Changing the Project Execution Culture at NASA Dryden

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Outline

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• Desired Cultural State
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The Dryden Project Environment

• A small Center
  – ~550 civil service
  – ~600 support contractors
• Multiple projects from multiple customers
  – Aeronautics Research Mission Directorate
  – Science Mission Directorate
  – Human Exploration & Operations Mission Directorate
  – Office of the Chief Technologist
  – Non-NASA
• 40+ active projects of widely varying sizes
  – Small analysis or ground test efforts (<5 WFE)
  – Large, multi-year, flight research efforts (up to ~50 WFE)
Former Cultural State

- Unclear Center Priorities
- Local Priority Decisions
- Budget Driven Staffing
- Dedicated Project Teams
- Poorly Defined Work
- Unknown Future Demand
- Most Projects In Progress
- Severe Multi-tasking
- Fear Drives Resource Allocation

The 800 LB Gorillas
The Change

• Implementation of Critical Chain Project Management Tools & *Philosophies*
  – Fundamental shift in center management and project execution philosophies

• Goals
  – Reduce multitasking
  – Reduce workforce stress
  – Improve on-time performance
  – Improve time for training, R&D, infrastructure improvement, etc.

• No significant change in size of center workforce
Desired Cultural State

Less Multitasking, Less Stress, Most Projects On Time, More Time For Training...
THE CHALLENGES
Management Attention:
Help or Punishment

• Issue: Negative perception of management attention
  – Developed over time
  – Management asks:
    • “How did this happen?”
    • “Who is to blame?”
  – Staff feels need to justify actions
  – It’s about perception
    • Management intent less important
    • Can come from simple choice of wording
      – E.g., “Why...” vs. “What...”

• Result: Stifled communication up the chain
  – Problem ID to management delayed
  – Problems become bigger
  – Less time to resolve
Management Attention: Help or Punishment

• Getting past negative perception of management attention
  – Don’t turn open meetings into interrogations
    • Address performance failings in private and as positively as possible
  – Ask good questions
    • “What is needed to make progress?”
    • “What help do you need?”
    • Choose words carefully – don’t put messenger on defensive
  – Expect problems to come with potential solutions
    • “If we could _____ then...”
  – Help when your help is needed!!
    • Facilitate solutions to problems quickly

• Only demonstrated “real” help will drive change in perception
Synchronizing vs. Micromanagement

• Issue: Management control over when work is active may be perceived as micromanagement
  – Particularly true in:
    • Research organizations
    • High grade, independent thinkers
    • Level of effort funding models
• Result: Work goes “underground”
  – Natural urge to “keep the plates spinning”
  – Desire to get ahead on work
  – Desire to stay busy
  – Desire to show progress to customers
Synchronizing vs. Micromanagement

• Getting past the perception of micromanagement
  – Set the right goals
    • Must stretch
    • Must show noticeable progress
    • Near term vs. long term
  – Demonstration of results
    • Individual satisfaction
      – Reduced multitasking
      – Improved performance
    • Corporate performance
      – Increase completion rate
      – Reducing lateness
  – Enforcement, while necessary, won’t alter perception quickly

• The change must provide some tangible evidence of benefit in the near term
My Project vs. My Center

• Issue: Focus on/allegiance to project team
  – Esprit de corps
  – Budget driven “ownership” of staff
  – Faltering project seen as that teams fault
  – Lack of technical depth
    • Specific project knowledge
    • Broader discipline knowledge
    • Real potential safety impact!

• Result: Reduced staff flexibility degrades overall center performance
My Project vs. My Center

• Getting past excessive focus on and allegiance to project teams
  – Choose right metrics
    • E.g., Center lateness vs. project beating deadline
    • Choose wisely to drive desired behaviors
    • Balance of safety, quality, cost, and schedule
  – Recognize and reward the right behaviors
    • Sacrificing some schedule reserve for the benefit of the center
    • Move to another project that is falling behind
  – Address the issue of technical depth
    • Training, phase the work, etc.
• Ownership of larger organizational success critical but don’t let staffing flexibility degrade safety
Focus on Minutia: Paralysis by Analysis

• Issue: Attempting to address every detail or contingency during change implementation
  – Differences in sub-organization operation
  – Imagined post-implementation problems

• Result: Management and change implementation team workload skyrockets, change implementation stalls & possibly fails
  – Difficulty making decisions
  – Endless analysis/test cycle
Focus on Minutia:
Too Much Depth Leads to Drowning

• Getting past excessive focus on minutia
  – Put most energy on “show stopper” issues prior to implementation
    • Accept that problems will surface during implementation of change
    • Impossible to design out every issue
    • Don’t demand excessive detail before approving initial implementation
  – Have plan & capacity in place to receive and act on problems after “go-live”
    • Help line to collect questions & problems
    • Coach and revisit pre-implementation training
    • Triage problems & act quickly to resolve those of significance
    • Team must include people who have performed the effected functions & understand the change being implemented

• Actual exercising of the change will identify the real problems that need attention
Phased Implementation: Change Schizophrenia

• Issue: Some parts of organization operate under new system and parts operate under old system
  – Test the change
    • Find and fix problems on small scale
  – Need to train everyone
    • Need to know philosophy before they can operate under new rules
  – Unable to muster resources to implement entire organization at once

• Result: Conflict between 2 inherently non-aligned systems
  – Prolongs the change
  – “Why do I/we have to do this if they don’t?”
  – Tough on shared resources
  – Management has to make decisions based on 2 rule books
  – Extra resources required to deal with system conflict issues
Phased Implementation: Change Schizophrenia

• Avoiding phased implementation conflicts
  – Avoid phased implementation if you can
    • Execute the phases in quick succession if you must
  – Carefully define the “control volume” of necessary phases
    • Minimize operating in and out of the change
  – Err on the side of over estimating required implementation resources
  – Eliminate old processes, procedures, ways of doing business as quickly as possible

• Once decided, move aggressively to implement change throughout the organization
  – Get past the tipping point
  – Execute the change like you mean it!
  – Pockets of “old ways” will put drag on the change
Long Term Attention: Organizational Attention Deficit Disorder

• Issue: Many demands on organizations management
  – Budget issues
  – Staff issues
  – Demands from HQ
  – Meeting upon meeting
  – Ad-hoc implementation team may be in place

• Result: Management attention and visibility regarding change wanes
  – Difficulty getting needed approval/decisions
  – Lack of ownership of implementation design
  – Staff question management commitment
Motivating Long Term Focus & Attention

- Make a senior manager & their organization responsible for implementation & sustainment functions
- Still create ad-hoc implementation team
  - Architect of the implementation w/senior manager
  - Membership from across impacted organizations
- Line organization(s) responsible for long term support must be full partners in designing implementation

The organization will focus its attention where the leaders focus their attention

- Organization management must remain engaged in the change & take on their new roles
- Only organizational management has authority to change the underlying rules, processes, procedures, etc.
Current State

- Management has taken ownership of the change
- Implemented in ~50% of projects
- More knowledge based decision making
- Success has been observed where philosophies have been applied
- Generally satisfied with progress
  - Still long way to go
Current State

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Current State

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• Tools & processes generally in place
  – In need of documentation
  – Philosophy is slowly taking hold

• Progress toward goals
  – Multitasking reduced but still too high
  – Workforce stress is up due to change
  – Projects still run late but more focus and commitment to figure out why & fix
  – No real change in time for training, R&D, etc.

• Workforce is about same size to slightly smaller
Conclusion

• Substantial, sustainable, improvements in performance come from fundamental changes in how people think about and execute their jobs
  – From the most senior leader to the most junior employee
  – Tool and process changes are necessary but not sufficient
  – Policing use of new tools and processes also necessary but not sufficient

• Don’t underestimate the resources required to implement the change
  – Implementing new tools and processes is relatively easy
  – Changing how people think is time consuming and hard
  – Build the implementation team with sufficient breadth and depth
Conclusion

• Once the change is launched, execute implementation quickly
  – Discard old tools and processes as quickly as possible
  – Make the new philosophies and tools the way the organization operates
  – Minimize the number and length of implementation phases
• Choose goals, metrics, & rewards carefully
  – Goals need to stretch but be achievable & of value to all
  – Set expectations appropriately regarding timeline for achievement of goals – real change takes time & is messy at first
  – Metrics and rewards (recognition) drive behavior of the organization
• Senior managers must lead the way
  – Managers and their organizations must execute the change
  – They must own it and demonstrate the change through action
  – Their questions must force people to think about going forward into the change, not looking back to justify actions
Thank you for your Attention

Questions?

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