Special Feature

Real transformation change can only be achieved if the Air Force learns and applies the right lessons from observing successful Lean organizations.

logistics
Transformation and Change

Potential Interfaces: ECSS and Flying-Hour Programs
Red Is Good: Transformational Changes for Air Force Aircraft Maintenance
Flight Line Maintenance: Creech versus McPeak

This edition of the Journal presents three featured articles: "Potential Interfaces: ECSS and Flying-Hour Programs," "Red Is Good: Transformational Changes for Air Force Aircraft Maintenance," and "Flight Line Maintenance: Creech versus McPeak"

In "Potential Interfaces: ECSS and Flying-Hour Programs," the authors identify the processes used to plan and execute flying-hour program hours at both the Air Staff and major command level, to include information technology systems used, in order to identify potential touchpoints for the Expeditionary Combat Support System (ECSS). The article concludes with a series of recommendations to ensure ECSS requirements are met.

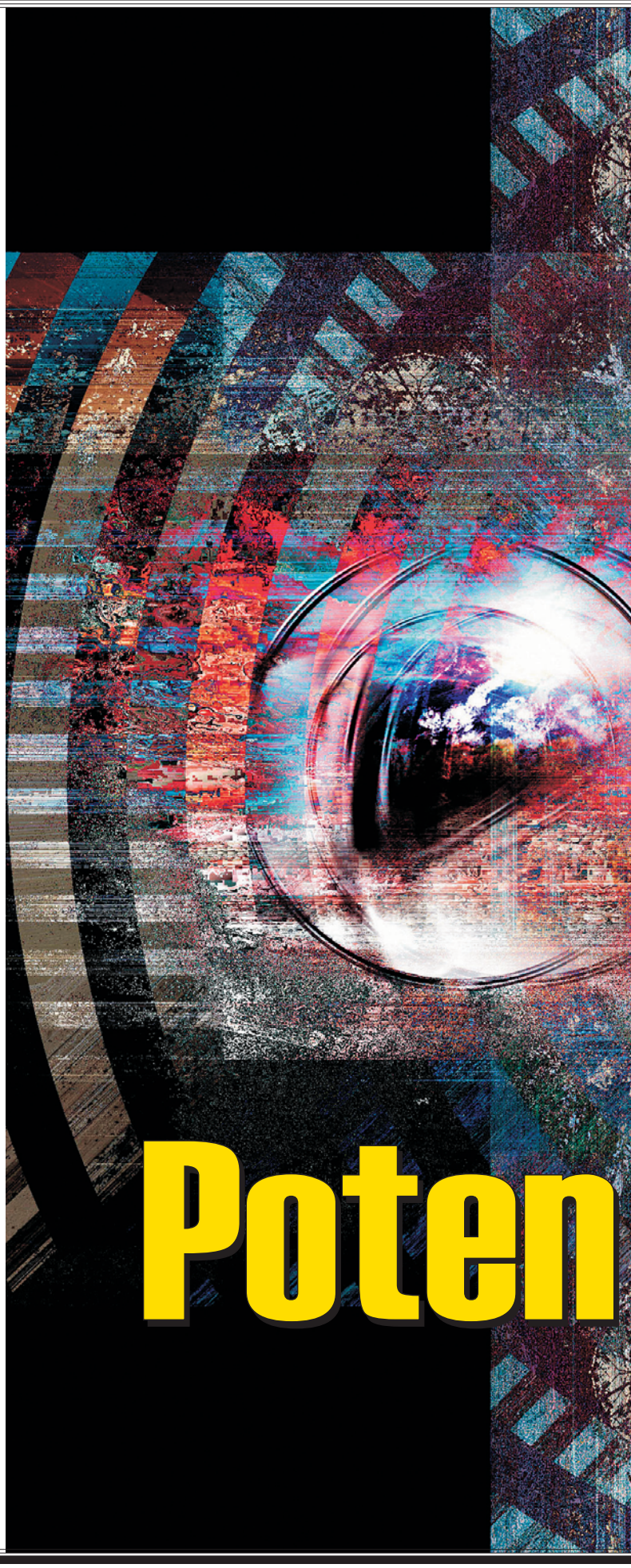
The second featured article examines how transformational efforts should be used to achieve simultaneous efficiency and effectiveness targets for aircraft readiness and reliability. Colonel McAneny makes the case that service-wide changes are required if the Air Force hopes to achieve envisioned transformational benefits within the aircraft maintenance community. These include becoming a learning organization, developing organizational level leaders able to visualize and manage entire enterprise value streams, and finally, facilitating an environment where metrics drive transformational change and the relentless pursuit of continuous process improvements.

In the final article, Lieutenant Colonel Lindsay examines the rationale behind former Chief of Staff of the Air Force, General T. Michael Moseley's decision to realign the aircraft maintenance unit in the Combat Air Force flying squadron.

Introduction

Since 2006, the United States Air Force has operated an average of 2,032,948 flying hours per year to include both training missions and contingency operations.[1] According to Air Force Instruction (AFI) 11-102, *Flying-Hour Program Management,* the Air Force Flying-Hour Program (FHP) consists of the flying hours necessary to train aircrews to safely operate their aircraft and sustain them in numbers sufficient to execute their core tasked missions.[2] In short, the FHP equates flying hours to combat capability.[3] The Air Force mandates that each Major Command (MAJCOM) manage its budgeted portion of the overall FHP. This mandate requires continuous coordination between the maintenance and operations communities at both the MAJCOM and unit levels. Although AFI 11-102, *Flying-Hour Program Management* outlines the general process for managing the FHP, it does not prescribe specific, low-level details. The result of this lack of detail is a lack of standardization in the MAJCOM execution of the FHP. For example, a number of different information technology (IT) systems are used to manage the FHP depending upon MAJCOM and mission design series (MDS). However, in the coming years the Expeditionary Combat Support System (ECSS) is expected to manage logistics data for the FHP. ECSS is an enterprise resource planning system that will subsume or consolidate over 250 Air Force legacy IT systems. ECSS will plan and execute an extensive number of Air Force logistical processes to include supply, maintenance, and procurement. A driving factor for all aspects of Air Force logistics is the number of hours aircraft are flown. Flying hours not only determine immediate parts and maintenance demand levels but also affect longer term derived demands associated with maintenance activities and personnel support. Flying-hour demands are, in turn, driven by wartime and contingency needs as well as aircrew training and currency requirements. The FHP is designed to project flying hours associated solely with training and currency requirements, and represents a large proportion of total hours flown. Unlike flying hours associated with wartime and contingency operations, the FHP requirements are relatively predictable. For ECSS to be effective in planning logistics, it must have access to planned and executed flying-hour data. The capability to access FHP data is an ECSS requirement, but the specific processes and systems that must access the data have not yet been specified. Hence, the required capability does not exist in the current design of ECSS. Because the FHP represents a large, relatively predictable proportion of total flying hours, the effectiveness of ECSS would be considerably increased by attaining access to both planned and executed FHP data.

This article will identify the processes used to plan and execute FHP hours at both the Air Staff and MAJCOM level, to include IT systems used, in order to identify potential touchpoints for ECSS. Since a centralized effort to manage flying hours does not exist and there is limited capability to input and view FHP data, the potential touchpoints will be evaluated based on ease of access, integrity of underlying data, and degree of applicability



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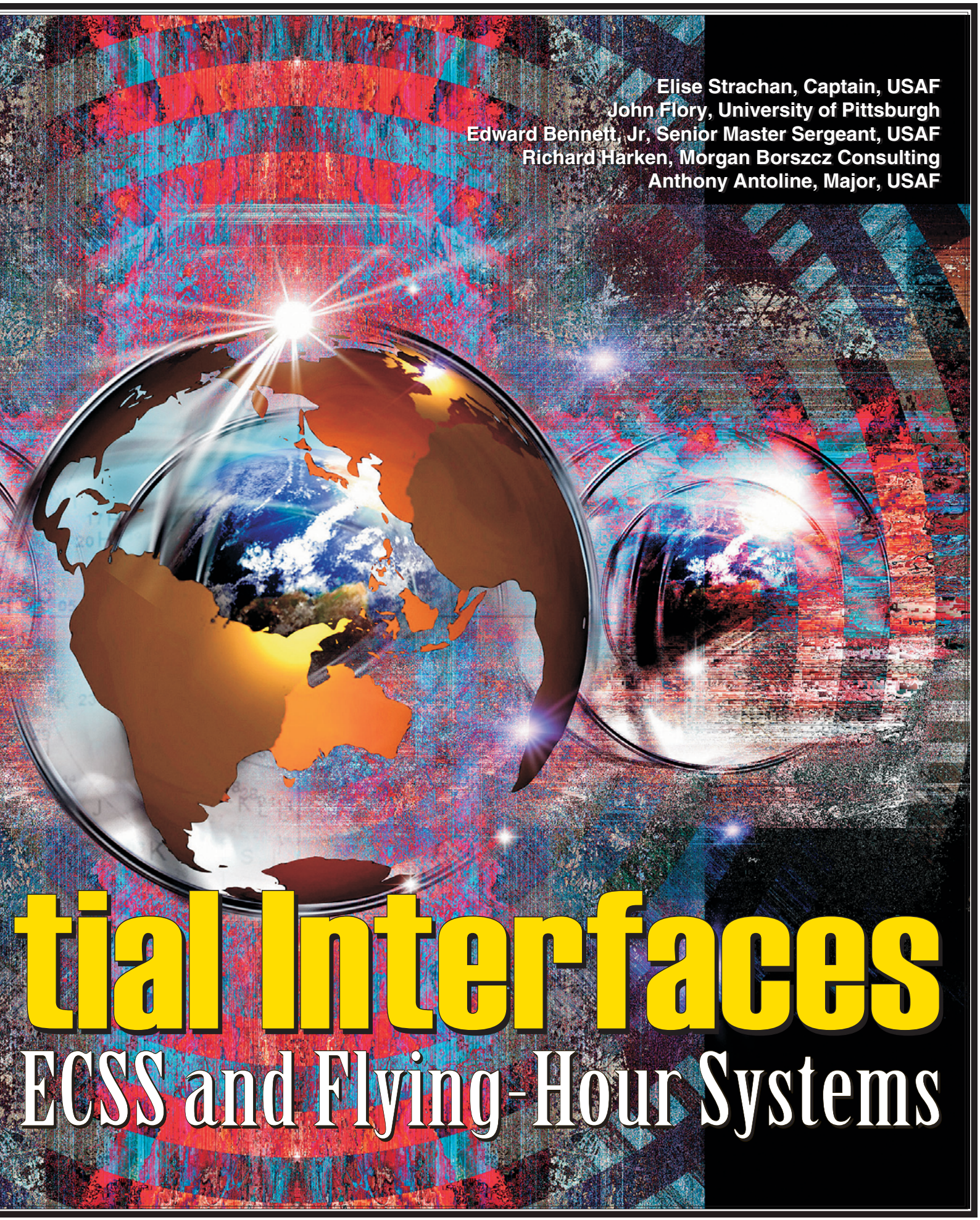

tial Interfaces

ECSS and Flying-Hour Systems

Article Highlights

The Air Force Flying-Hour Program (FHP) consists of the flying hours necessary to train aircrews to safely operate their aircraft and sustain them in numbers sufficient to execute their core tasked missions. In short, the FHP equates flying hours to combat capability.

"Potential Interfaces: ECSS and Flying-Hour Programs" identifies the processes used to plan and execute FHP hours at both the Air Staff and major command (MAJCOM) level, to include information technology (IT) systems used, in order to identify potential touchpoints for the Expeditionary Combat Support System (ECSS).

A number of conclusions can be drawn from the analysis performed. First, the processes the MAJCOMs and Air Staff use to program and execute the FHP can be decomposed into three high-level processes, having commonality across the MAJCOMs. Second, ECSS's subsuming of the Reliability and Maintainability Information System (REMIS) should be the focal point for gaining access to near real-time flying-hour data. The integrity of this data can be improved by checking data at the point of entry. Third, MAJCOMs are working toward commonality between base-level systems used by operations to manage the day-to-day aspects of the FHP. Some base-level systems, such as Patriot Excalibur, provide significant utility to the units.

A number of recommendations also resulted. First, flying-hour data should be validated at the point of entry and should be viewable through a business intelligence suite at the appropriate Air Force level. Second, an opportunity exists to automate initial input—FHP execution and utilization reporting at the unit, MAJCOM, and Air Force levels and display data in a dashboard. Third, AF/A3 should develop a standardized First Look model for all MAJCOMs' unique mission requirements to ensure communication between operations and maintenance in determining requirements and their sustainability. Fourth, ECSS may consider expanding functionality in the future to subsume or integrate scheduling functions currently provided by one or more of the base-level systems. Additionally, a formal process may be developed to reconcile Automated Records Management System data with the FHP process at the unit level. Fifth, replacing paper 781s with an automated data acquisition system should be considered as AF/A3 and AF/A4 (Directorate of Logistics) communication is key to advancing transformation initiatives and avoiding stovepiping of IT system development in the future.

across Air Force organizations. Identifying effective avenues for obtaining FHP data will increase the effectiveness with which ECSS can plan and execute logistical processes. Determining the processes and IT systems used in the FHP requires two primary sources of information—AFI and subject matter experts (SME). Although the AFIs give high-level overviews of the FHP at the Air Force and MAJCOM-specific levels, they are often outdated and omit detailed process flows that can only be captured by interviewing SMEs. In order to fully capture FHPs across the Air Force, SMEs were interviewed at the following MAJCOMs: Air Combat Command (ACC), Air Education and Training Command (AETC), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), and Air National Guard (ANG). United States Air Forces Europe and Pacific Air Forces (PACAF) were omitted because FHPs for their respective lead commands—Combat Air Force (CAF) and Mobility Air Force (MAF) assets are managed by ACC and AMC, respectively. Additional SMEs were interviewed for systems and processes affecting the FHP. As processes to manage the FHP across the Air Force were identified, potential touchpoints with ECSS were evaluated on the following three criteria:

- Accessibility. ECSS touchpoints should be readily accessible. The workload associated with repeated data transfers should be minimal. Furthermore, setting up the data transfer pathway between systems should not be prohibitively difficult or violate classification procedures.
- Data Integrity. Candidate systems should have high data integrity and their data should be primary, not derivative. Ideally, a system's data should be accurate and timely.
- Applicability. Touchpoints should be selected that are applicable to multiple organizations across the Air Force, thereby minimizing the required number of touchpoints.

The absence of specific, low-level detail in AFI 11-102 for managing the FHP results in the lack of process standardization across MAJCOM execution of the FHP. The lack of detail was confirmed in extensive interviews with SMEs. However, although the MAJCOM processes have low-level, mission-driven differences, they generally share many high-level similarities. In general, the MAJCOMs interact with Air Staff through three high-level processes to program and execute the FHP. The three processes can be categorized by their functions as follows: Programming, First Look, and Execution. (See Figure 1)

The Programming Process

The Programming process occurs at Air Staff and projects allocated flying hours at the Air Force level program element with a reconciliation of force structure data with flying-hour requirements for a time horizon of 2 to 10 years. This process determines FHP requirements based on aircrew currency and reconciles the requirements with force structure and sustainability constraints to determine a supportable FHP allocation. The office of primary responsibility for computing force structure is the Directorate of Programs, Program Integration Division (AF/A8PE), and it relies on two data sources as shown in Figure 1. The first is inputs from force programmers in each MAJCOM on near- and far-term events impacting their respective MAJCOM's force structures. The second source is the Manpower

Programming and Execution System (MPES), a personnel system containing data on the number and types of aircrew requiring training. The computed force structure, to include primary aircraft inventory and crew ratios, is combined with aircrew training requirements from the Directorate of Air, Space, and Information Systems (AF/A3) to serve as inputs for the Air Force Single Flying-Hour Model (AFFHM). The AFFHM applies formulas specific to each requirement to determine the necessary flying hours. The outputs of the AFFHM are then passed to each MAJCOM's units in late February. The units apply the ready aircrew program process to fine-tune the outputs of the Single Flying-Hour Model. The units send their projected flying hours to the MAJCOMS. After MAJCOM review, the projected allocations are pushed to the Program Data System (PDS), a classified system that serves as the final repository for programmed and executed flying hours and is matched with funding in the Automated Budget Interactive Data Environment System (ABIDES) in late September. In the past, this process was mostly driven by Air Staff, but it is now more collaborative with MAJCOM units validating their programmed hours. AFSOC uses a modified process as its flying hours are controlled and managed by United States Special Operations Command (USSOCOM). While the same models are used to project force structure, personnel, and requirements, the programmed hours must be vetted through USSOCOM. (See Figure 2)

The First Look Process

The next high-level process to program and execute the FHP is First Look. First look is a process whereby MAJCOMs thoroughly vet the next fiscal year's programmed hours for sustainability. It is mandated by AFI 21-101, *Aircraft and Equipment Maintenance Management*, that all MAJCOMs conduct the First Look process, although waiver authority for this instruction is the Aircraft Maintenance and Munitions Division (AF/A4M). The critical step that characterizes First Look is the coordination between maintenance and operations at the unit level to ensure harmony between the need to fulfill requirements and the ability to sustain aircraft with manpower, equipment, and facilities. First Look begins when Air Staff disseminates projected hours from PDS to the MAJCOMs, typically in late February. MAJCOMs in turn, disseminate the FHP to the unit level. The operational and maintenance organizations at each unit must then negotiate a sustainable flying hour allocation. It should be noted that there is no standardized model for determining maintenance capacity across the Air Force. Ideally a standardized First Look model would exist that considers MAJCOM-specific mission requirements. The units then pass their agreed upon allocation for MAJCOM and Air Staff review. The allocations are validated and adjusted in the First Look process, stored in PDS, and matched with funding in ABIDES. First Look is typically done in March—6 months prior to execution. There is limited ability to adjust execution as the President's budget is published in March, so First Look should perhaps more aptly be called *Last Look*. Altering the First Look process so the next 2 programmed years are considered could improve its effectiveness, as is currently done by AETC.

There are several differences in the ways each MAJCOM approaches the First Look process. For example, AMC does not conduct the First Look process. One year prior to execution, flying hours are projected at the MAJCOM level, but there is no iterative collaboration between operations and maintenance organizations

Article Highlights

Article Acronyms

ABIDES – Automated Budget Interactive Data Environment System
ACC – Air Combat Command
AETC – Air Education and Training Command
AF/A3 – The Directorate of Air, Space, and Information Systems
AF/A3O – AT – Air Force Air Operations Training
AF/A4M – The Aircraft Maintenance and Munitions Division
AF/A8PE – The Directorate of Programs, Program Integration Division
AFFHM – Air Force Single Flying-Hour Model
AFI – Air Force Instruction
AMC – Air Mobility Command
ANG – Air National Guard
AOR – Area of Responsibility
ARMS – Automated Records Management System
AVDO – Aerospace Vehicle Distribution Officer
AVUM – Aerospace Vehicle Utilization Monitor
CAF – Combat Air Forces
D200F – Applications, Programs and Indentures System
ECSS – Expeditionary Combat Support System
FHP – Flying-Hour Program
FIRST – Financial Information Resource System
FM/IMT 781 – Form
FSDM – Force Structure Data Management
G081 – Core Automated Maintenance System for Mobility
GDSS – Global Decision Support System
GTIMS – Graduate Training Integration Management System
IMDS – Integrated Maintenance Data System
IT – Information Technology
K002 – Peacetime Programming Computational System
MAF – Mobility Air Forces
MAJCOM – Major Command
MDS – Mission Design Series
MPES – Manpower Programming and Execution System
MX – Maintenance
OPS – Operations
PACAF – Pacific Air Forces
PDS – Program Data System
PEX- Patriot Excalibur
RAP – Ready Aircrew Program
RAPIDS – Resource Allocation Programming Information Decision System
REMIS – Reliability and Maintainability Information System
SME – Subject Matter Expert
TIMS – Training Integration Management System
TBMCS – Theater Battle Management Core Systems
USSOCOM – United States Special Operations Command

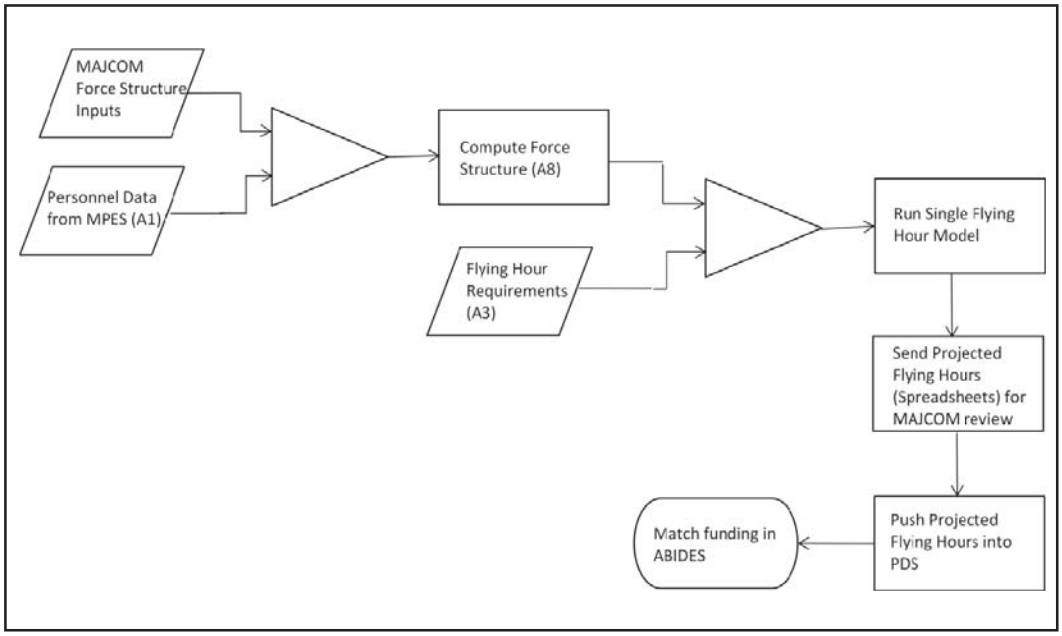

Figure 1. Programming Process

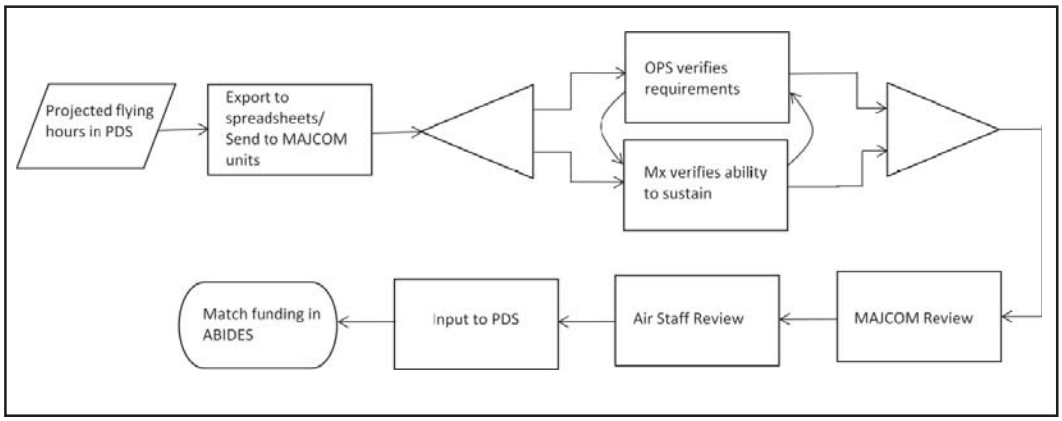

Figure 2. First Look Process

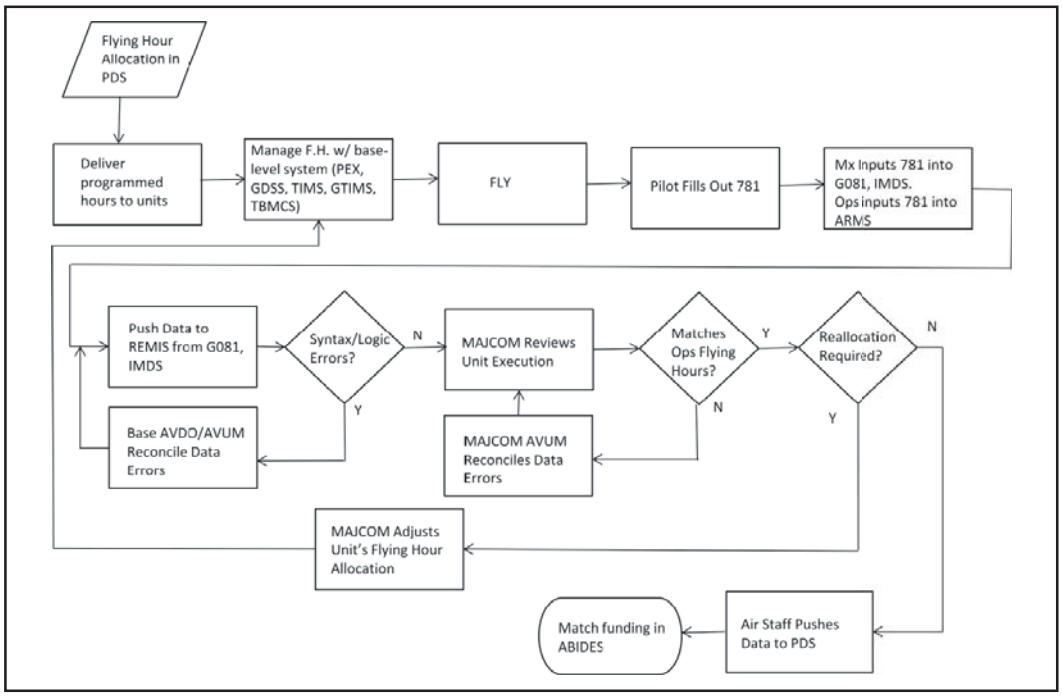

Figure 3. Execution Process

at the unit level. AETC, which has a fairly reliable flying schedule, conducts a more extensive First Look process than the other MAJCOMs. Synchronization of base-level operations and maintenance occurs 2 weeks prior to AETC's MAJCOM Program Flying Training conference, which validates the next 2 years of FHP requirements. Additionally, AETC uses different requirements for its *white tail* (initial training) aircraft and *grey tail* (operational training) aircraft. White tail requirements are based on initial student pilot production given by Air Force Air Operations Training (AF/A3O-AT); whereas, grey tail requirements use the AFFHM. Lastly, ACC and AFSOC have well organized First Look processes. However, ACC holds an annual Flying-Hour Conference as part of its First Look, and AFSOC has a standardized process for obtaining training sustainable flying hours from its units.

The last high-level MAJCOM similarity is the Execution process. The MAJCOMs use the Execution process to plan, execute, allocate, reconcile, and report their allocated flying hours as shown in Figure 3.

The Execution Process

The Execution process begins when units receive their allocated flying hours stored in PDS. A number of base-level systems are used by units to schedule and monitor their flying hours on a day-to-day basis to include the following:

- Patriot Excalibur (PEX)
- Global Decision Support System (GDSS)
- [Graduate] Training Integration Management System (TIMS/GTIMS)
- Theater Battle Management Core Systems (TMBCS)
- Spreadsheet products

Once a mission is executed, the pilot records post-sortie data to include flying hours on an Air Force Technical Order FM/IMT 781, which is the primary source of data on hours flown. The 781 data is input by maintenance into Integrated Maintenance Data System (IMDS) for CAF aircraft or G081 (Core Automated Maintenance System for Mobility) for MAF aircraft and automatically sent by both systems to the Reliability and Maintainability Information System (REMIS) at intervals based on the criticality of the data fields. REMIS automatically checks incoming data for a predefined set of syntax and logic errors. Data that fails the error checks are placed in an error suspense file for the base-level aerospace vehicle utilization monitor (AVUM) and aerospace vehicle distribution officer to correct. The AVUMs submit monthly execution reports to the MAJCOMs, which review them to monitor and adjust the execution process. The MAJCOMs also reconcile REMIS flying hours with those reported by operations at each base. MAJCOMs, in turn, forward monthly spreadsheet reports detailing their executed hours to Air Staff's flying-hour program manager (AF/A3O-AT). The program manager sits at the interface between the unclassified REMIS system and the classified PDS system and compares the flying hours in REMIS with the MAJCOM- reported flying hours. Before the data is archived in PDS (the Air Force authoritative data source), it passes through K002, a system that aligns tables from REMIS into PDS format. Once finalized, executed flying hours are pushed to PDS for permanent storage and funded in ABIDES (and reflected in ABIDES in the *actuals* position of the next President's budget submission to the Office of the Secretary of Defense and to Congress).[4]

There are also a number of key differences in the Execution process across the MAJCOMs. First, AFSOC's flying hours are reported to Air Staff after being vetted by USSOCOM, which controls AFSOC's flying hours. Furthermore, AFSOC must get approval from USSOCOM to reallocate flying hours (and funding) between MDS during execution. Second, MAJCOMs use very disparate processes to reconcile flying-hour data in REMIS with operational systems. The low-level processes used and amounts of reconciliation required are very different. For example, the Air National Guard (ANG) does very little reconciliation at the MAJCOM level, whereas other MAJCOMs do extensive reconciliation at headquarters. Third, MAJCOMs exert different degrees of control over the execution process. The ANG monitors the process, but largely enables decentralized execution of its diverse units. AMC, on the other hand, regularly reallocates flying hours as its aircraft are impacted by contingencies. Fourth, the base-level IT systems used differ extensively not only between, but also within, MAJCOMs.

The differences within FHP IT systems can be broadly categorized into two categories: *integrated* and *stovepiped*. The integrated systems transfer flying-hour information between themselves, whereas the stovepiped systems do not. The following are integrated IT systems discussed in the order of data flow:

- G081 and IMDS. G081 and IMDS are base-level systems that are the entry point for maintenance data, including flying hours, and are used universally by maintenance units throughout the Air Force. Maintainers input data directly from the 781 into G081 and IMDS, which both transmit the data to REMIS. Because the data, once reconciled in REMIS, is not updated in G081 and IMDS, both systems incur significant discrepancies in flying-hour data. From a database design perspective G081 and IMDS are very different. G081 provides a global view of MAF asset data, whereas IMDS is segregated into different groups of bases.
- REMIS. REMIS is a logistics database that receives data from multiple systems including G081 and IMDS at intervals based on the data's criticality. REMIS filters incoming data for logic and syntax errors, which the units must correct before the data is accepted. Furthermore, because it is directly correlated to dollars, flying hours are rigorously reconciled with AF/A3's reported hours at the MAJCOM level. REMIS is the central repository for aircraft maintenance and flying-hour data across the Air Force and is used for Air Force level reporting; it is considered the authoritative data source of the MAJCOMs. REMIS also feeds D200F (Requirements Management System), which in turn supports spare parts computations.
- K002 (Peacetime Programming Computational System). K002 is a classified temporary storage area where flying-hour data is summarized. REMIS data is input into K002 every month. The data may undergo changes due to reconciliation or late reporting. Once complete, the data stored in K002 is then archived in PDS. PDS is considered the Air Force authoritative data source for flying-hour data.
- PDS. Air Force flying-hour data, both programmed and executed, are archived in PDS. PDS is a classified system and is the authoritative source of post-execution, flying-hour data for the Air Force. Data is transmitted to PDS after the summarization process in K002; therefore, PDS is updated monthly.
- ABIDES. ABIDES is a classified system that matches funding and manpower data to the FHP. ABIDES receives programmed and executed flying hour, force structure, and inventory data from PDS and combines it with financial and manpower data received from the Resource Allocation Programming Information Decision System (RAPIDS) and MPES, respectively. The accuracy and timeliness of flying-hour data in ABIDES is equivalent to data in PDS. ABIDES, like PDS, is used by all MAJCOMs.

Conversely, the following five systems describe the most common stovepiped IT systems used to manage the FHP. They are presented in the order of decreasing pervasiveness throughout the Air Force.

- ARMS (Automated Records Management System). ARMS is the primary base-level system for tracking aircrew currency. Data is input from the 781 to include flying hours. Although ARMS is used by all MAJCOMs, it is a parallel system to REMIS, and its data is not formally checked as part of the REMIS reconciliation process.
- PEX. PEX is a base-level system used to manage and schedule day-to-day, monthly, quarterly, and annual flying operations. It has interfaces with both ARMS and IMDS, but data is only received, not transmitted. PEX is strictly a functional program for managing base-level flying operations with maintenance planning capability. In the future, it will be populated by the MAJCOMs and not strictly unit driven. PEX is used by ACC and ANG; however, its usefulness for scheduling and maintenance is such that it may be making inroads to other MAJCOMs.
- GDSS. GDSS is a command and control system used by AMC to plan and execute air mobility operations. Flying hours in

GDSS are used for execution planning as well as deviation and delay reporting. GDSS is not stovepiped in the strictest sense. Data flows on a two-way feed between GDSS and G081; however, only G081 data is directly used in the REMIS reconciliation process.

- TIMS/GTIMS: TIMS and GTIMS are training-specific systems used by AETC. Both systems track student training-sortie progress.
- Theater Battle Management Core Systems (TBMCS). TBMCS is a classified system used primarily in the area of responsibility to plan and execute air operations including publishing the air tasking order.

In addition to the previously discussed IT systems, there are two IT systems currently in development that will also affect FHP data.[5]

- Force Structure Data Management (FSDM): FSDM will replace PDS, which has become outdated and unreliable. FSDM is scheduled to begin operation in December 2010.
- Financial Information Resource System (FIRST): FIRST is currently in design and is scheduled for operational testing in March or April of 2011. FIRST will replace ABIDES and subsume PDS/FSDM and RAPIDS.

To determine the suitability of the IT systems as touchpoints for ECSS, the characteristics of the systems have been integrated with the three high-level FHP processes shown in the following tables. The tables will summarize the degree of accessibility, data integrity, and applicability of each system. It should be stressed that no effort has been made to quantify these attributes in an objective, absolute sense. Instead qualitative words such as *low, poor, good,* and *high* were used. These descriptions only serve as a relative ranking of the systems within each table and were based on both the characteristics of the systems as well as their relationship to the FHP process.

The IT systems required for the Programming and First Look processes are identical, as the processes only differ in the fidelity with which operations requirements and maintenance sustainability are reconciled at the base level. The processes use PDS and ABIDES; both systems will be replaced with FIRST in the future.

All three systems are classified, and since ECSS is intended to be an unclassified system, the systems are not accessible. Additionally, the programmed flying-hour data is strictly a prediction. Whether this prediction is accurate or not is outside the scope of this article; however, the prediction is represented identically in all three systems. Thus, the data integrity of programmed flying hours is high. All three systems are used by the MAJCOMs for their FHPs.

The following table summarizes the suitability of the integrated IT systems used in the Execution process. The systems are listed in order of data flow.

As described earlier, data enters this integrated set of systems through G081 or IMDS. As data flows to REMIS, K002, PDS, and then ABIDES, it undergoes several checks for data integrity; however, its timeliness decreases because K002, PDS, and ABIDES are only updated monthly. Monthly, quarterly, and annual FHP data can be manually input into G081 and IMDS from PDS; however, no validation actions are performed in the transfer. With the exception of G081 and IMDS, the systems are applicable to all MAJCOMs.

IT SYSTEM	Accessibility	Data Integrity	Applicability
PDS	Limited; classified system	High	All MAJCOMs
ABIDES	Limited; classified system	High	All MAJCOMs
FIRST*	Limited; classified system	High	All MAJCOMs
* System Under Development			

Table 1. Evaluation of Programming and First Look Process Systems

IT SYSTEM	ACCESS-IBILITY	DATA INTEGRITY	APPLIC-ABILITY
G081	Good	High Timeliness/Low Accuracy	MAF Aircraft
IMDS	Good	High Timeliness/Low Accuracy	All Other Aircraft (UAVs)
REMIS	Good	High Timeliness/Low to Moderate Accuracy	All MAJCOMs
D200	Unknown	Low Timeliness/Good Accuracy	All MAJCOMs
K002	Limited; classified system (REMIS feeds K002 monthly)	Low Timeliness/Good Accuracy	All MAJCOMs
PDS	Unknown	Low Timeliness/Highest Accuracy	All MAJCOMs
ABIDES	Unknown	Low Timeliness/Highest Accuracy	All MAJCOMs
FIRST*	Unknown	Low Timeliness/Highest Accuracy	All MAJCOMs
* System Under Development			

Table 2. Evaluation of Integrated Execution Systems

Summary of Stovepiped Systems

Table 3 presents a summary of the stovepiped systems.

ARMS and PEX are both base-level systems, and it is unknown whether unit data is centrally accessible. PEX, however, allows FHP allocations to be pushed to units from the MAJCOM. GDSS allows complete visibility of AMC assets; however, it is unknown whether TIMS/GTIMS training data is centrally accessible for AETC's bases. Data in all systems is updated based on data criticality and is therefore timely. However, the flying-hour data in these systems is not updated to match changes that occur during the reconciliation process with REMIS. The data accuracy of these systems is unknown but almost certainly lower than that of REMIS—data from these systems not included in the formal REMIS data reconciliation process.

Conclusions and Summary

A number of conclusions were made throughout the duration of the study. First, the processes the MAJCOMs and Air Staff use to program and execute the FHP can be decomposed into three high-level processes, having commonality across the MAJCOMs. Second, ECSS's subsuming of REMIS should be the focal point for gaining access to near real-time flying-hour data. The integrity of this data can be improved by checking data at the point of entry. ECSS will also have access to validated data, currently in K002 and PDS. (REMIS gets both initial FHP plus monthly updates through K002 and D200F. G081 and IMDS have a manual process of loading FHPs with limited utilization.) Third, MAJCOMs are working toward commonality between base-level systems used by operations to manage the day-to-day aspects of the FHP. Some base-level systems, such as PEX, provide significant utility to the units.

A number of recommendations also resulted. First, flying-hour data should be validated at the point of entry and should be viewable through a business intelligence suite at the appropriate Air Force levels. Second, an opportunity exists to automate initial input—FHP execution and utilization reporting at the unit, MAJCOM, and Air Force levels and display data in a dashboard. Third, AF/A3 should develop a standardized First Look model for all MAJCOMs' unique mission requirements to ensure communication between operations and maintenance in determining requirements and their sustainability. Fourth, ECSS may consider expanding functionality in the future to subsume or integrate scheduling functions currently provided by one or more of the base-level systems. Additionally, a formal process may be developed to reconcile ARMS data with the FHP process at the unit level. Fifth, replacing paper 781s with an automated data acquisition system should be considered as AF/A3 and AF/A4 (Directorate of Logistics) communication is key to advancing transformation initiatives and avoiding stovepiping of IT system development in the future.

In summary, AF/A4 is transforming the way it executes logistics and ECSS is the cornerstone enabler. IT system touchpoints are necessary for ECSS to access critical logistics information on FHP programming and execution. Additionally, the changes affecting AF/A4 will also impact AF/A3 and the way information is collected and shared. For example, it will become essential that AF/A3 transition to ECSS and place less reliance on gathering FHP data from the current legacy systems. To facilitate this, AF/A3 IT requirements must be known and ECSS training must be provided to these new user communities. Another challenge facing ECSS and the FHP is the lack of accessibility to ECSS from classified systems such as PDS and ABIDES. According to the ECSS Logistics Transformation Office, the current policy states that if data is unclassified but the system is classified, then an interface between ECSS and the data may be designed. However, if the data is classified, the classified system will remain persistent and ECSS will not perform that functionality. Either way, the FHP is a major driver of Air Force logistics and obtaining FHP data within ECSS will require reconciliation between AF/A3 and AF/A4 to forge a successful way ahead.

IT SYSTEM	Access-ibility	Data Integrity	Applic-ability
ARMS	Unknown	High Timeliness/Unknown Accuracy	ALL MAJCOMs
PEX	Unknown	High Timeliness/Unknown Accuracy	ACC, ANG, AFSOC
GDSS*	Good	High Timeliness/Unknown Accuracy	AMC
TIMS/GTIMS	Unknown	High Timeliness/Unknown Accuracy	AETC
TBMCS	Unknown	Unknown	AOR Operations
* GDSS feeds data to G081			

Table 3. Evaluation of Stovepiped Execution Systems

Notes

1. Author's communication with Mr Barry Reid, AF/A30-ATF.
2. Air Force Instruction 11-102, *Flying-Hour Program Management,* 29 March 2002, 3.
3. Air Force Policy Directive 11-1, *Flying-Hour Program,* 10 August 2004, 1.
4. Author's communication with Mr Barry Reid, AF/A30-ATF.
5. Author's communication with Mr Carl R. Simpson, SAF/FMP (AFFSO).

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