Replaceable Unit approach vs. a top-down/percentage of a system cost-based approach, SCN funds were optimized in the procurement of two significant cost drivers:

1) Spares and Repair Parts - resulting in a cost savings of $25M over traditional approach, while achieving a higher A_o.
2) SCN Outfitting - resulting in a cost savings of $27M over traditional approach, while achieving a higher A_o.

7.1.3 Tyler Federal Entellitrak

As benefits of selecting Tyler's Entellitrak Solution, it offers:

- Open Architecture: An open standards architecture on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems.

- COTS Platform, Accelerated Development: Entellitrak solution is built on a Commercial-off-the-shelf core platform, also known as the "product layer," providing reliability, rapid deployment of key features of any case management system, and ensuring that the platform will seamlessly accept updates and upgrades, without issues. • Flexible Configuration: Entellitrak uses 100s of pre-built components for rapid and flexible configuration.

- Scalability for Growth: With its Web-based design, multi-tier architecture, and ability to support clustered environments, the Entellitrak platform is infinitely scalable to accommodate large volumes of users and transactions, and to support additional workflows, as NAVFAC requires.

- Dynamic Workflows: The Entellitrak solution includes a powerful built-in Workflow Rules Engine for creating static, dynamic, and complex workflows to include backward and concurrent workflows. This ensures that the proposed solution will be able to accommodate all the NAVFAC community ad hoc workflow requirements that include

dynamic, concurrent, branching, merging, iterative, and sub workflows and extensibility of the system capabilities/functions.

- Secure Solution: Entellitrak is FedRAMP-certified at the FISMA "Moderate" level, meaning that the software, platform, and hosting environment have undergone and passed 325 separate security controls.

- Industry-Standard Platform and Application: Entellitrak is compliant not just with FedRAMP, but also many technology standards. As a result, Entellitrak is easily compatible with other market products, and designed with compliance and conformance in mind.

- Tyler Platform Alliance is a robust partner program founded by Tyler Technologies. Platform Alliance partners develop, market, and sell solutions based on Tyler Technologies' software platform. Platform Alliance collaborates range from small to large businesses; each having a wide array of expertise they bring to Entellitrak implementations. Partners such as GDIT and NTT Data have experience implementing the Entellitrak platform at/for DOJ and can assist the NAVFAC in developing applications on the Entellitrak platform.

In the remainder of this Executive Summary, we provide general technical and business capabilities for NAVFAC's consideration.

Experience with Business Process Management/Case Management/Tracking

Tyler Federal, LLC (formerly MicroPact Federal, LLC) has successfully provided case management and business process management solutions for U.S. federal and state government agencies and Fortune 500 corporations. Tyler's success in case management implementations largely comes from the implementation of the Entellitrak software, a low-code application development platform for case management and business process management. Since its introduction in 2006, it has been at the forefront of Tyler implementations with more than 200 deployments throughout federal, state, local, and higher education sectors. The software is configured out-of-the-box to meet the NAVFAC's system requirements as specified within the forthcoming SOW.

Tyler, as owners of the Entellitrak Case Management platform, is the largest company in the United States dedicated to providing software for the public sector, including federal, state and local government. A nationally recognized provider of integrated system solutions and professional services, Tyler serves clients in more than 27,000 installations across 11,000 state and local government locations in all 50 states, Canada, Puerto Rico, the United Kingdom and Australia, as well as more than 200 U.S. federal agencies. Tyler understands the importance of supporting our clients' mission-critical systems and maintaining the confidentiality of related justice and public safety information.

Additionally, Tyler has provided an inventory/parking application tracking system (PATS) for the Department of Education for over a decade, with similar functional needs. The solution provides

parking allocation, permit distribution and payment tracking, and has similar uses in the tracking of vehicles as NAVFAC has expressed. Items tracked include types of vehicles, VINs, and other similar information.

8.0 ATS Solution – SSI Recommendation

After conducting extensive exploratory research, SSI recommends NAVFAC ExPO proceeds with Systecon Opus Suite as soon as possible based on the following:

- Systecon already has approval authority for the NMCI infrastructure, therefore there are no third-party contracts that could potentially impact the data records management.
- Opus is already integrated with other Navy systems and utilizes current NAVSEA business processes and practices.
- The US Navy already possesses an enterprise license of the Opus Suite. Therefore, licensing for organic use of the end products is not needed by the Navy. This adds a cost avoidance of $827,000.
- Opus is already placed on contract for MBPS.
- While Tyler Federal Entellitrak is initially more cost effective, Systecon Opus Suite will be much more cost effective after just two-to-three years of use and will cost millions of dollars less after 10+ years of use.
- Systecon Opus Suite is estimated to be fully developed to suit each ExPO user requirement, including training, after an estimated total of 22 weeks, whereas Tyler Technologies Entellitrak could take up to 52 weeks or more to be fully developed and trained for. A custom-built solution would take up to 78 weeks or more.

9.0 Conclusion

NAVFAC EXWC ExPO requires an enterprise-wide technical solution that supports the use-case scenarios and user requirements outlined herein. Synectic Solutions, Inc. (SSI) has conducted exploratory research to make a final recommendation on an ExPO PSP ATS solution that supports each use-case scenario, user requirement, and system architecture requirement. With our final recommendation, SSI has included all use-case scenarios and user requirements to be supported, as well as timelines and training schedules, and any unforeseen limitations or shortcomings.

Both Systecon Opus Suite and Tyler Federal Entellitrak provide a complete solution to suit ExPO's use cases and user requirements. Purchasing one of these tools has several benefits for limited risks. Capital Expenditures for development of the chosen tool will be minimized and reduced since Opus and Entelitrak are already in use/function. That said, these tools will need to be developed over time to comply with all of ExPO's specific user requirements. The initial costs associated with using these tools will be associated with data migration into the new system as well as further development to suit each user requirement, and lastly the training required to utilize the tool to its greatest extent.

There are a few significant risks or concerns with using these tools. First, the initial expense and/or time to migrate data from current tools to any of these systems should be adequately assessed and approved to provide a rapid transition. Second, implementation and training time is required to provide users with confidence when utilizing the tools. Without proper implementation and training, users will not gain the benefits of using an ATS. Third, the business rules and

requirements for user access to data storage need to be fully assessed. To create the appropriate dynamic and collaborative working environment, these tools should not be limited to only special or select user groups but allotted for the entire enterprise-wide team.

After the extent of our exploratory research as described herein, SSI recommends NAVFAC EXWC ExPO positions themselves to purchase, train for, and begin utilizing Systecon Opus Suite as the required ATS solution as soon as possible.

Systecon

USER REQUIREMENTS RESPONSE

Systecon Overview for ExPO Product Support Package (PSP) Acquisition Tracking System (ATS)

Jerry Lujan
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User Requirements Response – ExPO PSP ATS

1. **Purpose.**

   a. Provide an overview of capabilities that Systecon and the Opus Suite software as they pertain to N39430-20-F-4227 ExPO Product Support Package (PSP) Acquisition Tracking System (ATS).

   b. Respond to the user requirements laid out by A002 PSP ATS.

2. **Opus Suite Overview.**

   a. Systecon's Opus Suite is a commercial off the shelf (COTS) system optimization, simulation, and analysis software suite that extends far beyond any existing readiness analysis and forecasting capability. This powerful capability improves all levels of decision making from annual fleet forecasting to the day-to-day decisions and challenges in tactical units. Opus Suite provides rapid decision support to understand the impact of any change or alternate course of action on readiness, cost, manpower, and support & test equipment. Having been selected as the US Navy's Common Readiness Model (NCRM) and thorough verification/validation processes, Systecon provides the request for information capabilities and more, out of the box.

   b. Opus Suite ties together supply forecasting and depot production forecasts to align with readiness needs that meet NAVFAC requirements. Current supply planning tools use a demand history-based approach (looking backwards) which is less than optimal. Systecon uses tactical parts planning leveraging our existing AI algorithms to predict the next probable maintenance action leveraging historical maintenance data to predict supply demand to ensure Just in Time (JIT) material delivery and availability of support equipment/manpower at the O-level. This provides DoD clients an opportunity to simulate and predict future deployment package requirements, true ASL inventory levels (deployed and at home station), and optimized Time Phased Force Deployment Data, all delivered in a matter of minutes. By including a modification scheduler for tactical parts planning and other causes of downtime (NMCS, NMCM, and Battle Damage Estimates) can increase availability and mission generation rate by 8-9% with no investment required and by upwards of 15-20% with small, carefully optimized investments in parts, mission

de-conflictions, etc. Opus Suite takes your demand-based Supply Chain and transforms it to a dynamic, real-time, force multiplier by connecting theater wide maintenance, supply chain, and man-power requirements to provide a highly efficient, enterprise driven Integrated Logistics plan.

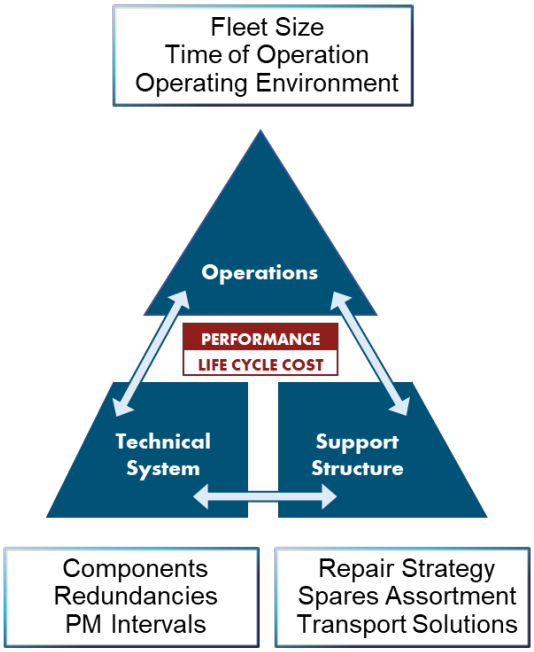

Figure 1. The three main inputs to Opus Suite models.

c. There are three main data categories that are inputs to Opus Suite models to predict life cycle cost and system performance: technical system data, support structure data, and operations data.

i. Technical system data consists of data about the configuration: failure rates, bill of materials (BOM) data, preventative maintenance (PM) intervals, pricing information, any redundancies and critical failure information, etc.

ii. Support structure data is about how the system is maintained to keep it up and running. This consists of repair strategy for corrective maintenance (CM) and PM, spares assortment across the support structure, transportation times, depot information, etc.

iii. Operations data describes how the system is utilized. How many and where systems are located at operating bases, how and when they operate their missions, and the operating environment of those missions is contained here.

d. The Opus Suite consists of three distinct, yet integrated, software tools: OPUS10 for logistics support organization, SIMLOX for performance simulation, and CATLOC for cost analysis.

i. OPUS10 is the world-leading tool for cost effective optimization of spare parts, manpower, and logistic support solutions for complex technical systems. Decision support from OPUS10 can provide increased availability and simultaneously reduces the support costs by 20% or more compared to conventional methods.

ii. SIMLOX is a unique tool for scenario simulation that enables analysis of expected performance over time given a certain support solution and operational scenario. SIMLOX offers superior insight into tactical and strategic mission capability and the ability to prepare for planned operations.

iii. CATLOC is a powerful application for analyzing and estimating Lifecycle Cost/Lifecycle Profit, and other forms of cost analysis and estimation. CATLOC makes it easier to take control over costs of development, procurement, operation, maintenance, and logistics during a system's lifecycle.

e. Model based capabilities of the Opus Suite result in numerous ways programs can realize cost savings, increased performance, and logistics improvements. There are three main categories these capabilities fall under, and some examples are:

i. Predictive Analytics for Lifecycle Sustainment.

1) Model and simulate impact of decisions (design, performance, cost, risk).

2) Simulate ability to handle scenarios, peak loads, endurance, deployment, etc.

3) Simulate utilization of technical systems and resources.

4) Fleet level risk management with a dual focus on cost and performance.

ii. Analysis of Alternatives.

1) Location of Repair Analysis (LORA XT).

2) Consequence & sensitivity analysis.

3) Resource Dimensioning - facilities, personnel, equipment.

4) Set and evaluate requirements in Performance Based Logistics (PBL) based support contracts.

5) Identification/translation of requirements.

iii. Influencing the Current State.

1) Optimization of logistic support organization.

2) Spares optimization – assortment & allocation.

3) Identification of cost drivers and availability drivers.

4) Identify bottlenecks and weak links.

5) Lifecycle cost analysis, budgeting, and forecasting.

3. **Customer Success.**

a. The Opus Suite has proven performance in lowering cost and increasing readiness. The average program sees 20% savings on program lifecycle cost. Optimized sustainment solutions also typically result in 15% increases in readiness. The following programs have had great success by implementing the Opus Suite for their platforms.

b. **F-35 Joint Program Office (JPO)**

i. Systecon is currently providing support to the Naval Aviation Enterprise and the F-35 JPO across numerous product support

elements, developing and implementing supply chain and performance optimization strategies, optimizing outcomes, and uncovering and validating affordability initiatives.

ii. Systecon's performance modeling team aggregates data, implements strategies, modifies legacy tools to meet business rules and evaluates the projected performance of Navy Aviation systems (E-2, CH-53, etc.) and the F-35 fleet for specified metrics (Air Vehicle Availability, Mission Capability, Readiness, Life Cycle Cost, etc.) in comparison to historical values to identify best cost and performance improvements.

iii. Systecon implemented complex Information Technology (IT) system (e.g., Joint Affordability Model [JAM]) and led the effort to put F-35 data in a cloud environment, to provide better access to information for senior leaders for contract negotiations with global Original Equipment Manufacturers (OEMs). JAM has validated affordability initiatives that have resulted in more than $5B in cost avoidance.

iv. Systecon also is compiling and evaluating the JPO's input data to build Level of Repair Analysis (LORA) models in Opus Suite, such as creating maintenance candidates to be evaluated which simultaneously optimize supply chain metrics and maintenance tasks. For just the Navy, using our advanced Modeling and Simulation (M&S) capabilities and identifying changes in the repair concept, Systecon identified a savings of $5.6B over the program life. The team has so far uncovered more than $1B in savings due to an inappropriate mix of spares from the OEM as well as pricing discrepancies that added hundreds of millions of dollars to the proposed spares solution.

v. Systecon has worked across the many Integrated Product Teams (IPTs) to establish Logistics and Sustainment modeling ground rules and assumptions based on contract requirements and program performance objectives (key performance parameters/key system attributes). Systecon also leads modeling efforts in the Affordability War Room to provide rough order of magnitude (ROM) estimates for all affordability initiatives provided by IPTs (currently, Cost Reduction Initiatives).

vi. Our efforts have allowed program leadership to validate, verify, adjudicate, and advocate for the JPO position during contract negotiations with the Services and OEMs for future repair capabilities and act as the analytics power behind the largest PBL contract in history. These modeling efforts have allowed the program to understand and quantify risk to better define acquisition and procurement strategies to ensure PBL contracts measure against best targets (scales) for contracting incentives. Our efforts have reduced the turnaround time for enterprise performance-based assessment studies from 4 months to 9 days with a mix of advanced tools and big data management techniques.

vii. Systecon transformed the JPO Modeling and Simulation organization. Our team reduced the time to produce a performance analysis and cost study from 6 months to 6 days. Additionally, our team uncovered cost savings and cost avoidance on the program that reduced long term program cost estimates by 11% and allowed for current budget totaling over $100M to be diverted to reliability improvement initiatives.

c. **Air and Missile Defense Radar (AMDR)**

i. During the Engineering and Manufacturing Development (EMD) Phase of the AMDR acquisition program, the AMDR Product Support and Sustaining Engineering Team was challenged to ensure that the radar would meet an extremely high Operational Availability (A_o) Key Performance Parameter of 98.8 percent (well above usual A_o targets) at a defined Operations and Support (O&S) cost Key System Attribute. In response to this challenge, the team developed a revolutionary sustainment strategy with supporting M&S to inextricably link system readiness to cost throughout the design and sustainment of the radar.

ii. The Opus Suite was implemented by Naval Surface Warfare Center Port Hueneme Division (NSWC PHD) whose purpose is to cost effectively, efficiently, and holistically address a technology enabled single business process solution that is meets current operational and budgetary objectives. The AMDR team championed the initiation of the Opus Suite and was key in the allocation of funding and resources that were necessary

for the development of this critical capability within NAVSEA. The scope of information spans from product concept to product disposal (e.g. "cradle to grave").

iii. Specific decision-making deliverables that provided significant cost savings predictions to the AMDR program sponsor are:

1) Identified Fleet Life Cycle cost of $1.1B. This represented a $1B Life Cycle Cost reduction from the status quo.

2) M&S showed the initial proposed On-Board Repair Parts (OBRPs) would not meet the availability requirement. This sparked additional analysis of the buy list and uncovered $23M in savings.

3) RAM-C analysis within Opus Suite enabled the identification of the program O&S Cost KSA as the key driver in the program's reliability growth plan. This included the discovery that Mean Time Between Failure (MTBF) to meet A_o requirement was lower than the MTBF required to meet O&S Cost.

4) Directly impacted Shipbuilding and Conversion, Navy (SCN) 7300 funding by utilizing a bottom-up approach that allowed for the verification of availability requirements therefore focusing on pure readiness allowancing. Using a Lowest Replaceable Unit approach vs. a top-down/percentage of a system cost-based approach, SCN funds were optimized in the procurement of two significant cost drivers:

   (a) Spares and Repair Parts - resulting in a cost savings of $25M over traditional approach, while achieving a higher A_o.

   (b) SCN Outfitting - resulting in a cost savings of $27M over traditional approach, while achieving a higher A_o.

4. **User Requirements Response.**

   a. Systecon has reviewed the user requirements contained in the A002 PSP ATS User Requirements document. A response is provided in Appendix A as well is in a separate document.

5. **Discussion**

   a. Currently, Systecon and the Navy have an enterprise contract that provides all navy.mil users access to the Opus Suite. Therefore, there would be no cost associated with software licensing if the Opus Suite is used by the Navy organically, or if Systecon provided services.

   b. A pricing quote with Systecon services rates will be provided in a different document.

6. **Points of Contact.**

   a. Jeremiah Lujan, Director of Midwest Operations

   b. Email: jerry.lujan@systecon.us

   c. Phone: (714) 686-5799

7. **Appendix A**

		Opus Suite plus Systecon Services	Notes
1.1	**Product Support Management User Requirements**		
1.1.1	**Configuration Identification and Specifications**		
	ExPO designated Technical Support Activity (TSA) Procured Configuration; Information on the year, make, model, and vin number of any given vehicle.	✓	Opus Suite can record specific information about unique systems by VIN number.
	Planned Fielded Configuration: Information on the baseline of an asset by modifications added as part of initial procurement to meet defined user requirements or by other designated TSAs after initial delivery but prior to full fielding.	✓	Opus Suite can model individual configurations of the same system. It can analyze the cost and performance benefits of planned modifications. Opus Suite can provide optimal spares for initial procurement or for an already fielded system.
	The ability to tie specifications to applicable assets.	✓	Opus Suite can model specific modifications and unique characteristics of systems.
1.1.2	**Expeditionary Programs Office (ExPO) Program Alignment User**		
	The ability to tie an asset to the program office it falls under.	✓	Opus Suite can tie assets to POs. With CATLOC, in depth cost analysis of an individual PO's managed assets can be calculated too.
	Funding and maintenance support—who is responsible for any issues identified and which program office does it belong.	✓	The OPUS Suite, using the CATLOC program, can analyze the funding an cost of a program, including funding lines, colors of money and timing.

		Opus Suite plus Systecon Services	Notes
1.1.3	**PSPM Identification/Alignment/Assignment**		
	The ability to identify the PSP rather it is developed by ExPO for their designated TSA responsibilities or it is developed by another TSA who has been given other designated TSA requirements, align it to the program, and assign it to the individual assets.	✓	Opus Suite supports Product Support Management in a myriad of ways. The configuration of each individual platform can be specifically identified in Opus. Each specific platform can therefore be individually modeled to show the differences in performance from other configurations. Ingestion of data can be automated by use of an API to a data source (like Windchill).
	The ability to have PSP under one umbrella.	✓	Opus Suite contains three tools (OPUS10, SIMLOX, and CATLOC) for, broadly speaking, optimized spares, simulating performance, and in-depth cost analysis; a full capabilities brief is available for specifics. All tools interplay with one another and platform models can easily be transferred from one tool to another.
1.1.4	**Lifecycle Management Process Plan**		
	The ability to track and update the lifecycle.	✓	The Opus Suite forecasts performance, cost, sparing levels and more. Independent models are easily created so that the impact of updated information (data) may be assessed against pre-changed periods.

			Opus Suite plus Systecon Services	Notes
		The ability to take the focus to the PLM tool.	✓	Product lifecycle management is the core of which Opus Suite capabilities are built from. A full capabilities brief is available for specifics, but as a summary, the Opus Suite offers: - Model and simulate impact of decisions (design, performance, cost, risk, etc.) - Simulate ability to handle scenarios, peak loads, endurance, deployment, etc. - Simulate utilization of technical systems and resources - Fleet level risk management with a dual focus on cost and performance - Location of Repair Analysis (LORA XT) - Consequence & sensitivity analysis - Resource Dimensioning - facilities, personnel, equipment - Set and evaluate requirements in PBL based support contracts - Identification/translation of requirements - Optimization of logistic support organization - Spares optimization – assortment & allocation - Identification of cost drivers and availability drivers - Identify bottlenecks and weak links - Lifecycle cost analysis, budgeting and forecasting
		The ability to house documents or forms in the system and track updates.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
	1.1.5	**MFA Agreement**		
		The ability to track and update the lifecycle.	✓	The Opus Suite forecasts performance, cost, sparing levels and more. Independent models are easily created so that the impact of updated information (data) may be assessed against pre-changed periods.

		Opus Suite plus Systecon Services	Notes
	The ability to take the focus to the PLM tool.	✓	Product lifecycle management is the core of which Opus Suite capabilities are built from. A full capabilities brief is available for specifics, but as a summary, the Opus Suite offers: - Model and simulate impact of decisions (design, performance, cost, risk, etc.) - Simulate ability to handle scenarios, peak loads, endurance, deployment, etc. - Simulate utilization of technical systems and resources - Fleet level risk management with a dual focus on cost and performance - Location of Repair Analysis (LORA XT) - Consequence & sensitivity analysis - Resource Dimensioning - facilities, personnel, equipment - Set and evaluate requirements in PBL based support contracts - Identification/translation of requirements - Optimization of logistic support organization - Spares optimization – assortment & allocation - Identification of cost drivers and availability drivers - Identify bottlenecks and weak links - Lifecycle cost analysis, budgeting and forecasting
	The ability to house documents or forms in the system and track updates.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.

			Opus Suite plus Systecon Services	Notes
	1.1.6	**LOG Demo**		
		Logistics demonstration for a given asset to show product support, APL, parts, and show-and-tell of logistics support.	✓	Opus Suite has interactive visuals to show how products and individual items are supported throughout the supply chain (shipping times, lead times, repair times and repair stations). Opus Suite Game Mode can show an overall view of the modeled scenario either in form of a support organization plot or a geographical map over the scenario region. Moreover, Systecon can build customized dashboards to showcase modeling information and outputs in any desired format.
		Top-down breakdown to see what is tied to the asset to make sure the user is full informed and not missing anything.	✓	Opus Suite visuals shows the product breakdown from a physical or functional perspective. Item and LCN indenture levels are displayed for a graphical understanding of the platform.
		Validation effort to validate logistics documentation.	✓	Before running an optimization or simulation, Opus Suite validates all input data for mathematical accuracy, which can identify input errors. Upon inputting individual data points when building the model, data validation checks are performed in real time which can also identify input errors before running a model.
1.2		**Internal PSP Development POA&M User Requirements**		
	1.2.1	**PSP Dates/POA&M (Planned and Actual)**		
		Information and tracking on internal and contract dates.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
		The ability to see if its internal development or tasking to SSI.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
		Information on when the user started work and when its available.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.

		Opus Suite plus Systecon Services	Notes
	Information on the validation date, kick off of contract, timeline, initial RCM, LOPVBC, final.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
	Information on the complexity of the asset to determine timeframes.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
	The ability to auto-populate planned dates and manually punch in actual dates to see how far the user if off or how quickly it turns around.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
1.2.2	**PSP Costs**		
	The ability to auto-populate cost for development (estimate versus actual).	✓	Whether it is planned, or actual, CATLOC can ingest costing data and display it in the standardized DoD format, with each funding type and line easily identified. This help align timeframes with funding lines/colors of money.
1.2.3	**PSP Alignment to Assets**		
	The ability to align all PSP to specific assets.	✓	Opus Suite models also may serve as a working record of systems configurations. While use of a dedicated IDE contains current configurations, the data from Opus is easily extracted to show past configurations, their sustainment costs and performance against newer configurations.
1.2.4	**PSP Unique Identifier Assignment (PSP ID)**		
	The ability to type in the PSP ID and see all associated information. The NSN and last two characters make it unique (this is organic to ExPO).	✓	Opus Suite tables are like a relational database with unique identifiers commonplace. This makes it easy to search for all information related to a PSP ID.

		Opus Suite plus Systecon Services	Notes
1.3	**External ISEA PSP Tied to ExPO Assets User Requirements**		
1.3.1	**PSP Identification/Alignment**		
	The ability to identify PSP as external and align to assets individually.	✓	Opus Suite can model individual assets with their unique modifications and specifications.
	Information on external PSP on internal equipment.	✓	Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.
	Information on what parent asset the equipment is installed on.	✓	Opus Suite can model the indenture levels and locations (via LCN) of items on a system.
	Information on the point of contact (POC).	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
1.3.2	**PSP Alignment to Asset**		
	The ability to identify PSP as external and align to assets individually.	✓	Opus Suite can model individual assets with their unique modifications and specifications.
	Information on external PSP on internal equipment.	✓	Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.
	Information on what parent asset the equipment is installed on.	✓	Opus Suite can model the indenture levels and locations (via LCN) of items on a system.
	Information on the point of contact (POC).	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
1.3.3	**ISEA Ownership of PSP**		
	The ability to identify PSP as external and align to assets individually.	✓	Opus Suite can model individual assets with their unique modifications and specifications.
	Information on external PSP on internal equipment.	✓	Opus Suite can determine what equipment is needed where across the support organization and identify who it belongs to.

			Opus Suite plus Systecon Services	Notes
		Information on what parent asset the equipment is installed on.	✓	Opus Suite can model the indenture levels and locations (via LCN) of items on a system.
		Information on the point of contact (POC).	✓	Systecon can maintain information about the POC.
1.4	**Inventory Procurement Management User Requirements**			
	1.4.1	**Inventory Volume**		
		Information on items (e.g., quantity of items, item status).	✓	Opus Suite considers item prices, repair times, lead times, specific maintenance and transit policy information, etc. in its models.
		Information on equipment, product support associated, and whether it has been completed.	✓	Opus Suite can identify the optimal number of resources and equipment needed to support the fleet, but cannot verify tasks are completed.
		Information on where the item belongs.	✓	This is a direct output of Opus Suite optimal spares calculations.
		Volume information.	✓	Opus Suite outputs identify the optimal quantity of items at each location, their reorder point, and reorder quantity.
		Information on who has the item, how long they have had it, and why they are holding it.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
		Item backlog.	✓	Opus Suite can identify which items are expected to be in backlog based off the supply state and logistics support over time.
	1.4.2	**USN Assignment/Alignment**		
	1.4.3	**Asset Delivery Dates/Schedules**		
		Information on the dates in which assets are sent.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.

			Opus Suite plus Systecon Services	Notes
		A schedule of how long it takes to send assets.	✓	Opus Suite can take data about asset delivery schedules and simulate the fleet's performance according to that schedule. What if scenarios and analysis of alternatives can also be compute in this method.
		Forecasted logistics support and how much will it cost.	✓	Opus Suite has many cost inputs to its models and can calculate the logistics cost of supporting a platform. Costs can be broken down into cost type categories and costs by PO.
		Estimated completion dates.	✓	All delivery dates, repair times, procurement times may be assessed as to their impact on both cost and performance.
		Contractual dates for product support to make sure its completed and available to the user by the time it arrives.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
	1.4.4	**Delivery Location Information**		
		Information on the UIC, who the user sends an asset to, and who is responsible for the command of the asset.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
		Preloaded would be nice but new UICs need to be edited.	✓	Systecon can leverage the BESST tool for asset tracking, data storage or document control; or utilize any other customer-provided tool.
1.5		**External Database Ingestions and Extractions User Requirements**		
	1.5.1	**MBPS/CDMD-OA**		
		Ensure closed loop capability from external database to provide new information in the chosen system.	✓	Opus Suite is already ingrained within MBPS and is the Navy Common Readiness Model (NCRM).

			Opus Suite plus Systecon Services	Notes
	1.5.2	**Navy ERP/EXMIS**		
		Ensure closed loop capability from external database to provide new information in the chosen system.	✓	Systecon can leverage the BESST tool for this task
	1.5.3	**EGAT**		
		Ensure closed loop capability from external database to provide new information in the chosen system.	✓	Systecon can leverage the BESST tool for this task
	1.5.4	**eProject**		
		Ensure closed loop capability from external database to provide new information in the chosen system.	✓	Systecon can leverage the BESST tool for this task
	1.5.5	**PTC Windchill**		
		Ensure closed loop capability from external database to provide new information in the chosen system.	✓	Opus Suite is already integrated with PTC Windchill.
1.6		**Reporting User Requirements**		
	1.6.1	**PSP/Asset/Location Cross Reference Report**		
		The ability to generate a report to see the current configuration.	✓	The Opus Suit contains the BoM of the system, and can be used to validate and compare other BoMs. There is a function that checks the differences between model inputs and provides a report on those differences.
		Logistics status of assets and cross references to the specific asset itself. Depending on the information, the user will change the reports/direction.	✓	Cost evaluation is a native function within the Opus Suite. This is not a static function. As data becomes more mature and readily available on systems, and as costing data changes with time, all models are easily updated, producing new projections.

			Opus Suite plus Systecon Services	Notes
	1.6.2	PSP Cost Evaluation		
		The user needs to see one set of costs compared to the other before he or she can make a comparison.	✓	By comparing iterations of the same model, the PMOs can see the impact on cost and performance individual cost changes have on the overall fleets.
		All information needed in order to plug it into quotes (not only cost information, but delivery and how quickly its being developed).	✓	Cost and delivery schedule information can originate from Opus Suite outputs.
1.7		Buy Plan/Spend Plan Management User Requirements		
	1.7.1	Buy Plan Spend Plan Management		
		The ability to ingest data, pull out what it is the user needs for product support.	✓	Using all the capabilities of the Opus Suite, a PMO can make decisions that are best suited to the budget, performance requirements, available resources, and time. Moreover, as system elements (cost data, reliability estimates, operational tempo) mature over time, predictions are easily updated, and the impact of those changes can be assessed, allowing the PMO to get in front of problems. The budget of any system can be forecasted through its entire lifecycle with current data, making changes as time progresses to account for new data, always allowing that 5-year forecast to be firmly based on current information, and those "might happen" events account for and compared against accepted values. The trade space in any element is easily viewed using Opus so PMOs can assign their limited resources to what will provide the very best performance at a limited cost without guess work or uncertainty.

			Opus Suite plus Systecon Services	Notes
1.8	**Number of Supported Users and Assets User Requirements**			
	1.8.1	**Users and Assets**		
		The ability to support 150 users and 150,000 assets at any given time.	✓	Systecon does not limit the number of unique Opus Suite users nor the number of computers it is installed on, but instead limits the number of simultaneous users to the number of licenses purchased.
1.9	**User Training User Requirements**			
	1.9.1	**User Training**		
		Training for 150 users.	✓	Systecon can train as many users as needed.
		Training schedule/plan.	✓	Systecon offers 5 different 3 day training courses for different parts of the Opus Suite and depth of Opus Suite knowledge.
		User Guide(s) and/or Help Center.	✓	Opus Suite has robust user help guides. Utilizing Systecon analysts is also an option to help with modeling issues.

Response to:

N39430-20-F-4227

ExPO Product Support Package (PSP) Acquisition Tracking System (ATS)

A002- PSP ATS User Requirements for NAVFAC (Naval Facilities Engineering Command)

August 6, 2021

James “Skip” Bland III – Senior Business Development Representative
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August 6, 2021

Charles Standhope
Synetic Solutions, Incorporated

Re: Tyler's Response to the Department of Navy's Request for Information (N39430-20-F-4227) for a ExPO Product Support Package (PSP) Acquisition Tracking System (ATS)

To: Mr. Standhope:

Tyler Federal LLC (FKA MicroPact Federal) is pleased to respond to the Department of Navy's Request for Information (N39430-20-F-4227) for a ExPO Product Support Package (PSP) Acquisition Tracking System (ATS) Tyler Technologies, Inc. (NASDAQ:TYL) is the largest company in the United States dedicated to providing software for the public sector, including federal, state and local government. A nationally recognized provider of integrated system solutions and professional services, Tyler serves clients in more than 26,000 installations across 10,000 state and local government locations in all 50 states, Canada, Puerto Rico, the United Kingdom and Australia, as well as more than 200 U.S. federal agencies.

Tyler is a wholly owned subsidiary of Tyler Technologies, Inc., based in Herndon, VA, and is responding to this solicitation as Tyler Federal (hereinafter "Tyler"). For over four decades, Tyler has successfully provided case management and business process management solutions for U.S. federal and state government agencies and Fortune 500 corporations, especially in the areas of Justice and Law Enforcement Case Management solutions. Entellitrak is a low-code application development platform for case management and business process management. Since its introduction in 2006, it has been at the forefront of Tyler Federal implementations with more than 200 deployments throughout federal, state, local, and higher education sectors. Tyler (as MicroPact) is well known to DOD.

Our DUNS and NAICS codes are as follows:

- DUNS Number: 01-299-4567
- NAICS Code(s): 541511, 541512, 511210, 541513, 541519, 518210, 611420 (Large for all codes)

Tyler has carefully reviewed the requirements, and we will respond to each of the requisite points in the response that follows. My contact information is below. Please do not hesitate to contact myself or my colleague James "Skip" Bland, listed on the cover sheet with any questions as they pertain to our response.

Sincerely Yours,

A.J. Frickman, Vice President, Federal Sales
AJ.Frickman@tylerfederal.com M: (703) 328-5055 | O: (703) 657-5301

Executive Summary

Tyler Federal, LLC ("Tyler") is pleased to respond to Synetic Solutions' request for general and technical information on our platform to satisfy the Naval Facilities Engineering Command (NAVFAC)'s request for an ExPO Product Support Package (PSP) Acquisition Tracking System (ATS) solution. Tyler has reviewed the NAVFAC's User Requirements. Tyler understands that the NAVFAC seeks a "software solution that supports a number of use-case scenarios, including but not limited to, product support management, internal Product Support Package (PSP) development, external In-Service Engineering Agent (ISEA) PSP tied to ExPO assets, inventory procurement management, external database ingestions and extractions, reporting, and buy plan/spend plan management" (1.0 Overview, page 5).

Tyler further understands the focus of the NAVFAC's software sought to be a solution that can address the Use-Case Scenarios Outlined in Section 2.0.

With these understandings, Tyler is pleased to present a capabilities overview of our proposed Software solution, Entellitrak, on the pages that follow.

As benefits of selecting Tyler's Entellitrak Solution, it offers:

- Open Architecture: An open standards architecture on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems.
- COTS Platform, Accelerated Development: Entellitrak solution is built on a Commercial-off-the-shelf core platform, also known as the "product layer," providing reliability, rapid deployment of key features of any case management system, and ensuring that the platform will seamlessly accept updates and upgrades, without issues.
- Flexible Configuration: Entellitrak uses 100s of pre-built components for rapid and flexible configuration.
- Scalability for Growth: With its Web-based design, multi-tier architecture, and ability to support clustered environments, the Entellitrak platform is infinitely scalable to accommodate large volumes of users and transactions, and to support additional workflows, as NAVFAC requires.
- Dynamic Workflows: The Entellitrak solution includes a powerful built-in Workflow Rules Engine for creating static, dynamic, and complex workflows to include backward and concurrent workflows. This ensures that the proposed solution will be able to accommodate all the NAVFAC community ad hoc workflow requirements that include dynamic, concurrent, branching, merging, iterative, and sub workflows and extensibility of the system capabilities/functions.
- Secure Solution: Entellitrak is FedRAMP-certified at the FISMA "Moderate" level, meaning that the software, platform, and hosting environment have undergone and passed 325 separate security controls.
- Industry-Standard Platform and Application: Entellitrak is compliant not just with FedRAMP, but also many technology standards. As a result, Entellitrak is easily compatiblewith other

market products, and designed with compliance and conformance in mind.

- Tyler Platform Alliance is a robust partner program founded by Tyler Technologies. Platform Alliance partners develop, market, and sell solutions based on Tyler Technologies' software platform. Platform Alliance collaborates range from small to large businesses; each having a wide array of expertise they bring to Entellitrak implementations. Partners such as GDIT and NTT Data have experience implementing the Entellitrak platform at/for DOJ and canassist the NAVFAC in developing applications on the Entellitrak platform.

In the remainder of this Executive Summary, we provide general technical and business capabilities for NAVFAC's consideration.

Experience with Business Process Management/Case Management/Tracking

Tyler Federal, LLC (formerly MicroPact Federal, LLC) has successfully provided case managementand business process management solutions for U.S. federal and state government agencies and Fortune 500 corporations. Tyler's success in case management implementations largely comes from the implementation of the Entellitrak software, a low-code application development platform for case management and business process management. Since its introduction in 2006, it has been at the forefront of Tyler implementations with more than 200 deployments throughout federal, state, local, and higher education sectors. The software is configured out-of-the-box to meet the NAVFAC's system requirements as specified within the forthcoming SOW.

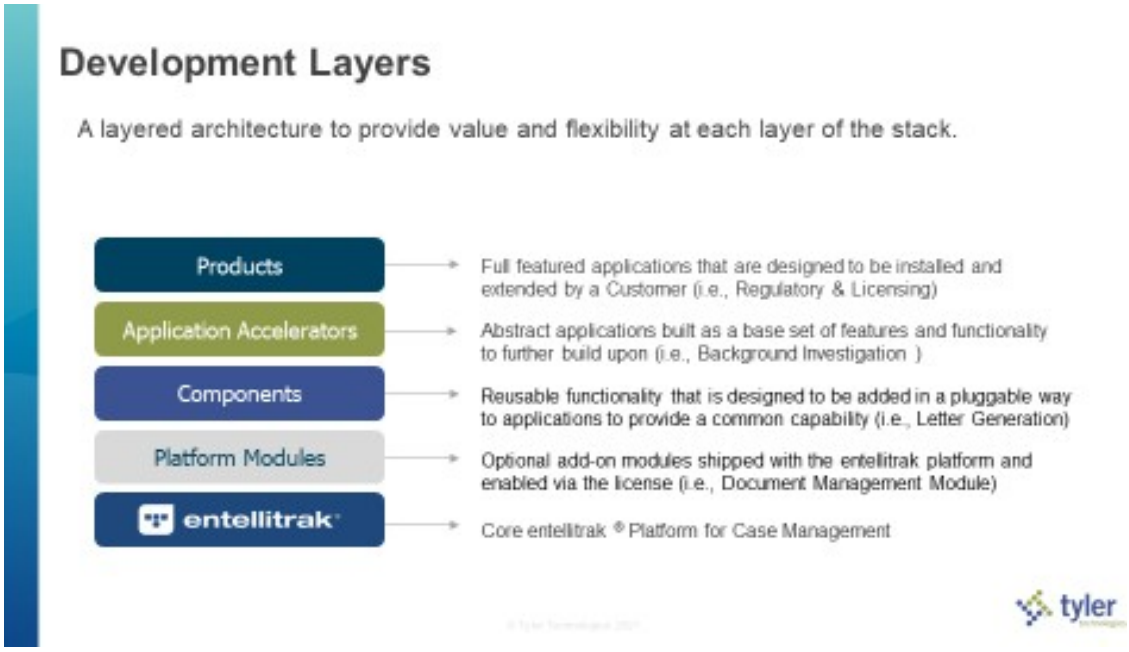
Tyler, as owners of the Entellitrak Case Management platform, is the largest company in the United States dedicated to providing software for the public sector, including federal, state and local government. A nationally recognized provider of integrated system solutions and professional services, Tyler serves clients in more than 27,000 installations across 11,000 state and local government locations in all 50 states, Canada, Puerto Rico, the United Kingdom and Australia, as well as more than 200 U.S. federal agencies. Tyler understands the importance of supporting our clients' mission-critical systems and maintaining the confidentiality of related justice and public safety information.

Additionally, Tyler has provided an inventory/parking application tracking system (PATS) for the Department of Education for over a decade, with similar functional needs. The solution provides parking allocation, permit distribution and payment tracking, and has similar uses in the tracking of vehicles as NAVFAC has expressed. Items tracked include types of vehicles, VINs, and other similar information.

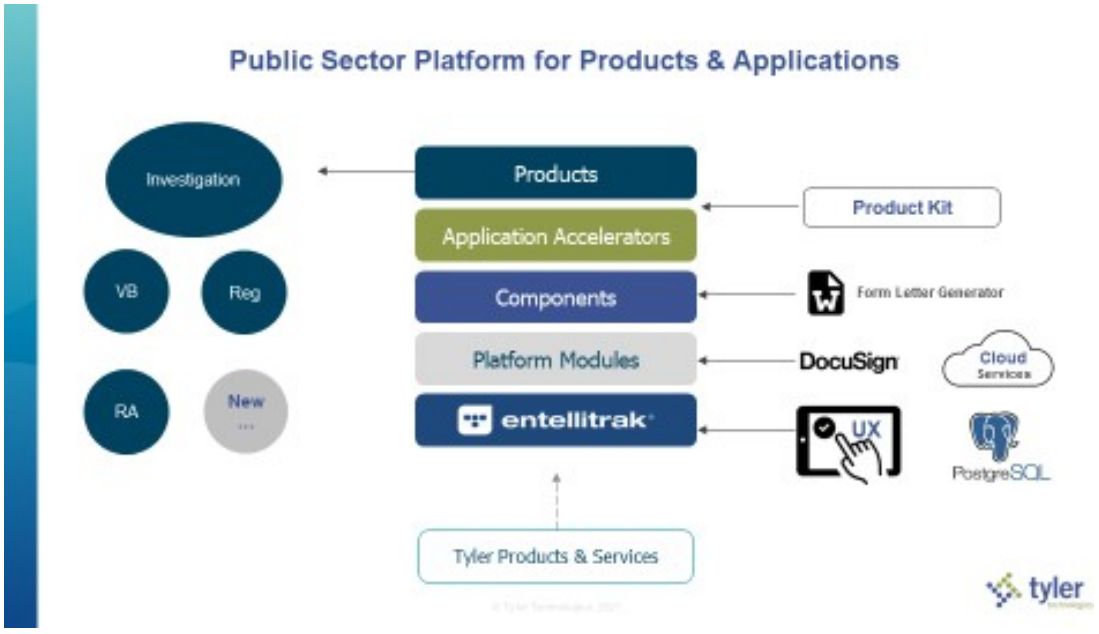
On the pages that follow, we describe in more detail the underlying platform, upon which the ExPO PS ATS will reside.

Supported Platforms

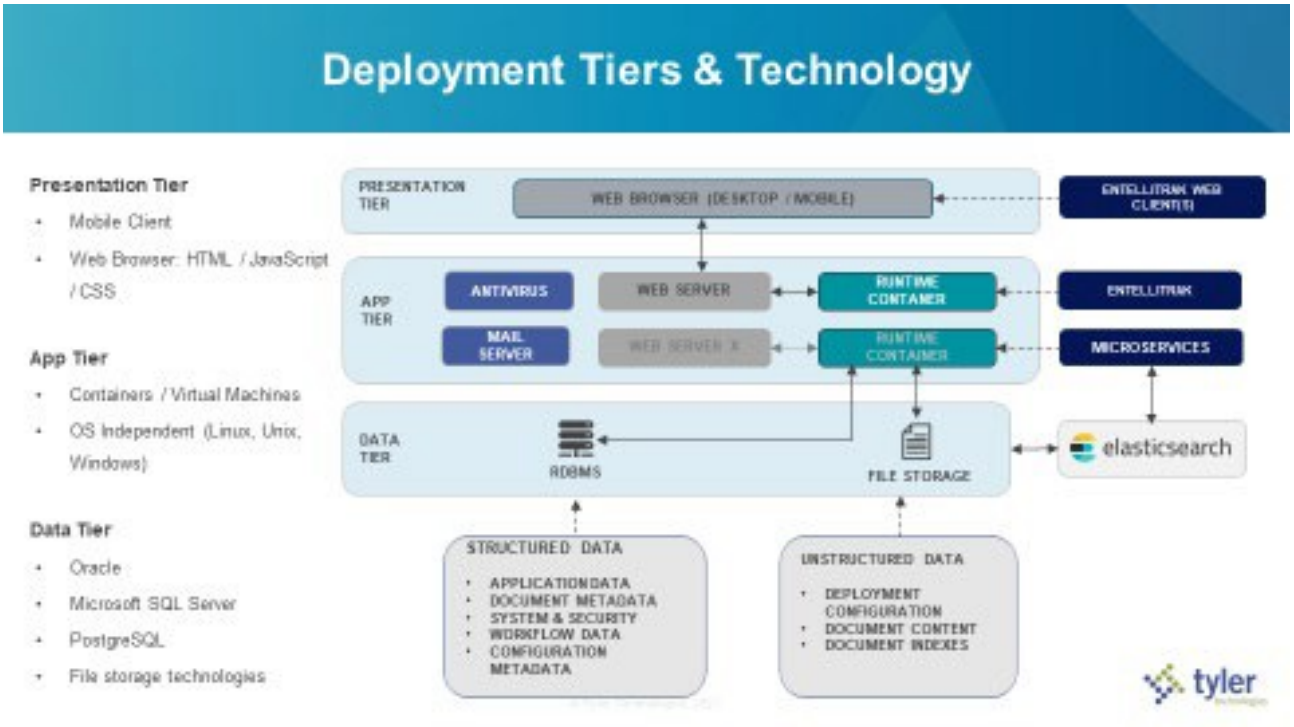
Our development layers look as follows:



This connects with our products for NAVFAC as follows:



Our tiers look as follows:



Integration Capability with Other Enterprise Systems

Entellitrak is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investmentsin other technologies in their environment. The vast majority of Entellitrak implementations involve integration with other Government systems, some of which are Web-based, some client-server, and some mainframe such as existing interfaces. Those requirements, combined with open standards, will ensure Entellitrak and the end system can interface with all systems required to make our solution operate efficiently and effectively. In addition, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API.

The proposed solution will be based on open standards, allowing the system to act as both a consumer and a provider of Web Services. The proposed solution will be able to send and receive data exchange files through any secure protocol that is compatible with the external system. Common protocols for secure file exchange are https and sftp. Entellitrak is capable of integrating with virtually any database infrastructure via an API, which has the correct capabilities to export information from, and using the information to populate form fields. The only requirement for seamless integration with other solutions is the availability of APIs from the systems. That is, a two-way street is necessary – Entellitrak has the ability to integrate seamlessly, but these systems must have the capacity to integrate as well.

Database Integration

In the event that NAVFAC requires it, Tyler has extensive experience performing data migrations into Entellitrak solutions. Using the Entellitrak instance allows us to get a head start on data mapping and traceability, and our experts will work closely with the NAVFAC to review the legacy data, produce a Data Migration Plan for formal review and approval, and to conduct a data migration with appropriate testing and remediation. Tyler will work with the NAVFAC project manager and stakeholders to develop a data migration strategyand implementation plan as needed to transfer and convert the legacy system sources to the NAVFAC solution.

Tyler's data migration plan includes detailed data mapping to identify sources (e.g., existing legacy table/column/data type) to target (NAVFAC table/column/data type) as the basis for SQL scripts to be developed. Typically, the subset of the data to be migrated is exported from its source into an intermediate format, often utilizing Excel or CSV format. The data from each table will be saved and processed separately, and then these data files are imported into the NAVFAC database. Since the data to be migrated includes PII, the appropriate precautions are taken to preserve data privacy.

Tyler validates - with the NAVFAC and in advance - all of the mandatory fields required for the functioning of the NAVFAC solution that are not available in the legacy system and that need to be obtained by the NAVFAC. In the event the NAVFAC is unable to obtain all of the mandatory fields, Tyler willsuggest the most suitable workaround to the NAVFAC. Tyler will document the suggested workaround and obtain written approval from the NAVFAC.

Tyler will build the SQL scripts and other interfaces required to migrate/convert the data from theexisting NAVFAC system to the NAVFAC Entellitrak solution. Tyler will work with the NAVFAC project manager and stakeholders to build the scripts and to identify business rules (e.g. compliance, data migration, business rules) that may be required.

Tyler will migrate/convert existing data to the non-production target NAVFAC solution and will work withthe NAVFAC to validate the migrated data and make any necessary adjustments in the SQL scripts. Tyler will support the execution of the data migration and conversion of legacy data to the NAVFAC solution in the NAVFAC's production environment, and shall assist with troubleshooting any issues that arise during production implementation and legacy data migration into production. If the legacy system is still in use, Tyler will coordinate the timing with NAVFAC for the final data migration, and make sure all relevant data is captured and migrated. Additional details about this process can be provided to the NAVFAC in the RFP stage, if required.

Security

Tyler is one of several providers to receive a FedRAMP accreditation for the security of the Entellitrak Product Suite, against the FedRAMP Moderate level baseline. In addition to FedRAMP accreditation, the Entellitrak software has passed several A&As (Assessment and Authorization) based on NIST 800-53, DIACAP and DCID 6/3 standards. These A&As, are conducted at a FISMA Moderate security level, and have resulted in Authority to Operate (ATO) from a wide variety of agencies including Civilian, Defense, and Intelligence agencies.

As specified in the FedRAMP Marketplace (https://marketplace.fedramp.gov) – a government owned and operated Web site specifying FedRAMP-authorized environments, Tyler has received

twenty-two (22) documented FedRAMP authorizations for our system. We have numerous ATOs outside of this for clients that are also leveraging our FedRAMP package, beyond those clients who have supplied their ATO upon requesting access to the FedRAMP repository.

When hosted with Tyler, the NAVFAC will receive the benefit of the FedRAMP motto "do once, use many times" framework which saves cost, time, and staff required to conduct redundant Agency security assessments and can make the ATO process for agencies more streamlined and efficient. Any documentation not already included in the FedRAMP package will be assessed and provided with a T&M contract, where needed. Also note, even with leveraging FedRAMP, agencies are still required to receive their own agency issued ATO; FedRAMP just eliminates the need to re-assess items the CSP controls for clients.

Other built-in security features of Entellitrak include:

Built-in Security features
Role-Based Permissions: To protect data on a hierarchical and need-to-know basis, Entellitrak features role-based access controls assigning a profile to an individual or group of users (internal and/or external), with specifications for the data they are allowed to create, read, edit, or delete. Permissions can be assigned to user, role, office, organization, and hierarchy. Role-based permissions limit access to sensitive information. Specific permissions can be assigned at the record type level, field level, and based on the approval/workflow status of a record. Only the administrator can modify system permissions, assigning them to various users and groups. When auser does not have permission to access data, it is completely redacted from their view of the system. This includes redaction of searches and reports.
Data Encryption: Entellitrak provides data encryption at any desired level (128 bit, 256 bit, etc.). The application employs a variety of methods depending on the data to be protected. For data at rest (stored/archived in the database), Entellitrak uses common database encryption tools, such asthose included in Oracle and SQL Server. For data "on the wire" (in transit between the Web browser and the application server), Entellitrak uses Secure Sockets Layer (SSL). This data encryption is compliant with FIPS 140-2. Entellitrak is also configurable to provide an automated method for recognizing and purging PII and other sensitive data from input. Entellitrak can be configured to implement method for recognizing and purging PII and other sensitive data from input.
Audit Log: Entellitrak provides comprehensive system logging that collects and preserves a complete audit history on every action and record in the system. This read-only audit log tracks all data entry, modification, and update actions. These actions are tracked by user identification; the user's IP address, the actions taken, the data entered, accessed or modified; and the date and time of the actions. The administrator can manage and maintainaudit logs that may be kept on the application for as long as required. Only the system administrator has the capability to archive audit logs. Archived audit logs are stored in a condensed format and can be retrieved at any time.

Built-in Security features
Login & Authentication: Entellitrak supports SSO authentication. In addition to a strong user name/password authentication validation interface, the options available for 2 factor authenticationinclude Active Directory, Authentication Portals, Smart Cards, and Identity Credential Access Management (ICAM) – both Personal Identification Verification (PIV) Cards and Common Access Cards (CAC). For Active Directory authentication through Lightweight Directory Access Protocol (LDAP), Entellitrak supports several mechanisms such as Kerberos v4, and Java Naming & Directory Interface, as a way to perform an LDAP bind using the supplied credentials via a secure channel. LDAP Authentication can accept both Domain account and email address-based authentication.
Digital Signatures: Entellitrak supports digital signatures in a variety of ways, including: • Interfacing with authentication mechanisms • Requiring users to submit their password • Allowing the digital "wet" signature to be attached to the digital document or email

Technical Support

Tyler provides Tier 3 and 4 technical support to system administrators by our Tyler support team. Hosting support is available via phone and web ticketing. Support is offered M-F 8 AM – 8 PM ET. Emergency support is available around the clock, and via our web ticketing system. Enhancements/bug fixes are available on a quarterly basis as well.

By definition, Tier 3 and Tier 4 support are defined as follows:

Tier 3 maintains customer-specific configurations, customizations and coordinates resolution with Tyler systems engineers and other technical experts. By contrast, Tier 2 issues involve system changes, problems, and incidents (Severity 1 & Severity 2) that prevent the customer from using thesystem; and may require multiple interactions with the customer before the issue is resolved.

Tier 4 is responsible for major system (hardware /software) changes and for handling issues related to the platform that cannot be mitigated through Tier 3. These are not enhancement requests or changes that are comprised of style or preferences. The Tyler Product team and, as needed, Third Party Vendors will be engaged. If engaged, Third Party Vendors will interact with Tyler on Tier 3 issues and Tyler will report back to the NAVFAC System Administrators.

Training

Tyler offers the NAVFAC a variety of training options, based upon the agency's preference: Virtual synchronous training; Onsite training at site of agency choosing (Covid protocols permitting); Onsite training at Tyler's site in Herndon, VA (COVID protocols permitting); Combination of the above options.

Training can also be offered directly to all end users, or via a Train-the-Trainer approach. Trainingis offered to both end users and system administrators, with user manuals provided for reference. The Entellitrak solution also offers an embedded Help module for reference post-training. Training is offered in a separate environment from the production environment, so "live" data would not beused.

3.0 User Requirements	Response
Each ExPO ATS use-case scenario can be broken down into any number of user requirements. User requirements are the business needs for what users require from the system. These user requirements have been written early in the validation process. They were written by the contract developer and end users, with input from Quality Assurance. Requirements outlined herein will be tested in the Performance Qualification/User Acceptance Testing.	Acknowledged. Tyler welcomes the opportunity to design, develop, and implement a custom configured solution on the Entellitrak platform that will meet the needs of the NAVFAC as described below. We have provided a point-by-point response, and each of these requirements will be further mapped and refined in Joint Application Development (JAD) sessions between Tyler personnel and NAVFAC personnel. Thereafter, a Requirements Traceability Matrix will be used to ensure delivery of all required specifications, and then we understand these to be tested during UAT as well.
3.1 Product Support Management User Requirements	
3.1.1 Configuration Identification and Specifications	

• User Requirements
  ○ ExPO designated Technical Support Activity (TSA) Procured Configuration; Information on the year, make, model, and vin number of any given vehicle.
  ○ Planned Fielded Configuration: Information on the baseline of an asset by modifications added as part of initial procurement to meet defined user requirements or by other designated TSAs after initial delivery but prior to full fielding.
  ▪ (E.g. is it armored? Unarmored? Does it have a winch? Was there any provisioning? Does this asset already exist in inventory? Do
	Comply. The Entellitrak ExPO ATS solution can track any required element for NAVFAC, including year, make model and VIN number of any given vehicle.
	
	Additionally, the solution can be configured to track asset baseline information, as well as modifications added as part of the initial requirements, prior to full fielding. This can include items such as “armored vs. unarmored,” “winch,” “provisioning,” “does the asset exist in inventory,” “product support needed,” etc. Further, the solution provides the ability associate specifications with applicable assets. Any data element within the solution can be linked or associated to any other data element, as NAVFAC requires. Linkage will be configured during JAD sessions.

3.0 User Requirements	Response
we need product support?) ○ The ability to tie specifications to applicable assets.	
• Justification ○ ExPO as the designated Program Office supporting the Navy's Expeditionary Supported Command needs to know the full configuration of assets to support the warfighter.	Acknowledged.
3.1.2 Expeditionary Programs Office (ExPO) Program Alignment User Requirements	
• User Requirements ○ The ability to tie an asset to the program office it falls under.	Comply. The solution provides the ability associate an asset with the specific program office it falls under. As addressed in 3.1.1 above, any data element within the solution can be linked or associated to any other data element, as NAVFAC requires. Linkage will be configured during JAD sessions.
• Justification ○ Funding and maintenance support—who is responsible for any issues identified and which program office does it belong.	Acknowledged.
3.1.3 PSPM Identification/Alignment/Assignment	
• User Requirements ○ The ability to identify the PSP rather it is developed by ExPO for their designated TSA responsibilities or it is developed by another TSA who has been given other designated TSA requirements, align it to	Comply. The various types of PSP can be identified and marked in the system via drop down menu, or similar simple method. After identification, the user may select from a list of assets with which to associate it. Further, the PSP can be under one umbrella or not, as the NAVFAC wishes to configure the viewing.

3.0 User Requirements	Response
the program, and assign it to the individual assets. ○ The ability to have PSP under one umbrella.	
• Justification ○ Proper configuration status accounting. Funding and maintenance support—who is responsible for any issues identified and which program office does it belong.	Acknowledged.
3.1.4 Lifecycle Management Process Plan	
• User Requirements ○ The ability to track and update the lifecycle. ○ The ability to take the focus to the PLM tool. ○ The ability to house documents or forms in the system and track updates.	Comply. With a custom workflow, the Entellitrak ExPO ATS solution can track and update the lifecycle, and take the focus to the PLM tool. Additionally, content management (the ability to house documents and forms in the system) is an off-the-shelf capability. Tracking updates can be performed with custom configuration.
• Justification ○ Proper configuration status accounting. Funding and maintenance support—who is responsible for any issues identified and which program office does it belong.	Acknowledged.
3.1.5 MFA Agreement	
• User Requirements ○ The ability to track and update the lifecycle. ○ The ability to take the focus to the PLM tool.	Comply. As with our response to 3.1.4, with a custom workflow, the Entellitrak ExPO ATS solution can track and update the lifecycle, and take the focus to the PLM tool.

3.0 User Requirements	Response
○ The ability to house documents or forms in the system and track updates.	Additionally, content management (the ability to house documents and forms in the system) is an off-the-shelf capability. Tracking updates can be performed with configuration.
• Justification ○ Proper configuration status accounting. Funding and maintenance support (e.g., who is responsible for any issues identified and which program office does it belong.)	Acknowledged.
3.1.6 LOG Demo	
• User Requirements ○ Logistics demonstration for a given asset to show product support, APL, parts, and show-and-tell of logistics support. ○ Top-down breakdown to see what is tied to the asset to make sure the user is full informed and not missing anything. ○ Validation effort to validate logistics documentation.	Comply. Tyler interprets demonstration here to mean reporting. The Entellitrak ExPO ATS solution can demonstrate any combination of data elements required by the NAVFAC, including product support, APL, parts, and show-and-tell of logistics support. Our advanced searching capability provides for this detail, and all of these fields can be associated with a specific asset page as well. Further, the asset page can be configured to show the breakdown NAVFAC needs to insure user is completely information. Information can be validated against any database interface required to ensure appropriate documentation.
• Justification ○ Proper logistics management accounting and validation.	Acknowledged.
3.2 Internal PSP Development POA&M User Requirements	
3.2.1 PSP Dates/POA&M (Planned and Actual)	
• User Requirements ○ Information and tracking on internal and contract dates.	Comply. The Entellitrak ExPO ATS solution can track and store information, such as internal and contract dates; internal vs. SSI

3.0 User Requirements	Response
○ The ability to see if its internal development or tasking to SSI. ○ Information on when the user started work and when its available. ○ Information on the validation date, kick off of contract, timeline, initial RCM, LOPVBC, final. ○ Information on the complexity of the asset to determine timeframes. ○ The ability to auto-populate planned dates and manually punch in actual dates to see how far the user if off or how quickly it turns around.	development; work start data and availability start date; validation and kick off dates, etc; and information on complexity of asset. Planned dates can be auto-populated, with the ability to add actuals, and auto-calculate the delta to calculate turnaround time. These capabilities will be provided via a custom workflow and advanced configuration.
• Justification ○ Metrics and forecasting. (How long would it normally take?)	Acknowledged. Our clients have found that Entellitrak saves time and money by automating paper processes. We can provide past performance upon request.
3.2.2 PSP Costs	
• User Requirements ○ The ability to auto-populate cost for development (estimate versus actual).	Comply. Entellitrak ExPO PS ATS has the ability to auto-populate predesigned cost estimates for development, and then track actuals to show estimate vs. actual via reporting.
• Justification ○ Fiscal Forecasting.	Acknowledged.
3.2.3 PSP Alignment to Assets	
• User requirements ○ The ability to align all PSP to specific assets.	Comply. Entellitrak ExPO PS ATS provides the capability via configuration to search for the asset, pull up the standard option PSP list associated with that asset, and select to align all PSP to specific assets.
• Justification ○ Logistics management	Acknowledged.
3.2.4 PSP Unique Identifier Assignment (PSP ID)	
• User Requirements	Comply. Entellitrak ExPO PS ATS provides capability for unique identifier, which can

3.0 User Requirements	Response
○ The ability to type in the PSP ID and see all associated information. The NSN and last two characters make it unique (this is organic to ExPO).	provide all associated information that the individual user is authorized to view when entered. That unique ID can be auto-generated or custom to NAVFAC's needs, such as NSN and last two characters.
• Justification ○ Logistics management	Acknowledged.
3.3 External ISEA PSP Tied to ExPO Assets User Requirements	
3.3.1 PSP Identification/Alignment	
• User Requirements ○ The ability to identify PSP as external and align to assets individually. ○ Information on external PSP on internal equipment. ○ Information on what parent asset the equipment is installed on. ○ Information on the point of contact (POC).	Comply. Entellitrak ExPO PS ATS can be configured to track and align assets and asset relationships as needed by NAVFAC. Specific needs will be identified in JAD sessions and configured accordingly.
• Justification ○ Configuration status accounting.	Acknowledged.
3.3.2 PSP Alignment to Asset	
• User Requirements ○ The ability to identify PSP as external and align to assets individually. ○ Information on external PSP on internal equipment. ○ Information on what parent asset the equipment is installed on. ○ Information on the point of contact (POC).	Comply. Entellitrak ExPO PS ATS is a highly flexible system that will provide the ability to identify PSP as external and align it to assets, then provide information on the external PSP, as well as the parent asset. The solution is highly flexible, and the data model can be designed to meet the configuration of NAVFAC as needed, and associate any/all data elements desired for capture.
• Justification	Acknowledged.

3.0 User Requirements	Response
○ Configuration status accounting.	
3.3.3 ISEA Ownership of PSP	
• User Requirements ○ The ability to identify PSP as external and align to assets individually. ○ Information on external PSP on internal equipment. ○ Information on what parent asset the equipment is installed on. ○ Information on the point of contact (POC).	Comply. As stated above in response to 3.3.2, Entellitrak ExPO PS ATS is a highly flexible system that will provide the ability to identify PSP as external and align it to assets, then provide information on the external PSP, as well as the parent asset. The solution is highly flexible, and the data model can be designed to meet the configuration of NAVFAC as needed, and associate any/all data elements desired for capture.
• Justification ○ Configuration status accounting.	Acknowledged.
3.4 Inventory Procurement Management User Requirements	
3.4.1 Inventory Volume	
• User Requirements ○ Information on items (e.g., quantity of items, item status). ○ Information on equipment, product support associated, and whether it has been completed. ○ Information on where the item belongs. ○ Volume information. ○ Information on who has the item, how long they have had it, and why they are holding it. ○ Item backlog.	Comply. Entellitrak ExPO PS ATS can track information on items, equipment, associated products, completion status, information on where the item belongs, volume information, who has the item, how long they have had it, and item backlog. Information requirements will be confirmed during JAD sessions and then configured to meet NAVFAC's needs during development and implementation.
• Justification ○ Closed loop tracking and visibility.	Acknowledged.

3.0 User Requirements	Response
3.4.2 USN Assignment/Alignment	
• *(Requirement needs verification)*	Tyler looks forward to responding to NAVFAC's requirements here.
3.4.3 Asset Delivery Dates/Schedules	
• User Requirements ○ Information on the dates in which assets are sent. ○ A schedule of how long it takes to send assets. ○ Forecasted logistics support and how much will it cost. ○ Estimated completion dates. ○ Contractual dates for product support to make sure its completed and available to the user by the time it arrives.	Comply. Entellitrak ExPO PS ATS can track all requirements listed, such as dates in which assets are sent, schedules, forecasted logistics support, estimated completion dates, and contractual dates. Forecasting can be automated in the solution using algorithms as well, and is dependent upon the data provided.
• Justification ○ Logistics management tracking	Acknowledged.
3.4.4 Delivery Location Information	
• User Requirements ○ Information on the UIC, who the user sends an asset to, and who is responsible for the command of the asset. ○ Preloaded would be nice but new UICs need to be edited.	Comply. Entellitrak ExPO PS ATS can track all the requested information on the UIC, asset, command, etc. To address the preloaded requirement, Tyler can preload a table to provide a drop down, and then system administrators can add or update UICs via administrative privileges.
• Justification ○ Logistics management tracking	Acknowledged.
3.5 External Database Ingestions and Extractions User Requirements	
3.5.1 MBPS/CDMD-OA	
• User Requirements ○ Ensure closed loop capability from external database to	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for

3.0 User Requirements	Response
provide new information in the chosen system.	simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search MBPS/CDMD-OA?" and the data will prepopulate into fields and pull from the system into Entellitrak.
• Justification ○ Closed loop tracking.	Acknowledged.
3.5.2 Navy ERP/EXMIS	
• User Requirements ○ Ensure closed loop capability from external database to provide new information in the chosen system.	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search Navy ERP/EXMIS?" and the data will prepopulate into fields and pull from the system into Entellitrak.
• Justification ○ Closed loop tracking.	Acknowledged.

3.0 User Requirements	Response
3.5.3 EGAT	
• User Requirements ○ Ensure closed loop capability from external database to provide new information in the chosen system.	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search EGAT?" and the data will prepopulate into fields and pull from the system into Entellitrak.
• Justification ○ Closed loop tracking.	Acknowledged.
3.54 eProject	
• User Requirements ○ Ensure closed loop capability from external database to provide new information in the chosen system.	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search eProject?" and the data will prepopulate into fields and pull from the system into Entellitrak.

3.0 User Requirements	Response
• Justification ○ Closed loop tracking.	Acknowledged.
3.5.5 PTC Windchill	
• User Requirements ○ Ensure closed loop capability from external database to provide new information in the chosen system.	Comply. Entellitrak ExPO PS ATS is designed based on open standards with all layers of the application fully exposed for simultaneous access and data exchange with other systems. This allows NAVFAC to leverage investments in other technologies in their environment. Additionally, Entellitrak's open architecture enables the ability to integrate with any SOAP/REST-based web service or Java EE API. To ensure closed loop capability from external database to provide new information in the chosen system, a button can be provided that indicates for example "Do you want to search PTC Windchill?" and the data will prepopulate into fields and pull from the system into Entellitrak.
• Justification ○ Closed loop tracking.	Acknowledged.
3.6 Reporting User Requirements	
3.6.1 PSP/Asset/Location Cross Reference Report	

• User Requirements
  ○ The ability to generate a report to see the current configuration.
  ○ Logistics status of assets and cross references to the specific asset itself. Depending on the information, the user will change the reports/direction.
	Comply. Entellitrak ExPO PS ATS is designed with reporting capability using advanced search to create ad hoc reports. Additional reports can be custom built for NAVFAC as part of implementation.

• Justification ○ Metrics, data management and reporting.	Acknowledged.

3.0 User Requirements	Response
3.6.2 PSP Cost Evaluation	

• User Requirements
  ○ The user needs to see one set of costs compared to the other before he or she can make a comparison.
  ○ All information needed in order to plug it into quotes (not only cost information, but delivery and how quickly its being developed).
	Comply. Entellitrak ExPO PS ATS is designed to provide this information via advanced search to create ad hoc reports. The solution can also integrate with Tableau, Power BI, or a similar Analytics software that NAVFAC uses to provide dashboard information. An optional Analytics product (priced in cost proposal) can be offered as well.

• Justification ○ Metrics, data management and reporting.	Acknowledged.
3.7 Buy Plan/Spend Plan Management User Requirements	
3.7.1 Buy Plan Spend Plan Management	
• User Requirements ○ The ability to ingest data, pull out what it is the user needs for product support.	Comply. Entellitrak ExPO PS ATS is designed to provide this information via advanced search to create ad hoc reports. The solution can also integrate with Tableau, Power BI, or a similar Analytics software that NAVFAC uses to provide dashboard information.
• Justification ○ Fiscal management and reporting. Financials. Forecasting.	
3.8 Number of Supported Users and Assets User Requirements	
3.8.1 Users and Assets	
• User Requirements ○ The ability to support 150 users and 150,000 assets at any given time.	Comply. Due to its Web-based design, multi-tier architecture, and ability to support clustered environments, Entellitrak ExPO PS ATS is infinitely scalable to accommodate large volumes of users, incorporate additional cases and an

3.0 User Requirements	Response
	increasing number of transactions, and accommodate the workflow of many different case and business process management programs within NAVFAC. T The Entellitrak platform has deployed multiple instances of enterprise implementations that support thousands of internal users and external users – at large agencies including the Department of Defense (DoD) and Department of Veterans Affairs (VA). For the DoD, Entellitrak manages cases for 3.2 million employees, processing sensitive Personally Identifiable Information (PII) and Personal Health Information (PHI) from up to 10,000 users a day, which is only a fraction of our software's capacity. In addition, the Entellitrak platform provides the centralized human resources management solution for 280,000 VA employees. Entellitrak was heavily load tested for the Eligibility Appeals Operations Support (EAOS) effort and deemed appropriate for use of the high volume of concurrent users anticipated under the new health insurance exchange appeals program. On a current appeals tracking project for the USDA National Appeals Division (NAD), Entellitrak supports 400 gigabytes of data. On another project for the Department of Justice (DOJ), Entellitrak also supports more than 500 gigabytes (half a terabyte) worth of data.
• Justification ○ 150 (+/-) users will use the software. ○ 150,000 (+/-) assets will be tracked.	Acknowledged.

3.0 User Requirements – Tyler

3.0 User Requirements	Response
3.9 User Training User Requirements	
3.9.1 User Training	

• User Requirements
  ○ Training for 150 users.
  ○ Training schedule/plan.
  ○ User Guide(s) and/or Help Center.
	Comply. Tyler has proposed direct training for 150 users, and will provide a schedule at the time of contract award, as well as providing user guides during training. The Help Module is embedded in the solution and provides ongoing support.
	
	Tyler also provides train-the-trainer training, and has provided this as an alternate option in our pricing response to lower the cost for NAVFAC.

• Justification ○ 150 (+/-) users will use the software and require the knowledge and capability to use all software modules, features, and functionality.	Acknowledged.

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Tyler Federal, LLC Rough Order Magnitude (ROM) Estimate

Customer: United States Navy (Navy)
Date of ROM: 07/30/2021
Description: Navy Acquisition Management Support - Entellitrak - 50 to 75 Concurrent Users (FAST ID: 10820)
End User: Federal

This ROM (rough order of magnitude) estimate is intended for planning purposes only. To provide a more accurate estimate, we invite the customer to provide additional business requirements and participate in detailed business process review sessions to help us document the specific needs of each program area. Therefore, the information provided in this estimate does not constitute an offer to perform the implementation services or to sell licenses at stated prices. The estimate ranges represents potential pricing based on the information provided and projects of similar scope and complexity which can vary broadly. License fees for the Entellitrak product are based on concurrent users that will need access to the system.
All prices are in USD.

License	50 CCU Price	75 CCU Price
Entellitrak Professional Edition SaaS (Dedicated Environment)	$ 122,350.85	$ 152,878.10
Entellitrak Report Builder SaaS	$ 10,882.00	$ 13,300.00
Entellitrak Help Module SaaS	$ 5,482.30	$ 6,700.37
Entellitrak Analytics Module SaaS (Optional)	$ 48,043.64	$ 64,833.63
License Price Sub Total without Optional Item(s)	**$ 138,715.15**	**$ 172,878.47**
License Price Sub Total with Optional Item(s)	**$ 186,758.79**	**$ 237,712.10**

Professional Services	Lower Price Range	Upper Price Range
System Configuration	$ 701,966.89	$ 807,261.92
Professional Services Price Sub Total	**$ 701,966.89**	**$ 807,261.92**

Training	Price	Price
Entellitrak Train the Trainer Training - User - 1 Day at Tyler Training Facility or via Video Conference - 10 Attendees	$ 4,405.40	$ 4,405.40
Entellitrak Train the Trainer Training - Administrator - 1 Day at Tyler Training Facility or via Video Conference - 5 Attendees	$ 2,451.35	$ 2,451.35
Training Price Sub Total	**$ 6,856.75**	**$ 6,856.75**

Total Base Year Price without Optional Item(s)	**$ 847,538.79**	**$ 986,997.14**
Total Base Year Price with Optional Item(s)	**$ 895,582.43**	**$ 1,051,830.77**

Option Year 1	50 CCU Price	75 CCU Price
Entellitrak Professional Edition SaaS (Dedicated Environment)	$ 124,797.87	$ 155,935.66
Entellitrak Report Builder SaaS	$ 11,099.64	$ 13,566.00
Entellitrak Help Module SaaS	$ 5,591.95	$ 6,834.38
Entellitrak Analytics Module SaaS (Optional)	$ 49,004.51	$ 66,130.30
Total Option Year 1 Price without Optional Item(s)	**$ 141,489.46**	**$ 176,336.04**
Total Option Year 1 Price with Optional Item(s)	**$ 190,493.97**	**$ 242,466.34**

Option Year 2	50 CCU Price	75 CCU Price
Entellitrak Professional Edition SaaS (Dedicated Environment)	$ 127,293.83	$ 159,054.37
Entellitrak Report Builder SaaS	$ 11,321.63	$ 13,837.32
Entellitrak Help Module SaaS	$ 5,703.79	$ 6,971.07
Entellitrak Analytics Module SaaS (Optional)	$ 49,984.60	$ 67,452.91
Total Option Year 2 Price without Optional Item(s)	**$ 144,319.25**	**$ 179,862.76**
Total Option Year 2 Price with Optional Item(s)	**$ 194,303.85**	**$ 247,315.67**

Option Year 3	50 CCU Price	75 CCU Price
Entellitrak Professional Edition SaaS (Dedicated Environment)	$ 129,839.71	$ 162,235.46
Entellitrak Report Builder SaaS	$ 11,548.06	$ 14,114.07
Entellitrak Help Module SaaS	$ 5,817.87	$ 7,110.49
Entellitrak Analytics Module SaaS (Optional)	$ 50,984.29	$ 68,801.97
Total Option Year 3 Price without Optional Item(s)	**$ 147,205.64**	**$ 183,460.02**
Total Option Year 3 Price with Optional Item(s)	**$ 198,189.93**	**$ 252,261.99**

Option Year 4	50 CCU Price	75 CCU Price
Entellitrak Professional Edition SaaS (Dedicated Environment)	$ 132,436.50	$ 165,480.17
Entellitrak Report Builder SaaS	$ 11,779.02	$ 14,396.35
Entellitrak Help Module SaaS	$ 5,934.23	$ 7,252.70
Entellitrak Analytics Module SaaS (Optional)	$ 52,003.98	$ 70,178.01
Total Option Year 4 Price without Optional Item(s)	**$ 150,149.75**	**$ 187,129.22**
Total Option Year 4 Price with Optional Item(s)	**$ 202,153.73**	**$ 257,307.23**

Total Price Including Option Years without Optional Items	**$ 1,430,702.89**	**$ 1,713,785.18**
Total Price Including Option Years with Optional Items	**$ 1,680,723.91**	**$ 2,051,182.00**

Annual Support & Upgrade Subscription

- Technical Support M-F 8am – 8pm (Eastern Time)
- Regular product upgrades
- Unscheduled product upgrades

Assumptions

- This budget and planning estimate is intended for planning purposes only. At the time of this estimate we have taken into consideration Tyler's experience on projects of similar size and complexity. To provide a more accurate estimate and formal quote, we would invite the agency to provide additional business requirements. Therefore, the information provided in this estimate does not constitute an offer to perform the implementation services or to sell licenses at stated prices.
- Award Instruction: Tyler respectfully requests that our proposal be incorporated by reference into any resultant award by including the following statement in the order "The Task Order award incorporates Tyler's proposal/price submission dated 30 Jul 2021 as an intrinsic part of this contract".
- Award Instruction: The resultant award being issued should reference Tyler Federal.
- Estimated JAD Sessions: As part of this effort, it is estimated there to be no more than 8 JAD sessions. If additional JAD sessions are needed, Tyler and Navy will come to an agreement to the new number and determine if there will be any scheduling impact and/or the need to process a Change Request.
- JAD Sessions - SMEs: The assignment of appropriate subject matter experts (SME) from Navy to the project team is essential for requirements validation and JAD sessions efforts. If suitable SMEs are not available for a particular JAD session, the session will be rescheduled at such time a SME is available to attend. SMEs will be designated by Navy and have full authority to make decisions regarding requirements.
- UAT Cycle: UAT will take no longer than 10 business days and there will only be one (1) UAT cycle.
- UAT Timeline: UAT will be scheduled to occur no more than 15 business days after development of the system is complete.
- UAT Reporting: Tyler will address any bug/issue/defect/failure of a requirement found during UAT as long as the following is provided by Navy: (I) Requirement the bug/issue/defect/failure maps to based on the RTM. (II) Steps to replicate the bug/issue/defect/failure.
- Defect Definition: A defect is an issue that result in some non-functioning functionality within the system that maps directly to a requirement from the requirement traceability matrix. If the issue does not map to a requirement, it is not classified as a defect.
- UAT Acceptance: At the end of UAT the system will be considered automatically accepted if no more than Zero (0) Level 1 (Blocker) defects identified, no more than two (2) Level 2 (High) defects are identified, no more than ten (10) Level 3 (Moderate) defects are identified. For Level 4 (Minor), because processing is not substantially affected, defects of this type will not preclude acceptance.
- After UAT: After UAT approval from Navy, all bugs/issues/defect/failures with any requirement will be treated as a Project Change Request (PCR).
- UAT Test Cases: Navy will be responsible for developing and providing User Acceptance Test Cases/Scripts. UAT test cases/scripts will be furnished to Tyler three weeks prior to scheduled UAT.
- Client Acceptance Process for Deliverables: Tyler and Navy will follow the below process for accepting any and all deliverables that require Client acceptance: (I) Other than software, Tyler will submit all deliverables in writing. (II) Navy will have a period of three (3) business days to respond to the submitted deliverable with any requested changes. (III) Within three (3) business days of the requested changes, Tyler will resubmit the deliverable. (IV) Navy will than have three (3) business days to accept the resubmitted deliverable. If Navy does not find the resubmitted deliverable acceptable the above process will continue. (V) If Navy does not respond within the intervals outlined above, the submitted deliverable will be considered accepted by Navy.
- Roles: As part of this effort, it is estimated there will be no more than 4 user roles configured as part of the solution. Additional role configuration will be viewed as a change request.
- Notifications/Templates: There will be no more than 15 notifications/document templates as part of the system. Additional templates/notifications will be captured and view as change requests.

- Workflow: A simple workflow consists of 3 states and 6 transitions, a medium complexity workflow consists of 6 states and 12 transitions, and a high complexity workflow consists of 12+ states and 24 transitions. The scope of this project consists of 2 simple workflows, 1 medium workflows and 1 high complexity workflows.
- Reports: It is assumed there will be no more than 10 canned reports built as part of this system. Of these 10 no more than 0 will be graphical in nature and 0 analytical in nature; all others will be a data grid reports.
- Canned Reports Definition: A canned report is defined as a report that is either data or graphical in nature that combines data from one or more forms of the system and presents it to the user. A canned report may be run manually or may be run as a dashboard report.
- Report Datasets: A report will incorporate no more than one (1) dataset with 15 or fewer data elements.
- Ad Hoc Reporting Capability: Ad Hoc reporting is achieved with the system by utilizing the Entellitrak COTS solutions core feature, advanced search. Advanced Search allows trained users to select fields/columns within the system and use boolean criteria (>, <, =, date range etc.) to build a query that will return results in the standard Entellitrak data grid format. The return results can be exported out of Entellitrak via csv file and other common formats.
- Integration Points/Interfaces: There will be no more than 5 interfaces/integration points to other external system. An integration point is defined as a single direction of data flow (either into CMS or out of CMS) between CMS and another external system.
- Hosting: Tyler will supply and host all hardware and software needed to maintain Entellitrak software. The Production environment will utilize single-tenant virtual machines (VMs). Lower environments (e.g. Dev, UAT) are provided using multi-tenant VMs.

Training Assumptions

- Standard training for 10 Train-the-Trainer-Users and 5 Train-the-Trainer-Administrators.
- All training occurs in-person at Tyler facilities or through online video conference (as required due to COVID-19 concerns). Additional travel fees may be incurred if other arrangements are mutually agreed upon.
- Training is provided in conjunction with system Go-Live. If follow-on training is to be repeated for each phase, it must be priced separately and per user.
- Navy may reschedule a training date without penalty by providing written notification up to five (5) days prior to the class. If written notification is not received five (5) days prior to the scheduled class, Tyler will invoice on the day of the class.
- Minimum of three (3) trainees are required per session.
- Standard training does not include any deliverables besides standard user manual and classroom training.
- Training materials over 150 pages will be provided in soft copy format only. Requests for printed copies will require quote from printing company.
- Deliverables will be provided in Microsoft Word or PDF format.
- One (1) trainer is required for every 25 attendees.
- Interactive hands-on training is only recommended for 50 users or less per session.
- Tyler does not authorize the audio or video recording of its training sessions.
- Navy is responsible under the ADA for providing reasonable accommodations for its employees and agents attending electronic or in-person training.

Billing and Invoicing Assumptions

- Depending on the CCU count chosen, Tyler will invoice Navy either $138,715.15 or $172,878.47 for base year SaaS licenses upon contract award.
- Pricing is based on a one (1) year contract commitment. After the base year, Tyler will annually invoice Navy for Entellitrak user access to be paid in full by Navy at the inception of each maintenance period. Each subsequent period will be subject to a two percent (2%) price escalation.
- Tyler will invoice Navy for professional services on a monthly basis. Changes in scope or requirements will require a change request and/or contract modification.
- Payment is due within 30 days of the invoice date.
- Tyler will invoice Navy $6,856.75 for the Entellitrak training session.
- Tyler will invoice Navy $440.54 for each additional user trainer attending the user train-the-trainer training session.
- Tyler will invoice Navy $490.27 for each additional administrator trainer attending the administrator train-the-trainer training session.

The Tyler End User License and Services Agreement, www.tylertech.com/client-terms, is incorporated by reference.
ROM valid for 30 days

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Statement of Work (SOW)

Navy Facilities Engineering Systems Command (NAVFAC) Executive Program Office

(ExPO) Product Support Package (PSP) Acquisition Tracking System (ATS).

This SOW will provide Synectic Solutions with an outline for an approach to evaluate the Opus Suite by Systecon.

Table of Contents

1. Overview

The following is an estimate of timelines and approach for the support of the Navy Facilities Engineering Systems Command (NAVFAC) Executive Program Office (ExPO) Product Support Package (PSP) Acquisition Tracking System (ATS). This effort is priced in a Time and Materials format.

1.1. The overall and prime effort in support of NAVFAC's ExPO PSP ATS is to build models for each of the requested platforms (vehicles and equipment) to produce life cycle metrics and predictions on each of those platforms. The data for all models built will then be brought into an online dashboard where user-defined visualization / format is created. Then, all findings from the models, their predictions on cost versus performance and optimal logistics improvement plans is presented to the customer. Finally, the customer is trained on each of the models, allowing for an organic capability should NAVFAC wish to pursue that end. This is the "prime Effort", which is broken into 5 sub-efforts. This is how Systecon will support the Prime Effort and how each portion of work is priced. The 5 sub-efforts are:

1.1.1. Data Collection and Science

1.1.2. Modeling and Simulation

1.1.3. Dashboard Development

1.1.4. Presentation of Findings

1.1.5. Training of NAVFAC personnel

1.2. At present, the time required to accomplish each of these tasks is unknown. Each description of the sub-efforts below defines what occurs during that effort and what further information is needed for a more precise estimate on timelines.

1.3. It is important to note that this work is ultimately for the Navy, which possess an enterprise license of the Opus Suite. Therefore, licensing for organic use of the end products is not needed by the Navy. The requirement is for a concurrent 15 user base, which they already possess. This is a cost avoidance of $827,000.

1.4. Each one of these sub-efforts is a separate function for each platform. One particular platform is fully developed through each sub-effort until there exists a full data set, working predictive model, report of findings and recommendations, a dashboard, and all

has been presented to NAVFAC and their personnel has been trained on use of the artifacts and models. This can be done in series (one platform fully done, and then another, etc.), in parallel (two or more platforms being done at a time), or by sub-effort for many platforms (data collection done on several, then modeling on several, etc.). The personnel required to complete each sub-effort is given per platform.

2. Sub-Effort 1: Data Collection and Science

2.1. This effort is one of primary importance for modeling and simulation. High fidelity modeling and analytics requires a solid foundation of data. Systecon will list all data required to build models for NAVFAC. Each platform may have a slightly different requirement depending on how the platform operates and what life cycle metrics are desired for analysis. In general, the follow data is needed for modeling (this is not an exhaustive list):

2.1.1. Technical System Information

2.1.1.1. Indentured Bill of Materials

2.1.1.2. Parts' metadata to include failure rates, costs, repair times, ordering times, etc.

2.1.1.3. Scheduled maintenance procedures and timing

2.1.2. Support Structure

2.1.2.1. Locations of repair and their capabilities

2.1.2.2. Resources at each location and resource usage

2.1.2.3. Travel times within the supply chain and inherent costs

2.1.3. Basic Operational Information

2.1.3.1. How many are deployed at what bases

2.1.3.2. Their basic operational profile

2.1.3.3. Mission timing

2.1.4. A perfect data set with all required fields is a rarity on legacy platforms. Where data does not exist, Systecon will build assumptions using industry best practices and practical experience, as well as input from the customer. All assumptions are presented to the customer for acceptance.

2.1.5. The timeline to accomplish this set is highly variable. The state of data affects the timeline on any like effort. Also, the size of the system, its complexity and nuances can also affect the timeline. On the low end of those platforms Systecon has modeled in the past, 80 hours of work is required to produce a functional data set with Ground Rules and Assumptions (GR&As); this has been known to be as much as 320 hours.

2.1.6. Insight into what data is available and the state of the data will assist in leading to a more precise time estimate.

2.1.7. A Systecon Data Scientist is the main requirement for this sub-effort at the rate of $125 per hour. Additionally, a Junior Modeler is required to ensure data produced is what is needed for modeling at a ratio of 1:8 hours with a rate of $150 per hour. Program Management oversees this and all other steps at a ratio of 1:16 with a rate of $240 per hour.

3. Sub-Effort 2: Modeling and Simulation

3.1. Once all data is collected, formatted, and assumptions are accepted, the main effort of building models for a platform can begin. Each data set is ingested into the Opus Suite and a working model is produced. Guided by the customer's requirements and specific requests of metrics for that platform, 3 simulations are done.

3.1.1. First, an analysis of the current sate which serves to validate the model and baseline all further excursions.

3.1.2. Second, an optimal supply system reallocation and minimal cost replenishment strategy that informs where all spares should be located for optimal performance, and the lowest costs of future spares buys and their associated costs. This is not a single strategy, but any number of optimal sparing strategies that have a raised level

of performance and their costs, allowing the customer to choose a performance level or costs they can implement.

3.1.3. Third, the model is set up for "what if" scenarios allowing the customer to change values within the model to coincide with planned modification or improvement plans, and/or for the customer to explore what changes in the system lead to the greatest benefit. As part of this effort, Systecon will identify the top drivers which lead to lack of performance. A more exhaustive analysis can be done but is not part of this effort at present.

3.1.4. This tasks commonly takes 160 hours to build the baseline model, 40 hours of validation, 40 hours of customer interaction for specific modeling, 20 hours to build the reallocation excursion, and 20 hours to identify the top downtime driver: for a total of 280 hours. Depending on the complexity of the platform, this can be as much as 50% higher.

3.1.5. Insight into what platforms are to be modeled and the complexity of those platforms will assist in leading to a more precise time estimate.

3.1.6. The Junior Modeler is the main requirement for this sub-effort with a rate of $150 per hour. A Senior Modeler is needed for the more advanced portions of modeling at a ratio of 1:2 with a rate of $200 per hour. Program Management oversees this and all other steps at a ratio of 1:16 with a rate of $240 per hour.

4. Sub-Effort 3: Dashboard Development

4.1. If desired, a dashboard may be constructed for each platform, and then all platforms brought into the dashboard, allowing for enterprise-wide comparison and reporting.

4.1.1. This can also be done through building an API into a software system of the customer's choosing. Software such as Tableau or Power BI provide excellent visualization and reporting interface, but the choice is unlimited to the customer's desire.

4.2. Likewise, exactly what the customer wants to see on the dashboard greatly determines the level of effort.

4.3. It is also possible for Systecon to integrate a model and visualization software/dashboard that allows for specific interaction between the dashboard and model in real-time. This is not part of this proposal, but possible upon request.

4.4. Basic dashboard construction requires 160 hours of time. Each additional platform inclusion requires 40 more hours. Customization and modification of the dashboard is always required to fit the customer needs and can take as little as 10 hours, or as much as 80.

4.5. A specific requirement from the customer and n umber of total platforms to be incorporate will assist in leading to a more precise time estimate.

4.6. A Senior Software Developer is required for this task at a rate of $203 per hour. A Senior Modeler is also required for assistance in model integration at a ratio of 1:16 with a rate of $200 per hour. Program Management oversees this and all other steps at a ratio of 1:16 with a rate of $240 per hour.

4.7. Note that this step is optional. All other sub-efforts are independent of this one and this effort can be omitted or delayed to a later time as desired by the customer.

5. Sub-Effort 4: Presentation of Findings

5.1. This task entails the coalition of all findings within the Modeling and Simulation sub-effort into 4 main artifacts.

5.1.1. First is a report that covers in detail everything discovered within sub-effort 2, along with those projections, sparing solutions, and top downtime drivers.

5.1.2. Second is the Assumptions document which describes all the data collected, what was found wanting or missing, and all approved assumptions tied into the model. Systecon can also provide sensitivity analyses on all the GR&As and their effects of the predictions. However, that is an additional effort not listed in this proposal.

5.1.3. Third, Systecon will deliver all and relevant Opus Model files, which can be used directly by NNAVFAC with their enterprise licenses.

5.1.4. Lastly, Systecon will provide 2 detailed briefs of all findings to whatever audiences are chosen by the customer. Briefs typically last 2 hours and come with a presented power point presentation and a PDF copy.

5.1.5. This sub-effort's estimate on time is generally accurate and agnostic to outside factors. The report takes 50 hours to produce. The GR&As document takes 24 hours to complete. A total of 24 hours is needed to build the brief. Preparation for the presentation and the presentation itself is a total of 6 hours. The total time for this task is 104 hours.

5.1.6. The main requirement for this task is a Junior Modeler at a rate of $150 per hour. Program Management is particularly involved in this task and presents all the briefs for a ratio of 1:4 with a rate of $240 per hour.

6. Sub-Effort 5: Training

6.1. Finally, Systecon will train all desired personnel. This includes an abbreviated class on the Opus Suite designed to teach the student about the Suite and how to use it, with specific emphasis on the particular functions of the models built.

6.1.1. Afterward, Systecon provides over the shoulder support to assist NAVFAC in their initial use of the provided models, recommended next step analysis, error checking and technical modeling support, and validating modeling modifications.

6.1.2. The classes needed to fully train personnel on this matter takes five 8-hour sessions. Assuming two classes given per platform, 16 hours is required by Systecon and the customer. Afterwards, Systecon can provide over the shoulder support. The customer defines the amount of time desired. Two Junior Modelers are provided to assist up to 8 customers all modeling and using the Suite at a time. Commonly, customers request 2 weeks of support which leads to a basic proficiency. Four weeks of support leads to an intermediate proficiency, and 6 weeks leads to an expert proficiency.

6.1.3. The classes are given by a dedicated Systecon Trainer with a rate of $150. Systecon also charges a flat fee of $15,000 per 8 students for this specialized Opus Suite course. The over the shoulder is done by one Junior Modeler and one Senior Modeler with rates of $150 and $200 respectively. Program Management oversees this and all other steps at a ratio of 1:16 with a rate of $240 per hour.

Systecon

7. Economy of Effort

7.1. Again, all these costs are per platform. However, it is important to note that synergies may exists between platforms. It is not without possibilities that a more efficient method of conducting a string of multiple prime efforts for several platforms at once exists. Only with further discussion and insight could this be validated. This proposal assumes each platform is done independently of another and is therefore priced and estimated as such.

8. Pricing Estimates

8.1. The follow are the associated costs for each step, broken down by each Sub-Effort and the personnel needed to accomplish the task. Hours needed are rounded off to their nearest ½ hour increment. All estimates are given as the average between the low and high estimates of time. As a T&M contract, services would be billed on a monthly basis.

8.2. Step 1: Data Collection and Science

Position	Hours	Rate	Total
Data Scientist	200	$ 125	$ 25,000
Junior Modeler	25	$ 150	$ 3,750
Program Management	12.5	$ 240	$ 3,000
			$ 31,750

8.3. Step 2: Modeling and Simulation

Position	Hours	Rate	Total
Junior Modeler	350	$ 150	$ 52,500
Senior Modeler	175	$ 200	$ 35,000
Program Management	22	$ 240	$ 5,280
			$ 92,780

8.4. Step 3: Dashboard Development

Position	Hours	Rate	Total
Senior Developer	205	$ 203	$ 41,615
Senior Modeler	13	$ 200	$ 2,563
Program Management	13	$ 240	$ 3,075
			$ 47,253

8.5. Step 4: Presentation of Findings

Position	Hours	Rate	Total
Junior Modeler	104	$ 203	$ 21,112
Program Management	26	$ 240	$ 6,240
			$ 27,352

8.6. Step 5: Training

Position	Hours	Rate	Total
Trainer	16	$ 150	$ 2,400
Class flat rate	-	-	$ 30,000
Junior Modeler	160	$ 150	$ 24,000
Senior Modeler	160	$ 200	$ 32,000
Program Management	11	$ 240	$ 2,640
			$ 91,040

8.7. Total Costs

Step 1: Data	$ 31,750
Step 2: Modeling	$ 92,780
Step 3: Development	$ 47,253
Step 4: Presentation	$ 27,352
Step 5: Training	$ 91,040
	$ 290,175

8.8. Cost Avoidance

8.8.1. Because the Navy possess an enterprise licensing arrangement already for the Opus Suite, those costs are avoided.

9. Timelines

9.1. Per the descriptions above, the following is a timeline on completing the efforts on a single platform. More than one platform may be done at a time but requires the same number of personnel. Some of the steps for a single platform can be done concurrently with others. Therefore, the timeline from start to finish is not a sum of the total time

needed to complete the prime effort. These estimates are using the average lengths of time.

Sub-Effort	Start	Finish
Step 1: Data	-	Week 6
Step 2: Modeling	Week 6	Week 12
Step 3: Development	Week 1	Week 16
Step 4: Presentation	Week 1	Week 17
Step 5: Training	Week 18	Week 22

10. Other items

10.1. PAYMENT TERMS

Net 30 from acceptance of quote.

10.2. VALIDITY

This quotation is valid until 30 November 2021.

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Tyler Federal, LLC Rough Order Magnitude (ROM) Estimate

Partner: Synectic Solutions, Inc (SSI)
Customer: United States Navy (Navy)
Date of ROM: 09/07/2021
Description: SSI, Navy Acquisition Management Support - Entellitrak - 15 Concurrent Users (FAST ID: 10820)
End User: Federal

This ROM (rough order of magnitude) estimate is intended for planning purposes only. To provide a more accurate estimate, we invite the customer to provide additional business requirements and participate in detailed business process review sessions to help us document the specific needs of each program area. Therefore, the information provided in this estimate does not constitute an offer to perform the implementation services or to sell licenses at stated prices. The estimate ranges represents potential pricing based on the information provided and projects of similar scope and complexity which can vary broadly. License fees for the Entellitrak product are based on concurrent users that will need access to the system.
All prices are in USD.

Base Year License	Price
Entellitrak Professional Edition SaaS (Dedicated Environment) - 15 Concurrent Users	$ 95,209.75
Entellitrak Report Builder SaaS - 15 Concurrent Users	$ 9,068.50
Entellitrak Help Module SaaS - 15 Concurrent Users	$ 4,568.76
Entellitrak Analytics Module SaaS (Dedicated Environment) - 15 Concurrent Users (Optional)	$ 44,613.72
Base Year License Price Total without Optional Item(s)	**$ 108,847.01**
Base Year License Price Total with Optional Item(s)	**$ 153,460.73**

Option Year 1	Annual Price
Entellitrak Professional Edition SaaS (Dedicated Environment) - 15 Concurrent Users	$ 97,113.95
Entellitrak Report Builder SaaS - 15 Concurrent Users	$ 9,249.87
Entellitrak Help Module SaaS - 15 Concurrent Users	$ 4,660.14
Entellitrak Analytics Module SaaS (Dedicated Environment) - 15 Concurrent Users (Optional)	$ 45,505.99
Total Option Year 1 Price without Optional Item(s)	**$ 111,023.96**
Total Option Year 1 Price with Optional Item(s)	**$ 156,529.95**

Option Year 2	Annual Price
Entellitrak Professional Edition SaaS (Dedicated Environment) - 15 Concurrent Users	$ 99,056.23
Entellitrak Report Builder SaaS - 15 Concurrent Users	$ 9,434.87
Entellitrak Help Module SaaS - 15 Concurrent Users	$ 4,753.34
Entellitrak Analytics Module SaaS (Dedicated Environment) - 15 Concurrent Users (Optional)	$ 46,416.11
Total Option Year 2 Price without Optional Item(s)	**$ 113,244.44**
Total Option Year 2 Price with Optional Item(s)	**$ 159,660.55**

Option Year 3	Annual Price
Entellitrak Professional Edition SaaS (Dedicated Environment) - 15 Concurrent Users	$ 101,037.35
Entellitrak Report Builder SaaS - 15 Concurrent Users	$ 9,623.57
Entellitrak Help Module SaaS - 15 Concurrent Users	$ 4,848.41
Entellitrak Analytics Module SaaS (Dedicated Environment) - 15 Concurrent Users (Optional)	$ 47,344.43
Total Option Year 3 Price without Optional Item(s)	**$ 115,509.33**
Total Option Year 3 Price with Optional Item(s)	**$ 162,853.76**

Option Year 4	Annual Price
Entellitrak Professional Edition SaaS (Dedicated Environment) - 15 Concurrent Users	$ 103,058.10
Entellitrak Report Builder SaaS - 15 Concurrent Users	$ 9,816.04
Entellitrak Help Module SaaS - 15 Concurrent Users	$ 4,945.38
Entellitrak Analytics Module SaaS (Dedicated Environment) - 15 Concurrent Users (Optional)	$ 48,291.32
Total Option Year 4 Price without Optional Item(s)	**$ 117,819.52**
Total Option Year 4 Price with Optional Item(s)	**$ 166,110.84**

Total Price Including Option Years without Optional Items	**$ 566,444.26**
Total Price Including Option Years with Optional Items	**$ 798,615.83**

Annual Support & Upgrade Subscription

- Technical Support M-F 8am – 8pm (Eastern Time)
- Regular product upgrades
- Unscheduled product upgrades

Assumptions

- This budget and planning estimate is intended for planning purposes only. At the time of this estimate we have taken into consideration Tyler's experience on projects of similar size and complexity. To provide a more accurate estimate and formal quote, we would invite the agency to provide additional business requirements. Therefore, the information provided in this estimate does not constitute an offer to perform the implementation services or to sell licenses at stated prices.
- This quote only includes licenses and maintenance. Configuration of Entellitrak and/or any costs related to Hosting may be priced separately.
- Award Instruction: Tyler respectfully requests that our proposal be incorporated by reference into any resultant award by including the following statement in the order "The Task Order award incorporates Tyler's proposal/price submission dated 07 Sep 2021 as an intrinsic part of this contract".
- Award Instruction: The resultant award being issued should reference Tyler Federal.

Billing and Invoicing Assumptions

- Tyler will invoice SSI $108,847.01 for base year SaaS licenses upon contract award.
- Pricing is based on a one (1) year contract commitment. After the base year, Tyler will annually invoice SSI for Entellitrak user access to be paid in full by SSI at the inception of each maintenance period. Each subsequent period will be subject to a two percent (2%) price escalation.
- Payment is due within 30 days of the invoice date.

The Tyler End User License and Services Agreement, www.tylertech.com/client-terms, is incorporated by reference.
ROM valid for 30 days
Proprietary and Confidential Information of Tyler

Custom Built ATS Solution – Rough Order of Magnitude

One option available to NAVFAC EXWC requirements for an ExPO Product Support Package (PSP) Asset Tracking System (ATS) solution to support use-case scenarios for internal and external PSP developments, inventory procurement tracking and management, external database ingestion and extractions, reporting, and buy/spend plan management tasks. These tasks are vital to the successful development and management of ExPO managed assets and were previously performed by a combination of NAVFAC EXMIS and CDMD-OA software systems. With the emergent transition to MBPS and Navy ERP software suites NAVFAC requires a solution to maintain Acquisition and Sustainment functions and use-cases.

The benefits of a custom-built software solution are as follows:

NMCI Specific Architecture: Any custom-built software solution would be established based on the pre-approved software authorized for use on the Navy Marine Corps Information System. This would include development for the new "Flank Speed" system architecture requirements.

Customized Build: The end-users or technical representative/sponsor at NAVFAC EXWC drive all requirements from user-interface through report generation, allowing the system to be end-user friendly from the moment of implementation. Additionally, the custom-build would allow NAVFAC greater opportunity to perform modifications to the final solution, add new modules/functions, and generate ad-hoc reporting rapidly.

Scalability for Growth: Using approved web-based applications, multi-tiered architecture, and relational databases a custom-built platform is scalable to NAVFAC's requirements.

The following Rough Order of Magnitude is provided based on the development of similar custom software solutions. This is for planning and comparison purposes only, to allow a better analysis of alternatives and provide decision makers with rough estimates on costs and time required to build a custom PSP ATS.

Scope and Planning (Approximately 4 weeks)

NAVFAC EXWC and development team meet to discuss and outline the overall project scope and schedule. A series of planning meetings is established to provide milestone dates with expectations for each phase of the build cycle.

Position	Rate	Hours	Total Cost
Technical Writer	$ 70.00	160.00	$ 11,200.00
Data Scientist	$ 125.00	160.00	$ 20,000.00
Modeler/Analyst	$ 100.00	160.00	$ 16,000.00
Logistics Analyst	$ 80.00	160.00	$ 12,800.00
Database Architect	$ 150.00	160.00	$ 24,000.00
Programmer	$ 200.00	160.00	$ 32,000.00
Project Manager	$ 175.00	40.00	$ 7,000.00
			$ 123,000.00

Data Collection and Science (Approximately 10 weeks)

A team comprised of data scientists and modelers/analyst extract and assess data from EXMIS and CDMD-OA records and perform the necessary analysis and alignment of data for a relational development based on Use-Case scenarios provided.

Position	Rate	Hours	Total Cost
Data Scientist	$ 125.00	400.00	$ 50,000.00
Data Scientist	$ 125.00	400.00	$ 50,000.00
Modeler/Analyst	$ 100.00	400.00	$ 40,000.00
Modeler/Analyst	$ 100.00	400.00	$ 40,000.00
Project Manager	$ 175.00	100.00	$ 17,500.00
			$ 197,500.00

Story Board and UI Development (Approximately 13 weeks):

A team of modelers and programmers work with Government personnel to model and develop the user interface for the PSP ATS. Database architects and programmers then align the user interface to the database queries and functions. Initial User Manuals and Guides are developed.

Position	Rate	Hours	Total Cost
Technical Writer	$ 70.00	520.00	$ 36,400.00
Modeler/Analyst	$ 100.00	520.00	$ 52,000.00
Database Architect	$ 150.00	520.00	$ 78,000.00
Programmer	$ 200.00	520.00	$ 104,000.00
Project Manager	$ 175.00	100.00	$ 17,500.00
			$ 287,900.00

Database Modeling and Simulation (Approximately 26 Week):

A team of database architects and programmers work with analyst and Government personnel to model and develop each use-case scenario, user requirement, and reporting requirement outlined in the initial scope. Each model is then used to establish modifications, queries, or data architecture requirements for the final solution. Each final use case is thoroughly documented (including the software protocols and programming used, as necessary). An entity relationship diagram and software support user's manual are drafted.

Position	Rate	Hours	Total Cost
Technical Writer	$ 70.00	520.00	$ 36,400.00
Data Scientist	$ 125.00	1040.00	$ 130,000.00
Data Scientist	$ 125.00	1040.00	$ 130,000.00
Modeler/Analyst	$ 100.00	1040.00	$ 104,000.00
Modeler/Analyst	$ 100.00	1040.00	$ 104,000.00
Database Architect	$ 150.00	520.00	$ 78,000.00
Programmer	$ 200.00	1040.00	$ 208,000.00
Programmer	$ 200.00	1040.00	$ 208,000.00

Project Manager	$175.00	1040.00	$ 182,000.00
			$ 1,180,400.00

Testing and Implementation (Approximately 13 weeks):

Development team performs testing of the software solution (database, extracts, ingestions, queries, etc.) for all functions in a test environment provided by Government sponsor. All errors, bugs, and changes required are developed and implemented. A final test and evaluation is performed within the test environment. After all testing is completed and authorization to proceed is granted, the team installs the software solution to the NMCI/Flank Speed designated servers/systems and conducts live testing of the software solution (all functions).

Position	Rate	Hours	Total Cost
Technical Writer	$70.00	520	$ 36,400.00
Data Scientist	$125.00	520	$ 65,000.00
Database Architect	$150.00	520	$ 78,000.00
Programmer	$200.00	520	$ 104,000.00
Programmer	$200.00	520	$ 104,000.00
Project Manager	$175.00	520	$ 91,000.00
			$ 478,400.00

Training (8-week training time):

Multi-tiered training is performed across the enterprise for the necessary user roles (i.e., Database Administrators, Product Support Managers, Configuration Data Managers, User). Each training course is custom designed to support the target audience. There is an additional training course developed which allows NAVFAC to conduct internal training for new personnel without requiring repeat support from the development team. The training is developed during the testing and implementation developments.

Position	Rate	Hours	Total Cost
Instruction System Designer (PSM & User Courses)	$100.00	520	$ 52,000.00
Instructor (PSM & User Courses)	$125.00	520	$ 65,000.00
Instruction System Designer (CDM & User Courses)	$100.00	520	$ 52,000.00
Instructor (CDM & User Courses)	$125.00	520	$ 65,000.00
Database Architect (Database Admin Course)	$150.00	400	$ 60,000.00
Programmer (Database Admin Course)	$200.00	400	$ 80,000.00
Technical Writer	$70.00	1040	$ 72,800.00
Project Manager	$175.00	400	$ 70,000.00
			$ 516,800.00

Final Release with Documentation (Approximately 4 week):

Final Release with Documentation is conducted after the development team finalizes the entity relationship diagram, software support manual, user manual, and training of all personnel. “Gold Master” versions of the software tools, along with all documentation, are provided via “DVD-ROM”. Final evaluation and close out of the tasking are completed.

Position	Rate	Hours	Total Cost
Data Scientist	$ 125.00	160.00	$ 20,000.00
Modeler/Analyst	$ 100.00	160.00	$ 16,000.00
Database Architect	$ 150.00	160.00	$ 24,000.00
Programmer	$ 200.00	160.00	$ 32,000.00
Project Manager	$ 175.00	40.00	$ 7,000.00
			$ 99,000.00

Summary:

The following table highlights the estimated calendar time (in weeks) and the estimated costs necessary to develop a custom-built PSP ATS. Please note, these costs are estimated based on the Use-Case scenarios referenced in the analysis of alternatives and do not cover any additional costs for changing or adding new Use-Case scenarios during development of the software solution. The development time and costs do not cover any scope changes or schedule delays. This ROM does not factor in the necessary Government Review and Acceptance times at each phase, nor any additional costs incurred for delays in performance of those reviews and meetings.

Phase	Elapsed Time (weeks)	Cost Estimate
Scope and Planning	4	$ 123,000.00
Data Collection and Science	10	$ 197,500.00
Story Board and UI Development	13	$ 287,900.00
Database Modeling and Simulation	26	$ 1,180,400.00
Testing and Implementation	13	$ 478,400.00
Training	8	$ 516,800.00
Final Release	4	$ 99,000.00
Totals	**78**	**$ 2,883,000.00**