MEASUREMENT DRIVEN PROCESS IMPROVEMENT PROGRAM

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This presentation will provide a step-by-step description of the design and implementation of a process improvement program established by the Multimission Ground Systems Office (MGSO) at the Jet Propulsion Laboratory. The program training approach and content are described. Also addressed are the results of the program.

The three main components of the MGSO process improvement program are:

1. A written management policy that officially established the program.
2. A more visible role by the MGSO Manager in support of process improvement and measurement.
3. Hands-on training for MGSO teams.

Below is a summary of the steps that were taken to establish and implement this program:

- The MGSO Manager chartered the Measurement Steering Committee to provide the needed framework for process improvement and measurement.
- The Committee surveyed the MGSO community to establish a baseline of the situation. Results showed that the majority of the community were not using process improvement or measurement and that the main reasons were lack of both training and managers' support.
- The Policy was written and widely distributed to MGSO personnel.
- The Committee researched how to approach training. It was decided that:
  - Training would be developed and taught in-house by MGSO personnel.
  - Training would be team oriented.
  - Teams would bring a real process to the course to actually improve.
  - Training would be just-in-time: teach a little/do a little.
- The training was structured into six training classes. Between each class, trainee teams would apply concepts taught in class to their process. Details of the course content will be provided in the presentation.
- One volunteer team was selected for the pilot and they were trained.
- Training has been expanded to other teams and individuals.

The pilot was very successful. Upon completion of the training, the team had reduced their cycle time from 25 days to less than two days and they are saving about $15,000 per process cycle. The pilot team spawned two new process improvement teams outside of our training activity. We are now training additional MGSO teams as well as teams from other organizations. The training content and format is continually being improved based on lessons learned. Slowly, employee attitudes about process improvement and measurement are changing.
MEASUREMENT DRIVEN PROCESS IMPROVEMENT PROGRAM

The major obstacles that we have dealt with along the way include:

- Management's inexperience with getting a program like this off the ground
- Lack of in-house training expertise
- Resistance from personnel and managers
- Difficulty getting trainees to stay motivated
- Limited personnel dedicated to this task
- An overall morale problem due to downsizing and outsourcing

We have learned many lessons along the way. Some of the more important ones are:

- Management support and involvement are absolutely essential to the success of this kind of program.
- A process improvement program is most effective when linked to the real goals and objectives of the organization.
- Resistance to change and inertia are very powerful forces that can cripple new programs.
- Process improvement and measurement are not intuitive activities that just happen. Time, resources and training must be committed.
- When starting a new program, involve forward thinkers who are motivated. Avoid resistors if possible.
- Adequate resources including dedicated personnel should be allocated to keep a program like this moving.

We are building on the work that we have accomplished. We are continuing to train additional teams and to advertise our successes. We see a definite need to get management more involved in this activity. Bottom up change is slow, difficult and probably not possible. We are also hoping to work with management to align our processes with the organization's goals and objectives so that our process improvement activities can be properly prioritized.
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Marilyn Oifer

at the Jet Propulsion Laboratory

Improvement Program

Measurement Driven Process Improvement Program at JPL
Measurement Driven Process Improvement Program at JPL

Future plans • Lessons learned • Results of our efforts • Improvement program • Why and how we established our process

To share:

Purpose of Presentation
Background
Format of Presentation

Business Needs

Business Solutions

Business Results
Measurement Driven Process Improvement Program at JPL

- Program started in response to JPL Needs
- Organizational Need
- To expand process improvement and measurement throughout MGSO
- Concept put into practice

Business Needs
Organizational Elements

Program within all MSGO
Implementation an effective metrics

MSGO Annual Goal

Organizational Needs (continued)

Business Needs
Measurement Driven Process Improvement Program at JPL

- Hands-on training--started with a pilot
- Advertise success to community
- Participate in planning and training
- Encourage his managers to participate

More visible role by MGSO Manager in support of process improvement and measurement establishment of the program

Written management policy that officially:

- MGSO process improvement program:

How idea was implemented

Business Solutions
Committee surveyed the MGO Community

Committee started to develop MGO processes for the application of measurement, skills required to improve MGO processes and – provide framework, processes, knowledge and

Specific Steps Taken

Business Solutions
approach training
Steering Committee researched how to

distributed

MGO Policy was written and widely

Attributed to lack of training and managers' support
Process Improvement and measurement
Majority of MGO community were NOT using

Results of survey showed:

Specific steps taken (continued)

Business Solutions
Specific Steps Taken (continued)

- Conducted initial research
- Reached out to potential partners
- Demonstrated proposed model
- Conducted interviews with experts
- Presented findings to stakeholders
- Submitted proposal for sponsorship

Research

Business Solutions
Business Solutions

Specific Steps Taken (continued)

- Decisions made about training
  - Develop and teach in-house by MGSO personnel with JPL Professional Development
  - Emphasis on process improvement with measurement as a supporting tool
  - Team oriented
  - Teams bring real process to actually improve
  - Train just-in-time: “teach a little/do a little”
  - Keep it simple

Measurement Driven Process Improvement Program at JPL
Business Solutions

Specific Steps Taken (continued)

- Two members of the Steering Committee designed the course and a Professional Development instructor...
Measurement Driven Process Improvement Program at IPL

Manager is sufficiently interested
Yet not insignificant
Small enough to be appropriate for first project;
Fits definition of a process--needs improvement
Process Selection Guidelines
one of their teams
Each manager was requested to recommend
program
One team was selected for training pilot

Specific Steps Taken

Business Solutions
- If a lot of people ask for volunteers
- Not suppliers and customers (participate as needed)
- People who do work, know details, and have direct stakeholders in improvement
  - Team Selection Guidelines
    - Not necessarily supervisor or group leader
    - Has leadership skills
    - Has interest in taking on responsibility and learning
    - Has leadership skills or potential
  - Team Leader Selection Guidelines
    (continued)

- Specific Steps Taken

Business Solutions
teams and a class for individuals

Training has been expanded to additional positive results

The pilot team was trained with very

- Team must have authority to change process
- Not highly resistant
- Can commit 2-3 hours a week

Team Selection Guidelines (cont)

Specific Steps Taken (cont)

Business Solutions
Measurement/Metrics Criteria Test Tool

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Ultimate Test of a Good Metric

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Bad Metric Characteristics

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Calibration

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Validity

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Reliability

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Objective Measurement/Metric

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PRIDE Tool

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Improve Opportunity Window Tool

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Overview of Customer Satisfaction Data Collection and Analysis

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Customer Variable

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Why Baseline Process Performance?

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Business Solutions
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Business Solutions
Involved Manager in planning and training

agreement every step of way

— Keep MGO Manager informed and got

managers

— Made informative presentations and pitches to

this kind of program off the ground

Management’s inexperience with getting

Obstacles & How We Overcame Them

Business Solutions
training design and teaching experience
- Gave Steering Committee members hands-on Development
- Got support from JPL Professional

• Lack of training expertise within MGSO

(Cont)

Obstacles & How We Overcame Them

Business Solutions
This is still a major obstacle
won/published in JPL newspaper
- Submitted pilot team for JPL TOM award—they were given recognition and in the halls
- Advertised our successes via email, at manager meetings
- Started with pilot team with a very supportive personnel and managers

Lack of motivation and resistance by •

Obstacles & How We Overcame Them

Business Solutions
Obstacles & How We Overcame Them

1. Difficulty getting trainees to stay motivated
   - Trained team leaders on team dynamics and performance management tools
   - Trainers facilitate the team working meetings
   - We are very persistent in nudging teams along
   - This is still a major obstacle

Business Solutions
We continue to compete with this problem – downsizing and outsourcing
Overall morale problem at JPL due to
This is still an obstacle
Limited personnel dedicated to this task

Obstacles & How We Overcame Them

Business Solutions

(cont)
Measurement Driven Process Improvement Program at JPL

Results of Our Efforts

- Trained two additional teams and a class of individuals
- Reversed trainee's skepticism to enthusiasm
- Won JPL Silver Medallion TEAM award
- Days saved $1.5K per process cycle
- Reduced cycle time from 25 days to less than 2

Pilot team results
Lessons learned

Improve training content based on approach

Other teams using bits and pieces of our

Now beginning to train teams from outside

Results of Our Efforts (cont)

Business Results
about process improvement/measuremet

slowly changing employees' attitudes

program

Manager is very supportive of

Customers and Employees

Effects on Organization, Productivity

Business Results
higher JPL level to train process owners
Training curriculum is being adopted at
activity
Improvement teams outside of our training
— Pilot team spawned two new processes

Effect beginning to snowball.

Effects on Organization, Productivity,
powerful preventative forces

Resistance to change and inertia are

objectives of the organization

effective when aligned with goals and

A process improvement program is most

program

ESSENTIAL to success of this kind of

Management support and involvement is

Lessons Learned/Insight

Business Results
resistors
forward thinking and motivated—avoid
To start, involve individuals that are
Time, resources and education are necessary
are not intuitive
Process improvement and measurement
Real change is often evolutionary

Lessons Learned/Insight (cont)

Business Results
Measurement Driven Process Improvement Program at JPL

- Negativism can rub off
- Strong members carry weak members
- Weak team leader can sabotage the activity

Disadvantages:
- Enthusiasm can rub off
- Gain benefit of different points of view
- Deal with larger processes (more bang for the buck)

Advantages:

- Team-oriented training:

Lessons Learned/Hindsight (cont.)

Business Results
Measurement Driven Process Improvement Program at JPL

- Can drag on and lose steam
- Not a cure for resistance, inertia, and lack of motivation

Disadvantages:
- Teamwork skills are developed
- Taught are actually applied to their processes
- Comprehension enhanced because techniques
- Teams finish training with an improved process

Advantages:
- Just-in-time training
- Lessons Learned/Insights (cont)

Business Results
Convincing management
Customers is an effective tool for
Data obtained by surveying employees and
Program like this moving
Personnel should be allocated to keep a
Adequate resources including dedicated
Lessons Learned/Insights (cont)*
goals and objectives
 prioritize processes with the organization's
teach management how to align and
involved
work towards getting managers more
continue to advertise our successes
teams and individuals
continue to expand by training additional

How We Will Build on this Effort

Business Results
Discussion and Questions