

ATO: Moving Toward a Performance Based Organization

Operations Research Challenges in Transforming Aviation

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Federal Aviation
Administration



The Operations Research Problem in Aviation

- **The National (and International) Airspace System is a complex system of systems**
- **Interactions among aircraft, the system, and the economy are poorly understood**
- **We need to apply the tools and disciplines of operations research to this complex set of questions**



OR Questions for NGATS Transition

- What mechanisms transform aviation investment into economic growth in communities?
- How can widely divergent potential solutions be compared and evaluated?
- What are the (perhaps unforeseen) consequences of policy decisions with respect to:
 - Control of resource utilization?
 - Investment in infrastructure?
 - Adjustment of tax base and rates?
- To mention only a few...



Managing the Transformation is in Essence an OR Problem!



So, Just How Far Have We Come...Anyway?

- 2003 – ATB (Well , I'm being parochial...)
- 2004 – Russ Chew (Wow!)
- 2005 – hmmm...
- 2006 – and, heeere we are!
- 2007 -- ???



From Asilomar Workshop 2003



Why Should we have an ATO?

→ First answer: procedural

- NCARC
- MAC
- FAIR-21 call for ATO
- Clinton Executive Order, reissued by present Administration
- OMB guidance
- President's management guidance

→ Second answer: practical

- Alignment and focus of resources at point of service delivery improves speed, flexibility, response, and efficiency
- Pace of growth, and changes in aviation industry, require us to be even more customer focused than we have been.



What is a PBO

→ Rule-Based Organization

- Functional focus
- Loyalty to functional organization
- Functional organization objectives vary
- Organized around functions
- Roles/responsibilities defined in terms of functional expertise and process
- Functional responsibility
- Procedural
- Obsessed with procedures/
reducing change
- Organization takes responsibility for training individual

→ Performance-Based Organization

- Mission/service focus
- Loyalty to mission/service
- Single mission/service objective
- Organized around mission/service
- Roles/responsibilities defined in terms of service provided to external customer
- Customer/service responsibility
- Flexible (risk related)
- Obsessed with results/
customers/change
- Individual takes responsibility for own training



What does “Business Like” mean?

→ *Not blind emulation of private sector behaviors!*

→ **Four elements:**

- Efficient decisionmaking processes
 - Procurement reform, OEP, FFP1, Runway incursion office
- Fiscal discipline
 - Cost accounting, Clean audit, LDR

Establishing these first two elements has already been underway for the past several years

- Customer orientation
 - This is what ATB is modeling for a future ATO
- Objective measures of performance
 - Budget reorientation by OMB
 - OEP and ATO measurements



From Asilomar Workshop 2004



CUSTOMERS



Commercial Aviation

- Airlines
- Cargo

Business Aviation

Private Aviation

DHS (and other Government Agencies)

Military (DOD)*

** Partner with ATO*

OWNERS

U.S. Citizens*

Traveling public*

Taxpayers*

** As represented by Congress*

Office of Management and Budget

Secretary of Department of Transportation

Inspector General

EMPLOYEES

ATO Individual Federal Employees

Labor Unions



The New ATO Organization

- *Operate as clearly defined, service-based business units*
 - Cost Accounting is essential and necessary
- **Ensure *affordability* in operations planning... connection between expense planning and capital budgeting**
 - Reduce unit cost of sustaining existing services
- **Create *transparency* in financial and decision processes**
 - Satisfy expectations of Customers, Owners, and Employees.
- **Streamline by simplifying matrix management processes**
 - Examples: Major Acquisitions, System Operating Priorities, etc.



A Window of Opportunity Exists

→ Time is short

- Must complete the reorganization in FY2004 to achieve the desired results and performance baselines for FY2005.
- ATO business unit alignment must be concluded before redefinition begins in early 2004.

→ Plan is very aggressive

- **Phase 1:** Redefinition and Cost Accounting.
- **Phase 2:** Cost Control and Productivity.
- **Phase 3:** Service Value and Innovation.



Why Wasn't There an Asilomar Workshop 2005?



New For Asilomar Workshop 2006



How do we make sure Transformation Happens?

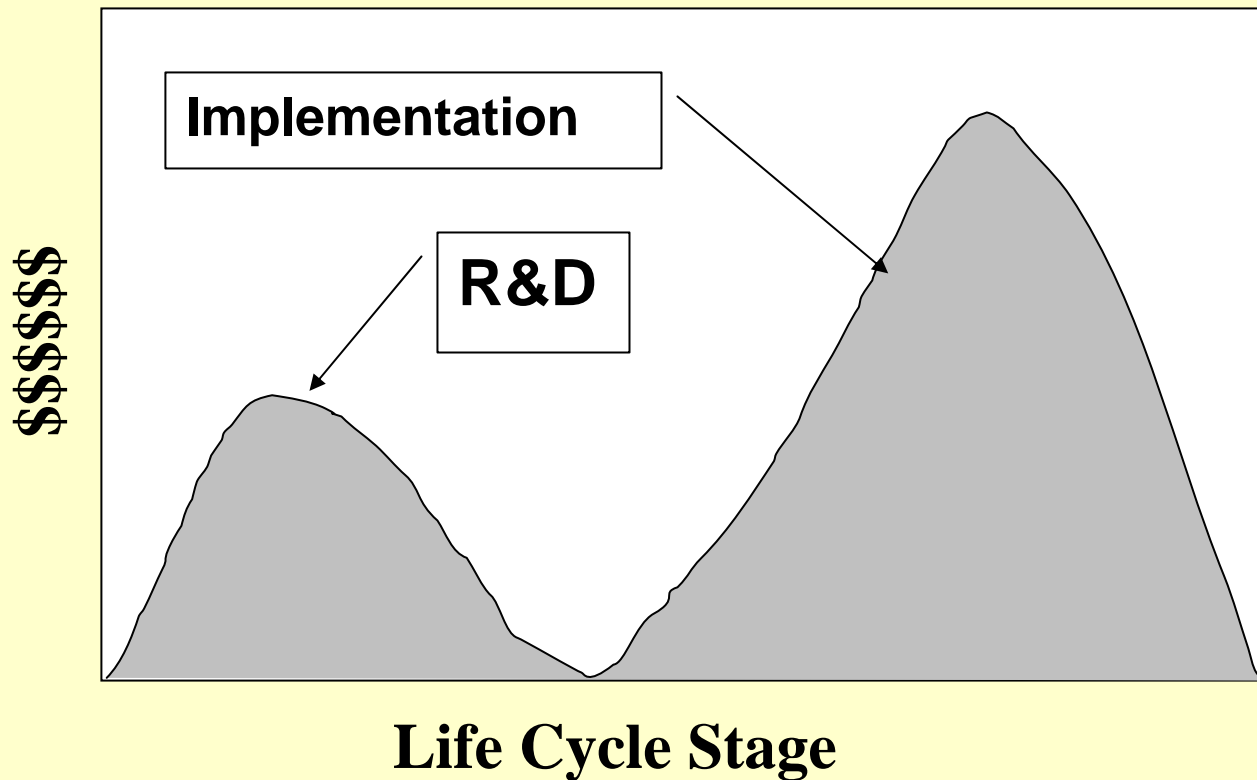
- Scout out the required technologies
- Assess them quickly
- Manage them to implementation



Into the Valley of Death...



What is the “Valley of Death”?



Step One: Find the “Right Stuff”



Sources of Transformational Ideas

- **NASA Aeronautics Program**
 - E.g.: SATS
- **FAA Internal R&D**
 - E.g.: Technical Center laboratories
- **FAA Funded Research**
- **Industry IR&D Programs**
- **Academic community**
- **Entrepreneurs (Congressional Interest)**

***NGATS Candidates assessed by Development Liaison Team;
Total Package managed as a Portfolio***



Step Two: Is it Really the “Right Stuff”?



How do we know? Three Questions

- Does the technology work?
- Can we make it work in the NAS?
 - Airspace, procedures, training, pilot/controller acceptance, certification, logistics, maintenance, regulation, avionics, spectrum, architecture, etc., etc.,
- Is there a viable business case for the ATO?

An affirmative answer to these questions leads to a capital investment decision

Technology Development Projects Moving to Initial or Final Investment Decisions

- System Wide Information Management (SWIM)★
- Automatic Dependent Surveillance Broadcast (ADS-B)
National Deployment★
- Capstone Phase III (Alaska Safety Enhancements)
- Runway Status Lights (RWSL) (Incursion Reduction)

★ Critical NGATS Building Block

Future Demonstration Candidates

→ Phased Array Radar

- Next generation Federal weather sensor

→ Cockpit Weather Products

- Air transport pilots would have access to enhanced weather products currently available to air traffic control and traffic flow managers

→ Enhanced Inertial Navigation ★

- Low cost, high precision, low form factor inertial navigation systems

→ NGATS Evaluator ★

→ Unknown unknowns

★ Critical NGATS Building Block

Step Three: Manage to Implementation



Key Principles (for managing to implementation)

- Development Portfolio Managed as an entity
- Every Project has an Investment Decision as a Goal
- FAA Top Management Guides the Process



Managing the Transformation is in Essence an OR Problem!



NEXTOR'S Role

- **Keep the community honest**
- **Think about the future**
- **Analyze the data**
 - Forecasts
 - Simulations
 - Performance results
- **“Speak Truth to Power”**





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