18th Wing

F-15 Flying Hour Program 8-Step Outbrief
11 Jun 10

Lt Col Matthew D. Cox
18 MXG/CDM
DSN: 734-1805

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This Briefing is:
UNCLASSIFIED

Team Members

Dowd, Joseph J SMSgt USAF PACAF 18 AMXS/MXAB, 634-7986
Bert, Brandon D Capt USAF PACAF 44 FS/DOT, 634-1831
Pato, Marc R TSgt USAF PACAF 18 MOS/MXOOA, 632-4847
Warren, Thomas W SMSgt USAF 18 MOS 18 MOS/MXOOP, 634-7541
Gilluly, Benjamin J Capt USAF PACAF 44 FS/DOA, 634-1831
Carey, Joel L LtCol USAF PACAF 44 FS/DO, 634-1831
Edmondson, Angela C Capt USAF PACAF 18 AMXS/MXAR, 634-5286
Eaglin, David LtCol USAF PACAF 67 FS/DO/DO, 634-4567
Deno, Brian K SMSgt USAF PACAF 18 AMXS/MXAR, 632-6788
Cook, Chad W LtCol USAF PACAF 18 WG/ADO, 634-1831

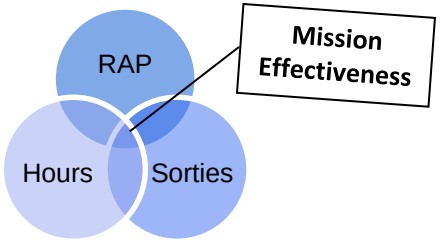
Event Goal - In Short

- See the Value Stream
- Identify the Waste
- Make Improvements
- Establish Performance Standards
- Establish Measurements to Track Performance
- Institutionalize the Change

Charter and Deliverables Summary

- **Problem Statement: There is a delta between F-15 FY11 training requirements and maintenance capability**
- **Purpose: Produce a flying and training program that delivers 100% of pilots fully combat ready (RAP and proficiency), and an F-15 fleet that meets the 78% MC standard**
- **Deliverables:**
  - **Efficiencies in the ops/mx scheduling process**
  - **A schedule that allows a better opportunity to train and grow maintenance personnel**
  - **A FHP that is plausible for maintenance, and achieves proficiency, and meets the needs of the wing FHP**
  - **A "playbook" of options that both maintenance and ops can use to dial up or down**

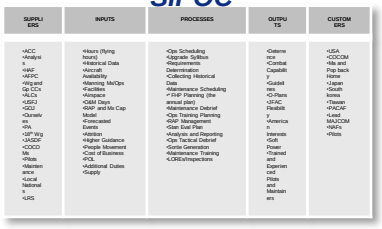
Event Summary



Tools Employed:

- 8-Step Process
- SWOT
- SIPOC
- Voice of the Customer
- Value Stream Maps
- Bottleneck Analysis
- Gap Analysis
- Root Cause Analysis
- Action Plan
- Standard Work
- Variation Reduction
- Visual Management
- KPIs and Metrics

SIPOC



SWOT

Summary of Root Cause Analysis and Countermeasures

Root Cause – Themes:

- Manning (mx-down, ops-up)
- Aircraft age
- * Experience Levels
- Turnover (lack of continuity)
- Not enforcing timeline(s)
- * Poor planning & coordination
- Reliance upon outside agencies
- Lack of focus
- Competing objectives
- * No Playbook (standard work)
- Too flexible
- * No dedicated planning time
- * Lack of coordinated trng plan

Countermeasures:

- Coordinated mx training plan
- Annual & qtrly FHP workshop
- Synchronize wing calendar
- Increase DACT/bi-lat/joint ops
- Create a playbook of options for FHP execution
- Increased purple flying
- Mission Effectiveness metric
- Dry run plays from playbook
- Wing focus on mission support
- Incorporate ops msn eff slide into mx group
- Mx purple ops

Playbook Application Example

The following example illustrates potential improvements using estimates of expected benefits of the playbook plays explored.

Current state: 15 O&M days = 316 sorties

With playbook options: Delta = -153 sorties

Option 1: "Binge" = +48 sorties

M	T	W	T	F
12p12p12x10p10p10	10x8	10x8	10x8	10x0

Option 2: Surge Monday = +32 sorties

M	T	W	T	F
WX	Surge	Surge	Make-up	No Fly

Option 3: Monday Training Day with 2-go Friday = +8 sorties

M	T	W	T	F
No Fly	10x8	10x8	10x8	10p/x8

Delta at End of Month = -65

Results Summary

- Documented an integrated annual, quarterly, and monthly FHP process
- Established ROEs for FHP execution
- Developed the outline and template for a playbook
- Potential impact to sortie delta and mission effectiveness (sample playbook applications):
  - O&M optimization: 155 sorties (yr)
  - Surge optimization: 216 sorties (yr)
  - Trip turn optimization: 40 sorties (yr)
  - Low O&M month application: 88 sorties (recovered) (mo)
  - DACT: 10% decrease in red air

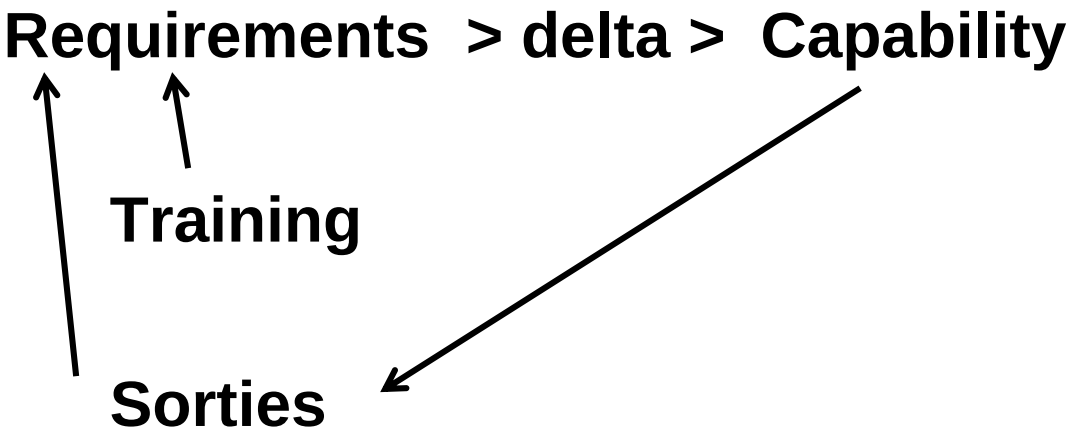
Event Material

The Parking Lot...

- Alternate missions
- Little time to respond to first look response timing
- Modeling takes a lot of time/people
- Mx is responsible to produce the necessary training
- Looking at improvement now… not in 6 months
- Ops has to supply the need for what they want
- We should look at what the right number of sorties really is
- How ops/mx works together in parallel is how the wing meets its objective
- Better use of historical data in-year to review progress against the plan
- Saturday flying
- Goal days
- Capture corporate knowledge in playbook
- Mx purple ops
- Purple ops mx training
- Rainbow ops/mx training
- Annual/semi-annual FHP planning conference
- More formalized OJC (mx trn report card debrief
- Mx add mission effectiveness slide to group meeting
- Run some plays (dry runs from playbook)
- Wing focus on mission support

Problem Statement

- **We have fewer sorties than we need**



SWOT Analysis

(Strengths, Weaknesses, Opportunities, and Threats)

STRENGTHS (Internal)	OPPORTUNITIES (External)
•Airmen •Communication (between ops and mx) •Ability to compromise and find common ground •Commitment to finding a solution (get 'er done, make it happen) •Good relationship with PACAF and ACC •Clear expectations of training requirements •Execution of day-to-day ops •Kadena political situation Pol/Mil leverage for resources/contingency ops •Diverse skills/talents, multi-taskers •Maintenance capability (SCP, Structures, … local capabilities)	•Training with JASDF, Marine Corps, Navy (DACT) •Deployments, exercises •Pilot exchanges, mx personnel exchanges •Mx manpower and equipment from drawdown bases (experienced personnel) •IPs from other units (may be a decreasing opportunity) •AFETS •Mx training days/opportunities (LOREs, PTT, other non-traditional training opportunities) •Maximize use of existing down days •Hot pits, surges, simulators, purple surges, tankers, ATR
WEAKNESSES (Internal)	**THREATS (External)**
•Mx training (syllibus and plans) •One deep expertise •Systemic "yes men" syndrome (won't say no, just say no) •Planning (FHP execution) •Eagle debrief systems •Old iron (aging aircraft, sorties lost to attrition, impact to training) •Too flexible (too willing to deviate from the plan… see it through) •Translating/understanding each others' problems (no common language) •Depth in skill (Mx) (similar to RAP/Proficiency argument) •Additional duties (too many) •Too many schedule changes (Ops) (most self-induced) •Chasing the wrong stats (Mx/Ops tracking things differently, Focus) •Parts availability •Funding •Are our metrics really effective (are they relevant, what should we be looking at)	•The FHP (what we get $/hrs) •Typhoons/weather •Local holidays, no fly days •Deployment schedule (against weather days) •Safety days, training days •Pol/Mil sensitivity and impacts •Flying hour window •ATR out of the blue (short notice) •Mods, PDM •Jets break •Personnel disciplinary measures •* Force shaping, DOS Roll Back, RIF •Personnel rotation •* Shredouts, SEIs •Best laid plans •Pol/Mil situation •External airspace users •AEF taskings •Combined effects of any of the above

SIPOC

(Suppliers, Inputs, Processes, Outputs, Customers)

SUPPLIERS	INPUTS	PROCESSES	OUTPUTS	CUSTOMERS
•ACC •Analysis •HAF •AFPC •Wg and Gp CCs •ALCs •USFJ •GOJ •Ourselves •PA •18th Wg •JASDF •COCOMs •Pilots •Maintenance •Local Nationals •LRS	•Hours (flying hours) •Historical Data •Aircraft Availability •Manning Mx/Ops •Facilities •Airspace •O&M Days •RAP and Mx Cap Model •Forecasted Events •Attrition •Higher Guidance •People Movement •Cost of Business •POL •Additional Duties •Supply	•Ops Scheduling •Upgrade Syllibus •Requirements Determination •Collecting Historical Data •Maintenance Scheduling •* FHP Planning (the annual plan) •Maintenance Debrief •Ops Training Planning •RAP Management •Stan Eval Plan •Analysis and Reporting •Ops Tactical Debrief •Sortie Generation •Maintenance Training •LOREs/Inspections	•Deterrence •Combat Capability •Guidelines •O-Plans •JFAC Flexibility •American Interests •Soft Power •Trained and Experienced Pilots and Maintainers	•USA •COCOM •Ma and Pop back Home •Japan •South korea •Tiawan •PACAF •Lead MAJCOM •NAFs •Pilots

Voice of the Customer (VOC)

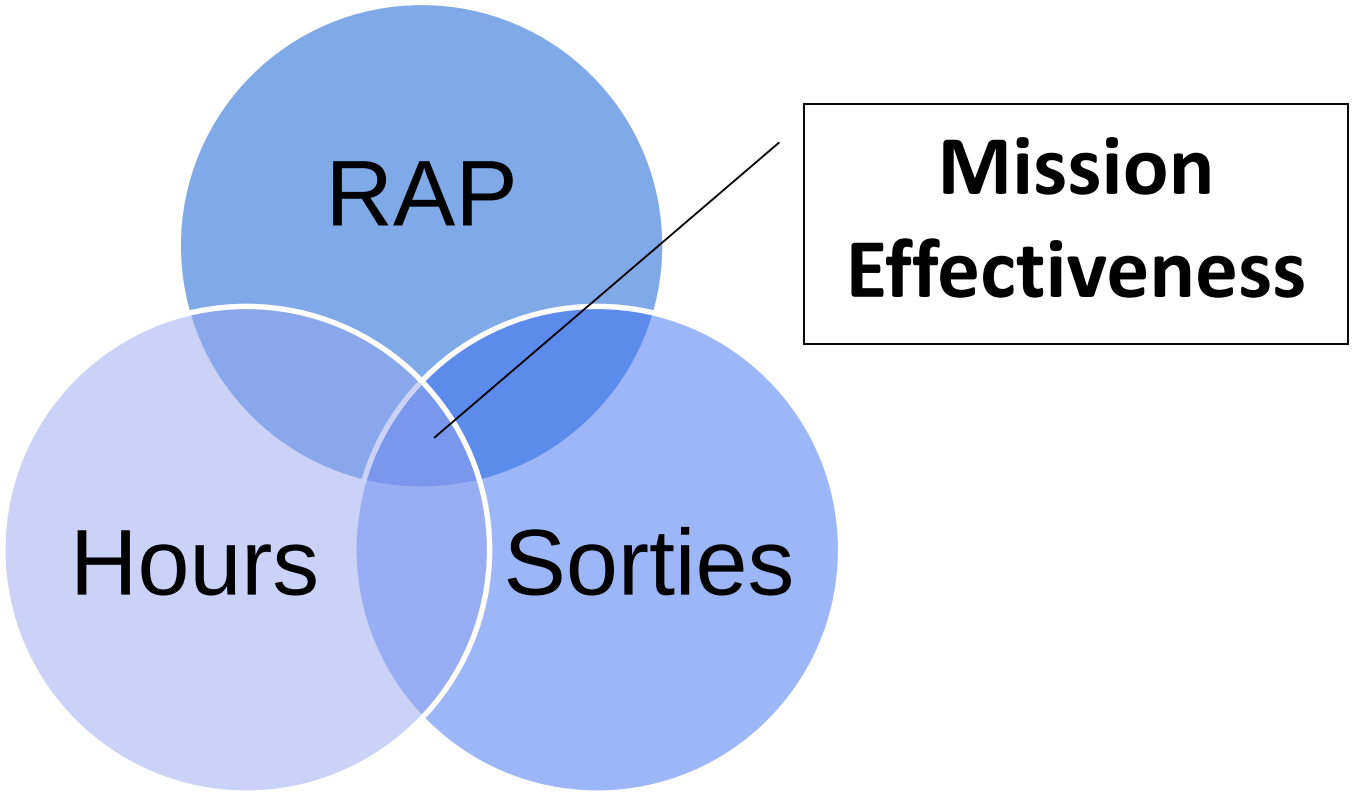
- Sorties (x amount per month) (effective RAP)
- Effective training
- More blue air, less red air
- More time doing tactical debriefs
- Less time doing additional duties
- More effective/reliable debriefing media
- More stability with the contract (plan what you fly, fly what you plan)
- More lead time for TDYs and deployments
- More weapons (9Xs)
- Range Training Officers (RTOs)

Key Performance Indicators (KPIs) and Metrics

Purpose: to measure our progress against the plan

Sorties	**(number of sorties) (Monthly, Quarterly, Semi-Annually, Tracked Weekly)**
Hours	**(number of hours) (Monthly, Quarterly, Semi-Annually, Tracked Weekly)**
RAP	**(Weekly – for scheduling, Monthly – for progress reporting, Quarterly – for progress reporting, Semi-Annual – for review and course corrections, and Annually – look back and alibi shortfalls)**
Mx Health of Fleet	**(MC, AA, Fix, Break, Abort, Repeat Recur, CANN, M/FSE, NMCM, NMCS, NMCD, Aircraft Possessed)**
Mission Effectiveness	**(Student Performance, ATC, Airspace, Weather, others…)**

Relationship of Key Metrics



Performance Gap Analysis

MEASURE	REQUIREMENT	CAPABILITY	DELTA
Sorties (RAP) (1)	8,736	8,200	-539
Hours (RAP) (1)	10,920	10,250	-669
Mission Effectiveness	100%	metric not defined	
Health of Fleet (2)	78%	78.4%	+.4%

Notes: 1 – 1.25 ASD; 2 – MC Rate Std.

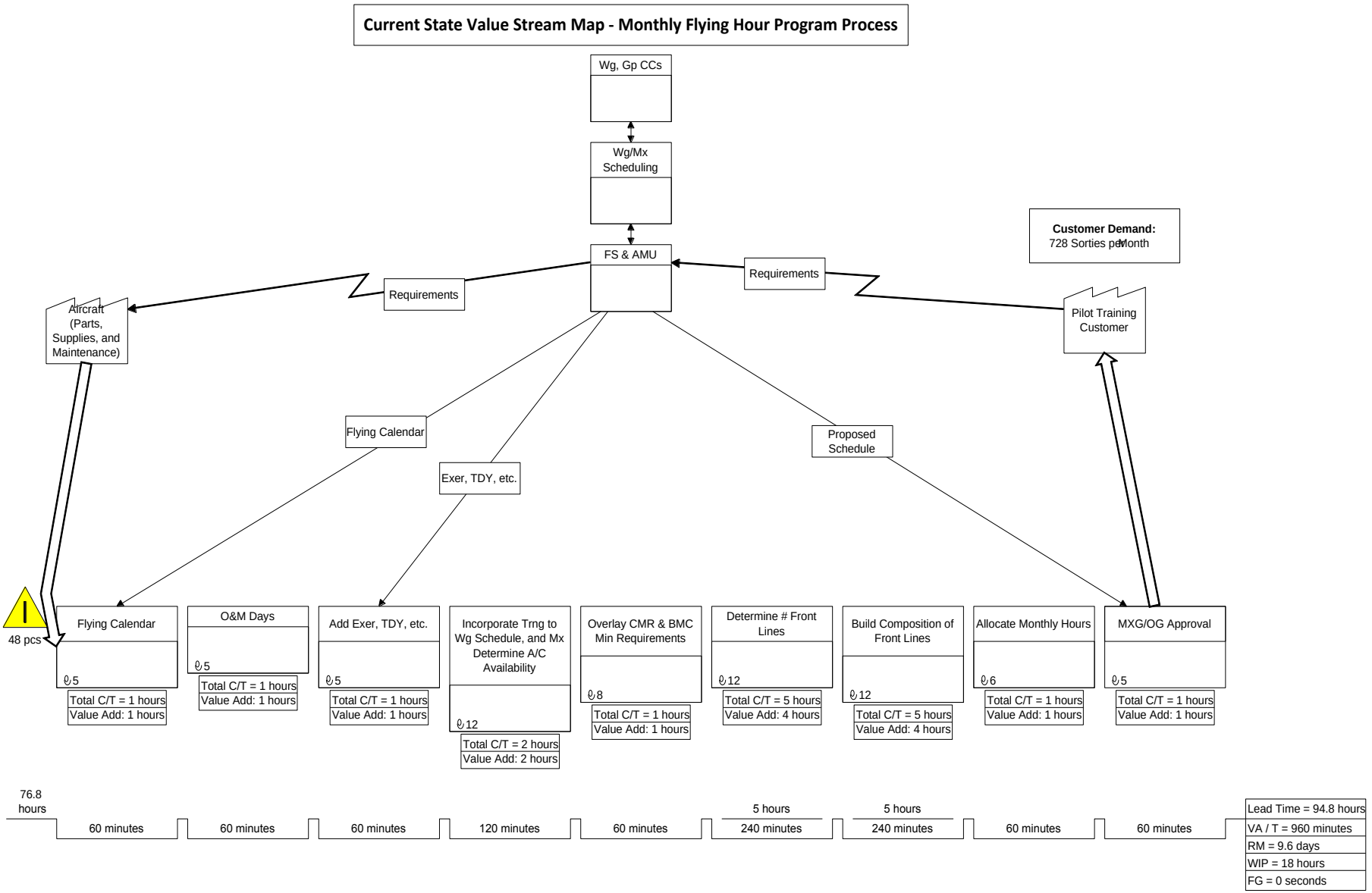
Current State

Current State Value Stream Map – Annual Flying Hour Program Process

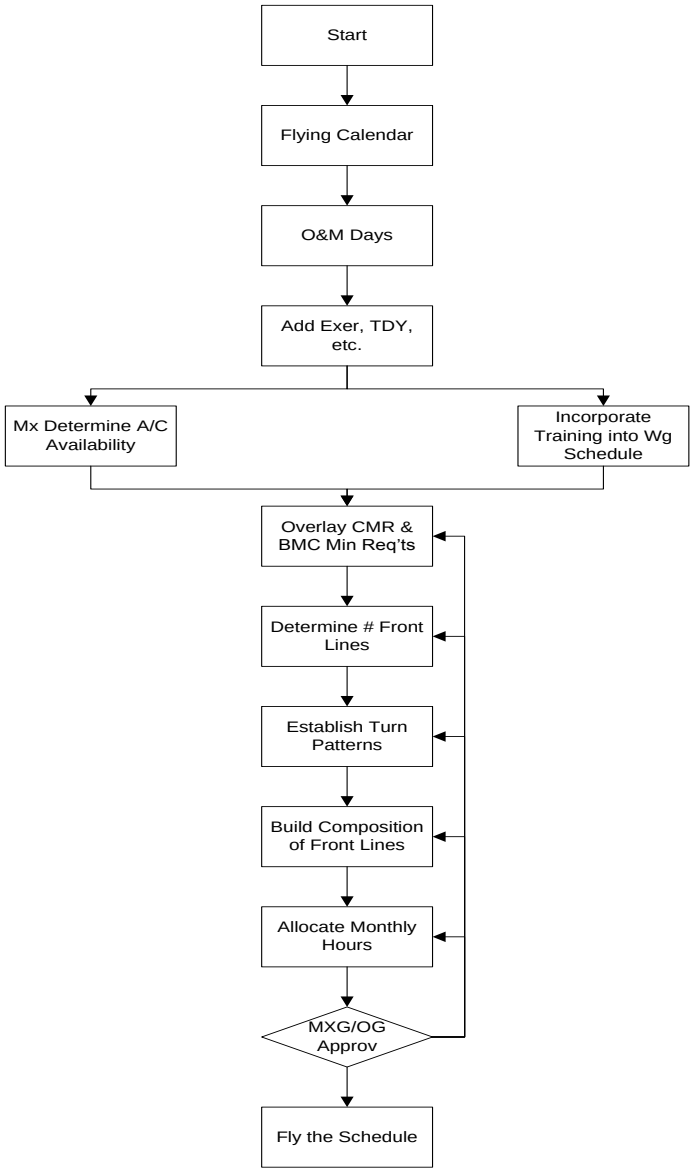
Current State Value Stream Map – Monthly Flying Hour Program Process

Current State
Annual Flying Hour Program Process (Flow)

Current State Value Stream Map
Monthly Flying Hour Program Process



Current State
Monthly Flying Hour Program Process (Flow)



Future State Concepts

- Need to build flexibility into the schedule
- During modeling Mx and Ops must work together to close any potential delta between requirements and capability
- Consider (simultaneously) manning, experience levels, facilities, aircraft, personnel, and related factors
- Consider acceptance of risk as appropriate/assessed
- Ensure there is an acceptable balance between:
- Requirements and Capabilities
- Risk and Reward
- Cost and Benefit
- Investment and Return
- CMR Rate and Mx Production

Future State

- **Improvements, objectives, and principles for the future state (Reference the Monthly FHP Current State process steps)**

Future State (cont.)

- **Step 1**
  - **COMREL earlier and more stability (eg. Change of command, wing functions forecast, no later than 1 Aug)**

- **Step 2**
  - **Fly Saturday**
  - **Counter O&M**
  - **Shift weekend/down day with no fly**
  - **Use historical data for forecast**
  - **Synchronize no fly days with training days (emphasize flexibility)**
  - **Standard quiet hours**

Future State (cont.)

- **Step 3**
  - **Better oversight on upcoming TDYs and exercises**
- **Step 4**
  - **DACT/Bi-lateral ops, increase requirement (more)**
  - **SIM usage, DMO, night counter**
  - **More realistic weather, systems, etc.**
  - **Re-look at syllabus for excess**

Future State (cont.)

- **Step 5**
  - **Link availability planning with training plan**
  - **Maximized pockets of availability (create)**
  - **Capitalize on training opportunities (un-flyable aircraft, GITA, simulators, CBTs, etc.)**
- **Step 6**
  - **Increase purple operation and integration (config, mission, ops training schedule, etc.)**
  - **Minimize straphangers (severely attached)**
- **Step 7**
  - **(See Step 5)**

Future State (cont.)

- **Step 8**
  - **Purple hot pit ops**
  - **Monday training days equals Friday 2-go days**
  - **Trip goes without pits**
  - **Wing surge (purple)**
  - **Purple red air**
  - **Surge duration and frequency**
  - **12x10 Monday (increase fronts)**
  - **Move meetings from Monday (pilot availability)**
  - **Surge Mondays**
  - **Incentive Tuesday through Friday (not just on Fridays)**
  - **Trip go with lower fronts**
  - **2 go + 2 pits**
  - **Bulge (Surge Lite, 12p10x8p6; 12p12; 10p10x8p8)**
  - **Better planning OCF/FCF (pilot training)**

Future State (cont.)

- **Step 9**
  - **Increase centerline use**
  - **Straight config (set time or cross squadron)**
  - **Hold ourselves to the AFI timeline**
  - **Proactive versus reactive**
  - **Hold ourselves accountable**
  - **(See Step 6)**

Root Cause Analysis

- **5-Whys – Why is there a delta between requirements and capability?**
  - **Realization that we are not getting there from here**
  - **Manning (shortage in maintenance, increase in ops)**
  - **<u>* Money (lack of, decreasing)</u>**
  - **Aircraft age**
  - **<u>* Experience Level</u>**
  - **Turnover (lack of continuity)**
  - **Not enforcing timeline(s)**
  - **ASD**
  - **<u>* Poor planning and coordination</u>**

Root Cause Analysis (cont.)

- **5-Whys – Why do we have poor planning and coordination?**
  - **Lack of information**
  - **Reliance upon outside agencies**
  - **Lack of focus**
  - **Competing objectives**
  - **<u>* No Playbook</u>**
  - **Too flexible**
  - **Appropriate focus**
  - **<u>* No dedicated planning time</u>**

Root Cause Analysis (cont.)

- **5-Whys – Why do we have low experience levels?**
  - **Force shaping**
  - **Ultra efficiency**
  - **<u>* Lack of coordinated training plan</u>**
  - **Additional duties**
  - **Garbage in garbage out**

Considerations for Countermeasures

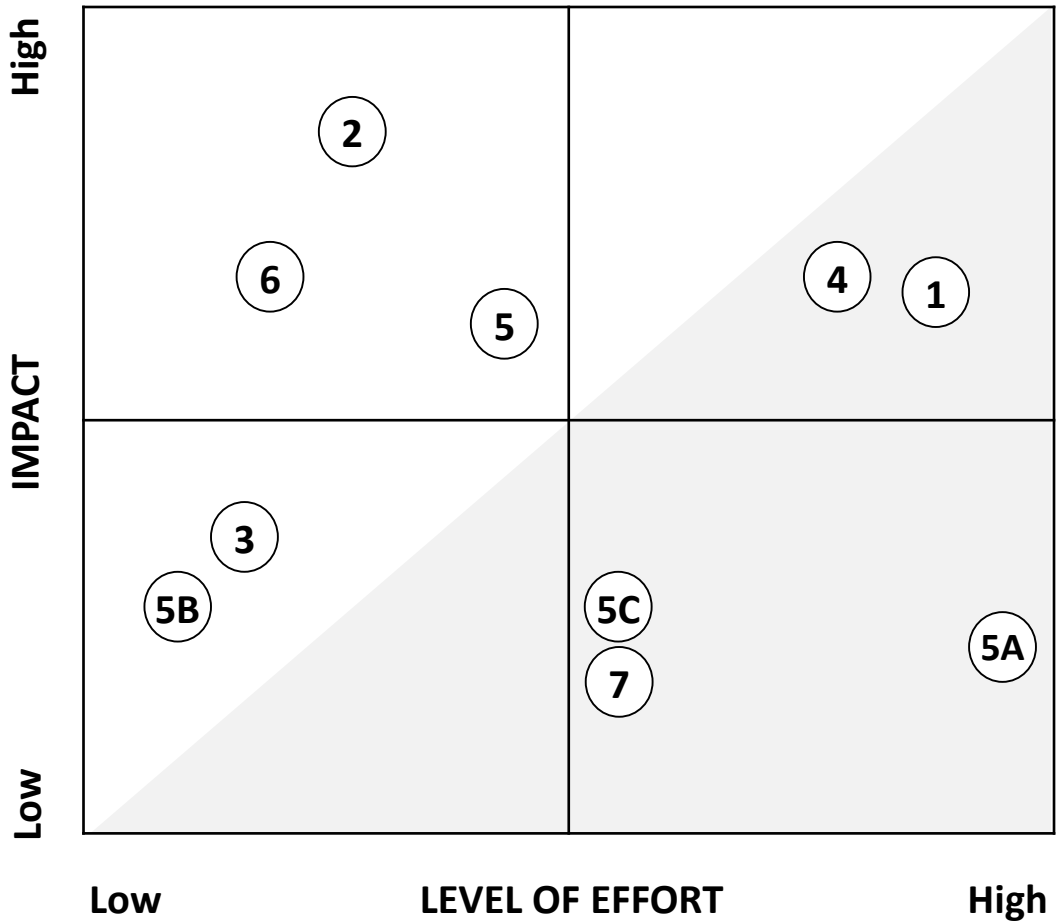
- Who, what, when, why, how
- Expected benefit (quantify)
- Key metric
- Formalize
- Followup
- Other considerations: Historical data, health of fleet, pilot availability, lead time, forecasted manning, aircraft availability, configurations, progress against the plan, calendar requirements, entry and exit plans, airspace, commander's intent, goals, rules of engagement, desired effect, benefits, applicable scenarios, environment, cost in resources, audibles, warnings/cautions/notes, followup, 2nd and 3rd order effects, pros and cons

Playbook Play Considerations

•2nd and 3rd order effects •aircraft availability •aircraft required •airfield •airspace •applicable scenarios •applicable training •approvals •audibles •benefits •calendar requirements •commander's intent •configurations •coordination •cost in resources •deconfliction points •desired effect •entry and exit plans •environment •EOR considerations	•expectations of the play •flow-throu usage •flying window impacts •followup •forecasted manning •front •goals •health of fleet •historical data •history, past performance results of this approach •HOF impacts •HOF required at entry •hours •how measured •impact to the base •impact to the local community	•lead time •measures of success •munitions •mx scheduling impacts •ops scheduling impacts •PAS usage •performance measure •personnel required mx/ops •pilot availability •pits •pods •POL requirements •potential congestion •preconditions •preparation •progress against the plan •pros and cons	•RAP counters •reconfigs •recovery and reconstitution •risk in terms of effectiveness •rules of engagement •RWR traps •setup •sorties •spare •tanks •type radar •value to CMR •value to fleet health •value to hours •value to proficiency •value to sorties •waivers •Warnings, cautions, notes •weapons •when not to use

Countermeasures Pick Chart

- **Level of impact to effort (*"bang for the buck"*)**
  (Reference the numbered countermeasures.)



Countermeasures

1. Develop a coordinated mx training plan

- Who: MXG
- How: AFSO 21 event
- Why:
  - Maximize training opportunities
  - Free up Airmens' Time
  - Bridge experience gap
  - Higher fix rates, lower repeat recurs
  - * Increase mission effectiveness
  - Purple training opportunities
  - Reduce duplication of effort
  - Purple ops mx training
  - Rainbow ops/mx training
  - More formalized OJT (mx trn report card debrief)
  - AFETS, FTD
  - Mx training days/opportunities (LOREs, PTT, other non-traditional training opportunities)
- Metric: Experience level (increase)
- Expected Benefit: (quantify in terms of the metric, a number)

Countermeasures

2. Establish an annual and quarterly FHP workshop

- Who: OSOS (OG, MXG)
- How: Workgroup
- Why:
  - Establish dedicated planning time
  - Reinforce the annual FHP
  - More effective scheduling, execution, continuity, communication
  - Refine the annual plan
  - Assess progress
  - Decrease the FHP delta
  - Increase quality and fidelity of the FHP
  - Maximized pockets of availability (create)
  - Hold ourselves to the AFI timeline
  - Proactive versus reactive
  - Hold ourselves accountable
- Metric: FHP delta (decrease)
- Expected Benefit: (quantify in terms of the metric, a number)

Countermeasures

3. Synchronize the wing calendar to capture events that impact FHP development and execution

- **Who: DS (a wing process with multiple players)**
- **How: Project**
- **Why:**
  - **Purpose: to avoid turmoil**
  - **Provide the necessary information for planning and scheduling**
  - **Provide stability to FHP plan (fly what you schedule)**
  - **Improve the training plan process (by maximizing O&M days)**
  - **Establish and enforce timelines for suspenses and products**
  - **COMREL earlier and more stability (eg. Change of command, wing functions forecast, no later than 1 Aug)**
  - **Better oversight on upcoming TDYs and exercises**
- **Metric: Useable O&M days (increase)**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

4. Increase DACT/Bi-Lat Ops/Joint Ops to maximize blue air

- Who: OSK (OG/CC)
- How: Project
- Why:
  - To increase the percentage of blue air sorties
  - To improve/elevate the RAP-to-Proficiency ratio (balance)
  - Reduce the red air sortie requirement
- Metric: Mission Effectiveness (pilot performance, percentage of blue/red air)
- Expected Benefit: Reduction of 516 red air sorties per year (with qualifiers) 10% (6.45 sorties per pilot)

Countermeasures

5. Create a playbook – develop alternatives for planning and execution of the FHP

- **Who: OG, MXG**
- **How: Workgroup**
- **Why:**
  - **To afford options**
  - **Document standardized turn pattern options with agreed upon inputs and outputs**
  - **To minimize/prevent the delta gap**
  - **Capture corporate knowledge in playbook**
  - **Create flexibility within well defined bounds (prevent being "too flexible")**
- **Metric: delta in sorties**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Plays

- 5A - Fly Saturday
- 5B - Surge Mondays
- 5C - Trip goes without pits
- Purple hot pit ops
- Monday training days equals Friday 2-go days
- Wing surge (purple)
- Purple red air
- 12x10 Monday (increase fronts)
- Incentive Tuesday through Friday (not just on Fridays)
- Trip go with lower fronts
- 2 go + 2 pits
- Bulge (Surge Lite, 12p10x8p6; 12p12; 10p10x8p8)
- Straight config (set time or cross squadron)

Countermeasures

5A. Playbook Play - What: Saturday flying

- When: low/limited O&M months, 4-day fly weeks
- Assumptions:
  - 5-day (fly) work week, need base support, need a no-fly day, avoid mid-week no fly, PA aspect, pit turns both AMU, Mx may have to work on Sunday, CDC, dining facility
- Pros:
  - Adds O&M days
  - Limited airspace competition
  - Adds Mx training day opportunities
  - Could result in UTE days
- Cons:
  - Mx may have to work Sunday
  - May decrease Monday capability (a/c status)
  - Support requirements
  - Impact to families
  - Non-standard work week
- Metric: Number of Sorties
- Expected Benefit:
  - In terms of sorties
  - Given red and blue flying 10p8 it results in 31 sorties
  - Given 5 opportunities per year results in 155 sorties

Countermeasures

5B. Playbook Play - What: Start surge on Monday

- **Assumptions:**
  - **Move Monday meetings, no Saturday fly, healthy jets, pilot availability, reconstitution days, standard Friday 2-go if fly on Thursday, Friday go-no-go decision**
- **Pros:**
  - **Increased chance of success**
  - **Increased availability**
  - **Flexibility**
  - **Make-up days**
  - **Decrease in attrition rate**
  - **Potential for 3+ day surge**
- **Cons:**
  - **Impact to wing battle rhythm**
  - **Pilot availability**
- **Metric: Number of Sorties**
- **Expected Benefit:**
  - **In terms of sorties**
  - **Estimated 27 sorties per instance**
  - **Approximately 216 sorties**
  - **Meet surge criteria**

Countermeasures

6. Develop CONOPS for increased purple flying operation

- Who: OG
- How: Project
- Why:
  - Increase sortie effectiveness
  - Increase cross-utilization of iron, pilots, and spares
  - Potential reduction of Ops supervision overhead
  - Increased Interoperability
  - Increase purple operation and integration (config, mission, ops training schedule, etc.)
  - Straight config (set time or cross squadron)
- Metric: Mission Effectiveness
- Expected Benefit:
  - Reduce non-effective for configuration
  - Decreased attrition

Countermeasures

7. Define Mission Effectiveness and create slide and metric

- Who: OG
- How: Project
- Why:
  - Establish a metric to reflect pilot proficiency
  - Increase understanding and visibility of sortie effectiveness
  - Increase accuracy of attrition planning
  - Trigger point for playbook options
  - Provide focus for Mx
- Metric: (for development)
- Expected Benefit: (quantify in terms of the metric, a number)

Countermeasures

8. Run some plays from Playbook (dry run prior to full implementation)

- **Who: OG/MXG**
- **How: JDI**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

9. Wing focus on mission support (outside mx/ops focus)

- **Who: MXG/OG**
- **How: Project**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

10. Add ops mission effectiveness slide to mx group meeting

- **Who: MXG**
- **How: JDI**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

11. Mx purple ops

- **Who: AMXS**
- **How: Project**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

12. Explore opportunities in maintenance capability (SCP, AFETS, etc.)

- **Who: MXG**
- **How: JDI**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Countermeasures

13. Develop methods to improve translating and understanding (common language) between ops and maintenance (mid-level officers, ops, mx)

- **Who: FS, AMU**
- **How: JDI**
- **Why:**
- **Metric:**
- **Expected Benefit: (quantify in terms of the metric, a number)**

Playbook Application Example

The following example illustrates potential improvements using estimates of expected benefits of the playbook plays explored.

Current state: 15 O&M days = 316 sorties

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WX	Surge	Surge	Make-up	No Fly

Option 3: Monday Training Day with 2-go Friday = +8 sorties

M	T	W	T	F
No Fly	10x8	10x8	10x8	10p/x8

Delta at End of Month = -65

Results Summary

- Documented an integrated annual, quarterly, and monthly FHP process
- Established ROEs for FHP execution
- Developed the outline and template for a playbook
- Potential impact to sortie delta and mission effectiveness (sample playbook applications):
  - O&M optimization: 155 sorties (yr)
  - Surge optimization: 216 sorties (yr)
  - Trip turn optimization: 40 sorties (yr)
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  - DACT: 10% decrease in red air