Enhanced Process Improvement with Automated Workflow Management Tools

Fred Roberts and David Preklas

General Dynamics Advanced Information Systems

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and

User Group

Topics

- **GD-Advanced Information Systems Overview**
- **Enterprise Process Architecture**
- **Performance Improvement Request (PIR) system**
- **Supporting Infrastructure**
- **Walkthrough a PIR start to finish**
- **CMMI Practices supported by the PIR Process**

GDAIS Overview

- **Vision: a leader in transformational command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) mission solutions**
- **Mission: provide superior transformational systems and services for defense, intelligence and homeland security customers**
- **Employees: more than 10,000 employees, of whom 70 percent hold security clearances**
- **Locations: headquartered in Arlington, VA with more than 100 major locations in the United States and overseas.**
- **Background:**
  - **Created in January 2002**
  - **Doubled in size mainly through acquisitions in 2003**
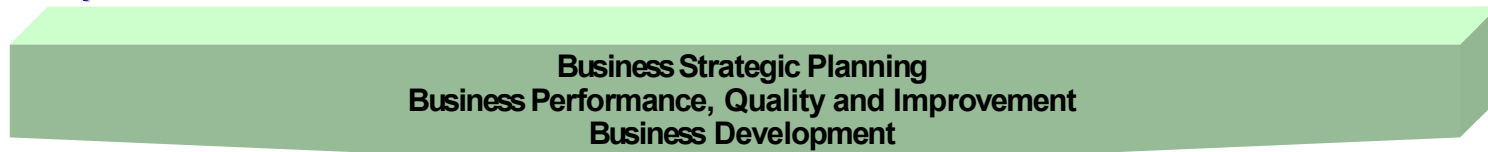
GDAIS Locations in US
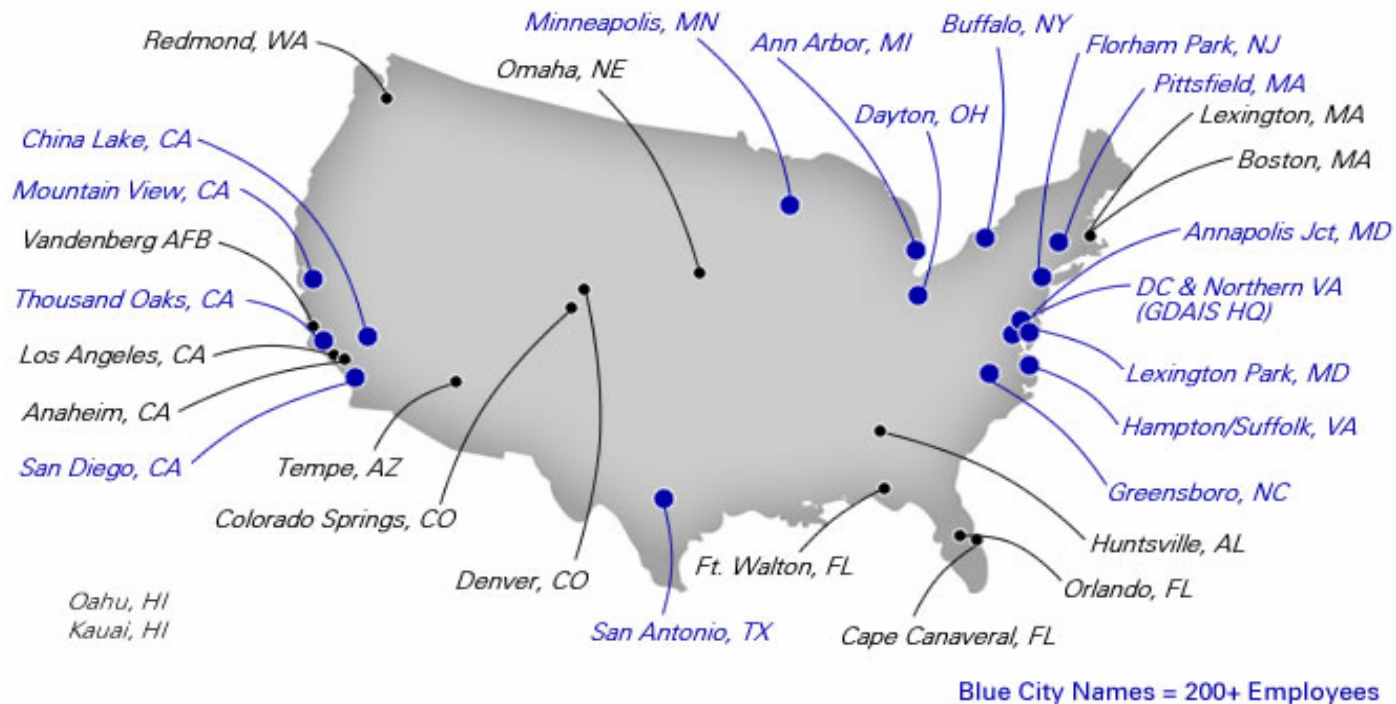
GDAIS is a very geographically dispersed organization
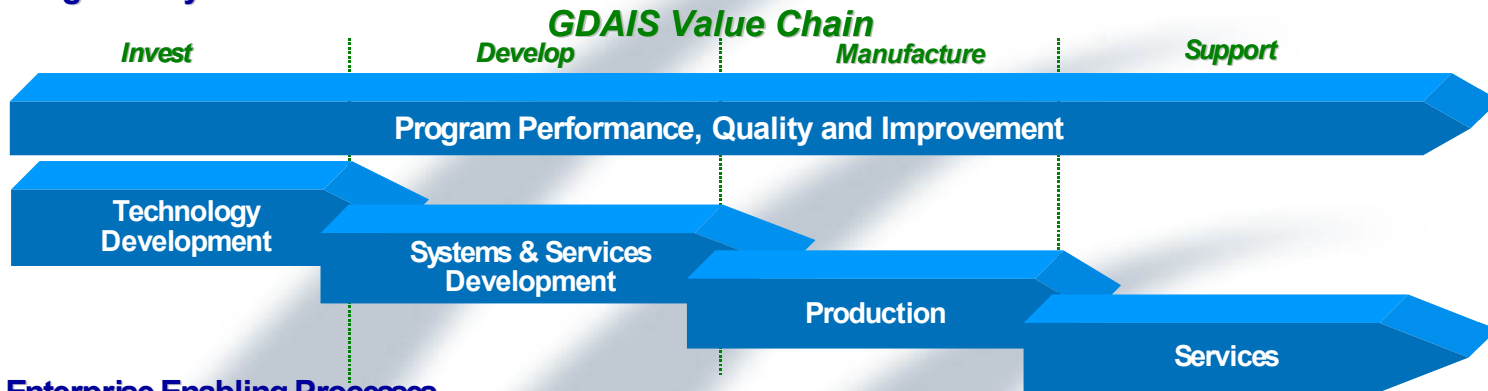
Process Architecture Philosophy

- **Processes are essential to the effective and efficient operation of our business**
- **Compliance with external standards is important to our customers (e.g., ISO 9001, CMMI, ISO 14001, ANSI/EIA 748)**
- **Continual improvement is a common theme in external standards and is critical to our success**
- **A set of enterprise common processes compliant to external standards which is continually improved is a key enabler to our business**

Enterprise Process Framework

Enterprise Business Processes

Business Strategic Planning
Business Performance, Quality and Improvement
Business Development

Integrated Systems & Services Realization Processes

GDAIS Value Chain

Invest   *Develop*   *Manufacture*   *Support*

Program Performance, Quality and Improvement

Technology Development

Systems & Services Development

Production

Services

Enterprise Enabling Processes

|			
Communications	Ethics	Human Resources	Legal
Contracts	Facilities & Real Estate	Information Technology	Security
Environ, Health & Safety	Finance	Int'l Business - Exp/Imp	Supply Chain Mgmt

Key Process Improvement Notions

- **Process Ownership is established at the Vice President level**
- **Employees are given a critical role in identifying issues and suggesting improvements**
- **Process improvement activities are performed throughout the organization by numerous individuals (no ivory tower)**
- **Process improvement is transparent to everyone**
- **An automated online system is critical to accomplishing continual improvement**

Performance Improvement Request System Features

- **Online PIR Submittal easily accessible to employees**
- **Online PIR Processing easily accessible to PIR assignees**
- **Automatic Email Notices**
  - ↗ **PIR Receipt Confirmation**
  - ↗ **PIR Status Update (Assigned, Analyzed, Deferred, Closed, Rejected)**
  - ↗ **PIR placed on Review Board Agenda**
- **Automatic Email Reminders**
  - ↗ **30 days before due**
  - ↗ **Overdue (first day after due, then every 30 days)**
  - ↗ **Escalated to responsible VP**
  - ↗ **Escalated to President**
- **Automatic Change Notification**

PIR Process Flow
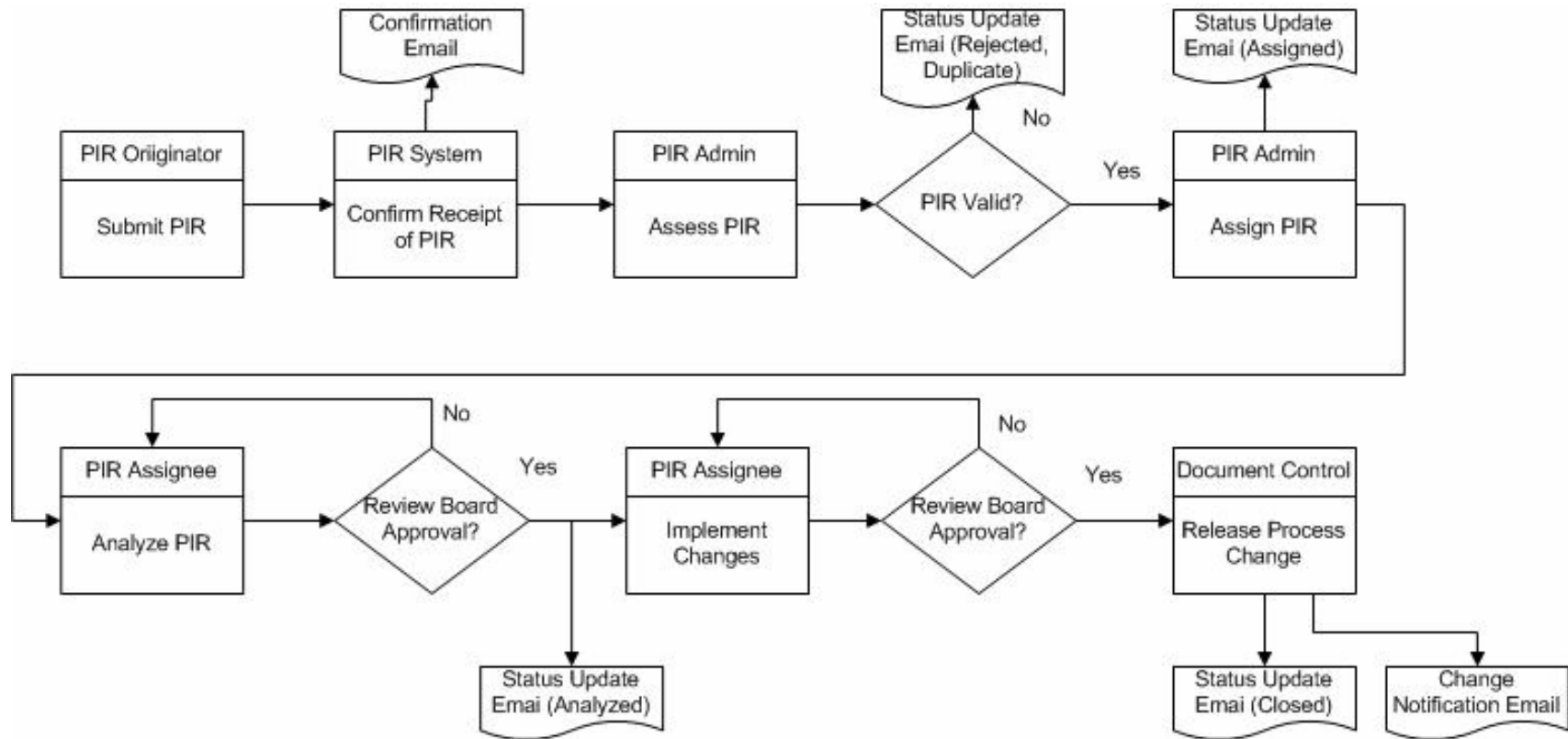
PIR Submittal

- A PIR is Originated using the **Submit PIR** facility
- PIR Administrator confirms receipt of PIR – automatic notice of receipt sent
- PIR defaults
  - ↗ Status set to "New"
  - ↗ Priority set to "TBD"
  - ↗ Request type set to "TBD"

PIR Submittal – Additional Material

- Originator may send any additional information, comments, or documents regarding the PIR to the PIR Administrator
  - When the Originator is notified that the PIR has been received and an email notification sent, attach the files and reply
  - After the PIR has been accepted and given a number send an email
    - Reference the PIR number in the subject "Submitted files for PIR number"
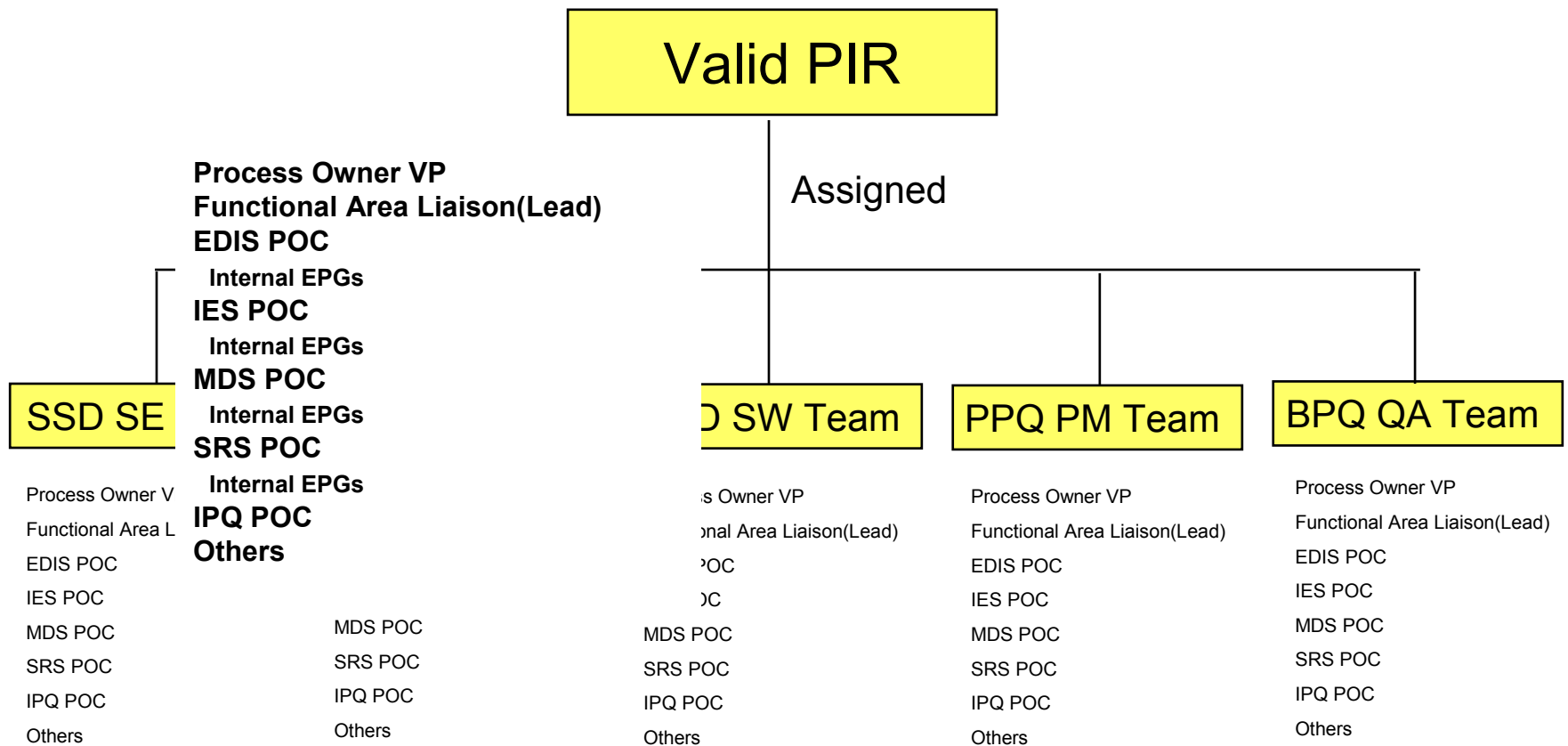   - Send to "PIR Admin, AIS"

PIR Process Flow
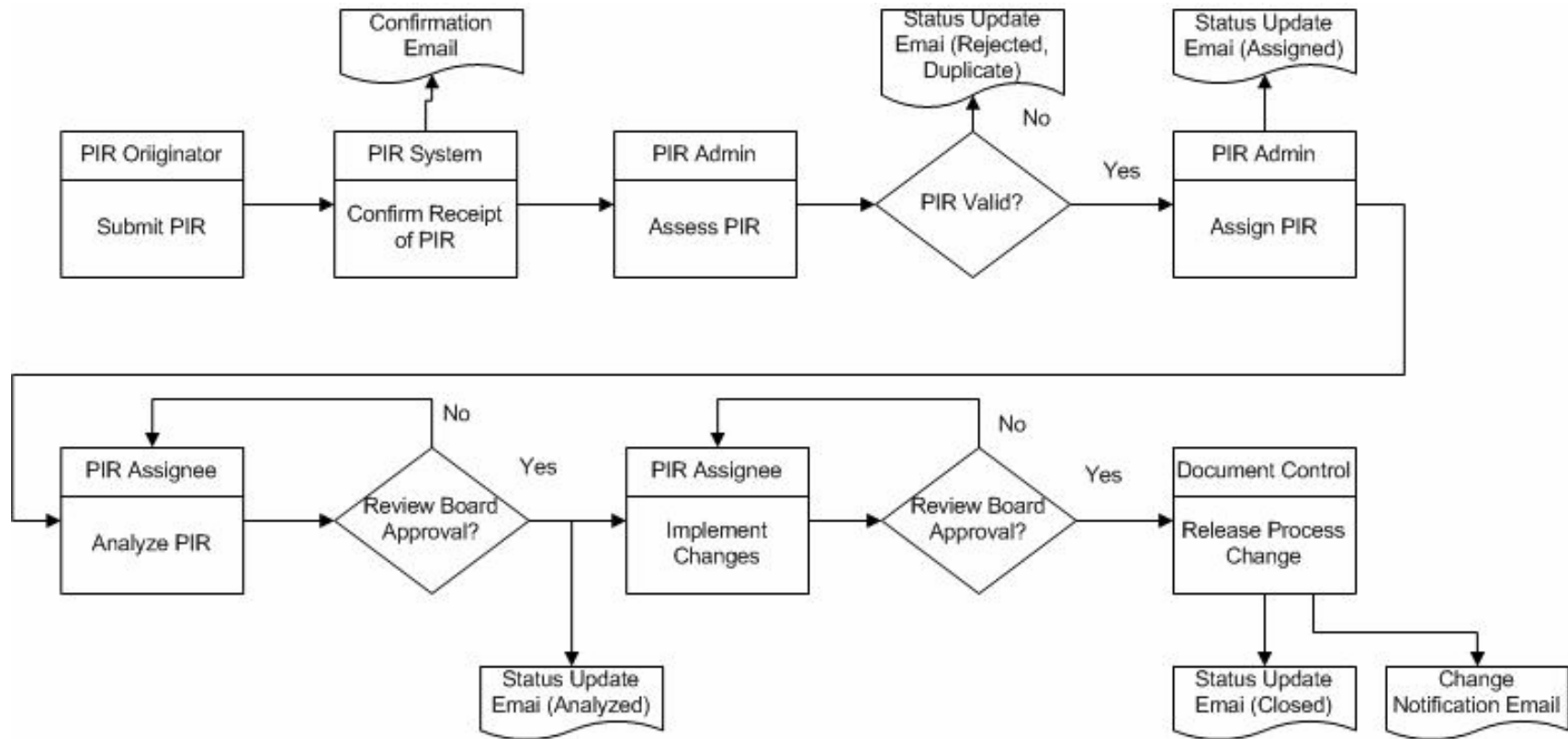
The PIR Administrator

- Determines if PIR is Valid
  - ↗ Does the PIR apply to the Common Process Framework
  - ↗ Is the description and suggested solution adequate to enable someone to address the PIR
- If PIR is Valid
  - ↗ Determines:
    - Process Owner or Assignee required to respond to PIR
    - Initial priority and time period for closure
    - Request Type
  - ↗ Changes status to "Assigned"

The PIR Administrator (continued)

- If PIR is
  - ↗ Not valid
    - Contacts submitter to explain why PIR can not be accepted and attempts to find alternative solution for submitter
    - Enters information in Board Comments
    - Deletes PIR
  - ↗ Already covered by another PIR
    - Enters information on the existing PIR in Board Comments
    - Accepts PIR
    - Sets status to "Duplicate"
    - Informs Originator of actions

Performance Improvement Infrastructure

Valid PIR

Assigned

Process Owner VP
Functional Area Liaison(Lead)
EDIS POC
 Internal EPGs
IES POC
 Internal EPGs
MDS POC
 Internal EPGs
SRS POC
 Internal EPGs
IPQ POC
Others

SSD SE

Process Owner V
Functional Area L
EDIS POC
IES POC
MDS POC
SRS POC
IPQ POC
Others

MDS POC
SRS POC
IPQ POC
Others

D SW Team

s Owner VP
onal Area Liaison(Lead)
POC
OC
MDS POC
SRS POC
IPQ POC
Others

PPQ PM Team

Process Owner VP
Functional Area Liaison(Lead)
EDIS POC
IES POC
MDS POC
SRS POC
IPQ POC
Others

BPQ QA Team

Process Owner VP
Functional Area Liaison(Lead)
EDIS POC
IES POC
MDS POC
SRS POC
IPQ POC
Others

Process Owner/Assignee (PO/A)

- Reviews PIR assignment and informs PIR Admin if changes are appropriate
  - ↗ Assignee
  - ↗ Priority
- Analyzes the PIR, coordinating as required with
  - ↗ Submitter
  - ↗ Stakeholders per BPQ-PRO-1.6, such as
    - Other processes
    - Other functional areas
    - Training
- Determines the root cause

PO/A Identifies: Root Cause

- Provides a complete analysis of the root cause of the situation per Root Cause Analysis Methods and Techniques Training
  - ↗ The analysis considers frequency of occurrence as well as the relationship of cause and effect
  - ↗ Including analysis of the product or service specifications, and related processes, operations, records, service reports, and customer complaints

PO/A Identifies: Root Cause (continued)

- If no action is needed
  - ↗ Discusses with submitter
  - ↗ Recommends PRB close PIR with no action
  - ↗ If the PRB agrees with recommendation to close
    - The PRB changes PIR status to Closed
    - PIR Administration updates the database

# PO/A Identifies: Root Cause (continued)

- If action is required
  - Determine if preventive or corrective action is required
    - Preventive – prevent potential problem
      - Determines appropriate actions needed to prevent the occurrence of a potential problem
    - Corrective – correct actual problem
      - Correct the specific nonconformance
      - Eliminate the cause based on the effects of the nonconformance

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PO/A Identifies: Action to be taken

ↆ If action is required Identify all documents requiring change:

- Process documents
  - ↆ Policies
  - ↆ Procedures
  - ↆ Instructions
- Related documents
  - ↆ Checklists
  - ↆ Forms
  - ↆ Training materials
    - Courses
    - Role based matrices
 - ↆ Templates
  - ↆ Tools

PIR Process Flow
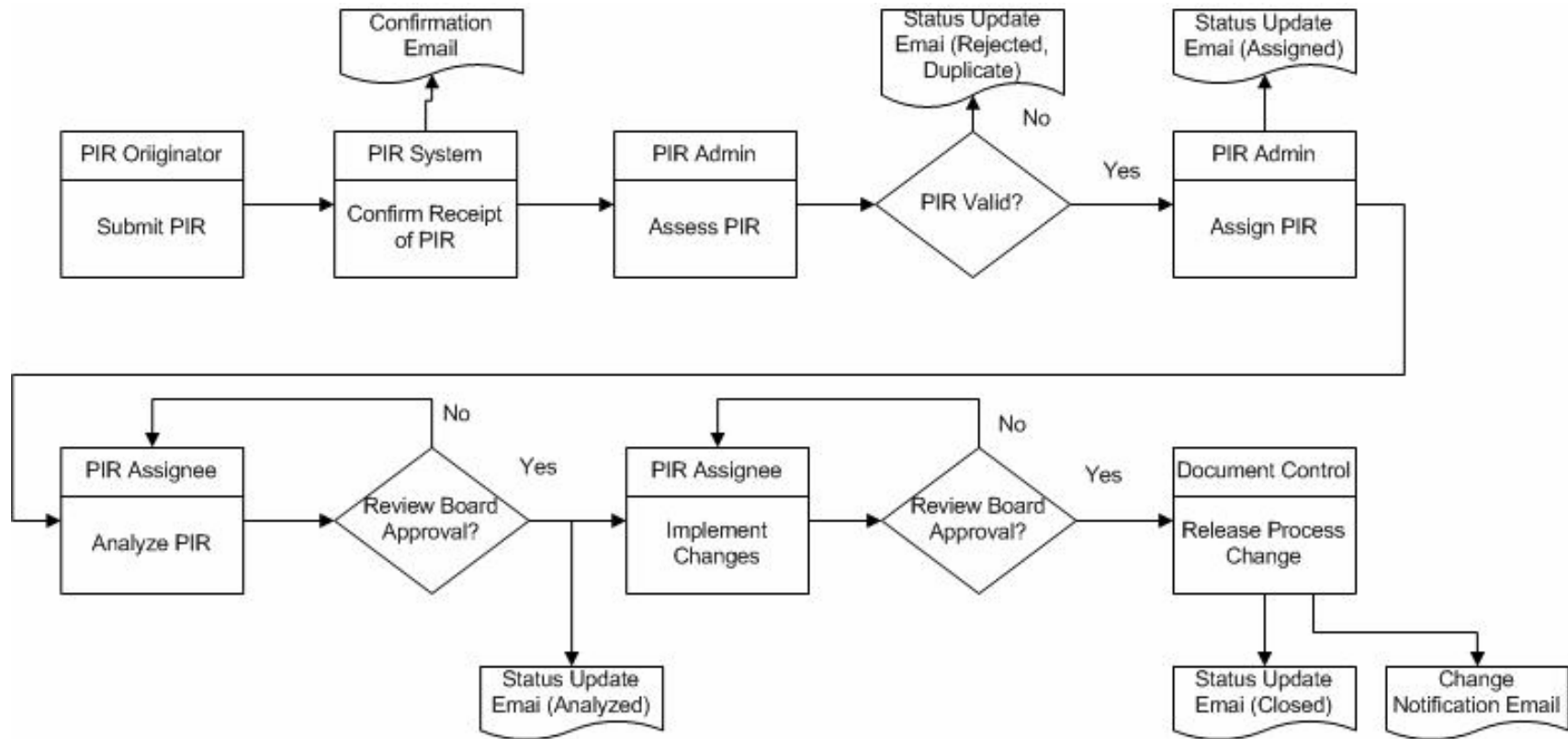
PRB Review of Analysis

- Process Owner/Assignee Requests Performance Review Board (PRB) review analysis
  - ↗ Enters Root Cause and
    - No-action recommendation or
    - Corrective/Preventive action
  - ↗ Enters the date in "Date Analysis Completed" box
  - ↗ Sets "Place on PRB Agenda for Approval" to "Yes"
- Presents analysis and proposed solution to the PRB for approval

PRB Review of Analysis (continued)

- PRB Reviews Analysis
  - ↗ If analysis is approved
    - PIR status is changed to "Analyzed"
    - If no change is to be made the PIR will be closed
    - If changes are to be made the assignee may start implementation
    - If implementation can not be completed within the remaining time, defer PIR and change PIR status to "Deferred"
    - Inform submitter of actions
  - ↗ If analysis is not approved process owner/assignee revises analysis and resubmits to the PRB

PIR Process Flow
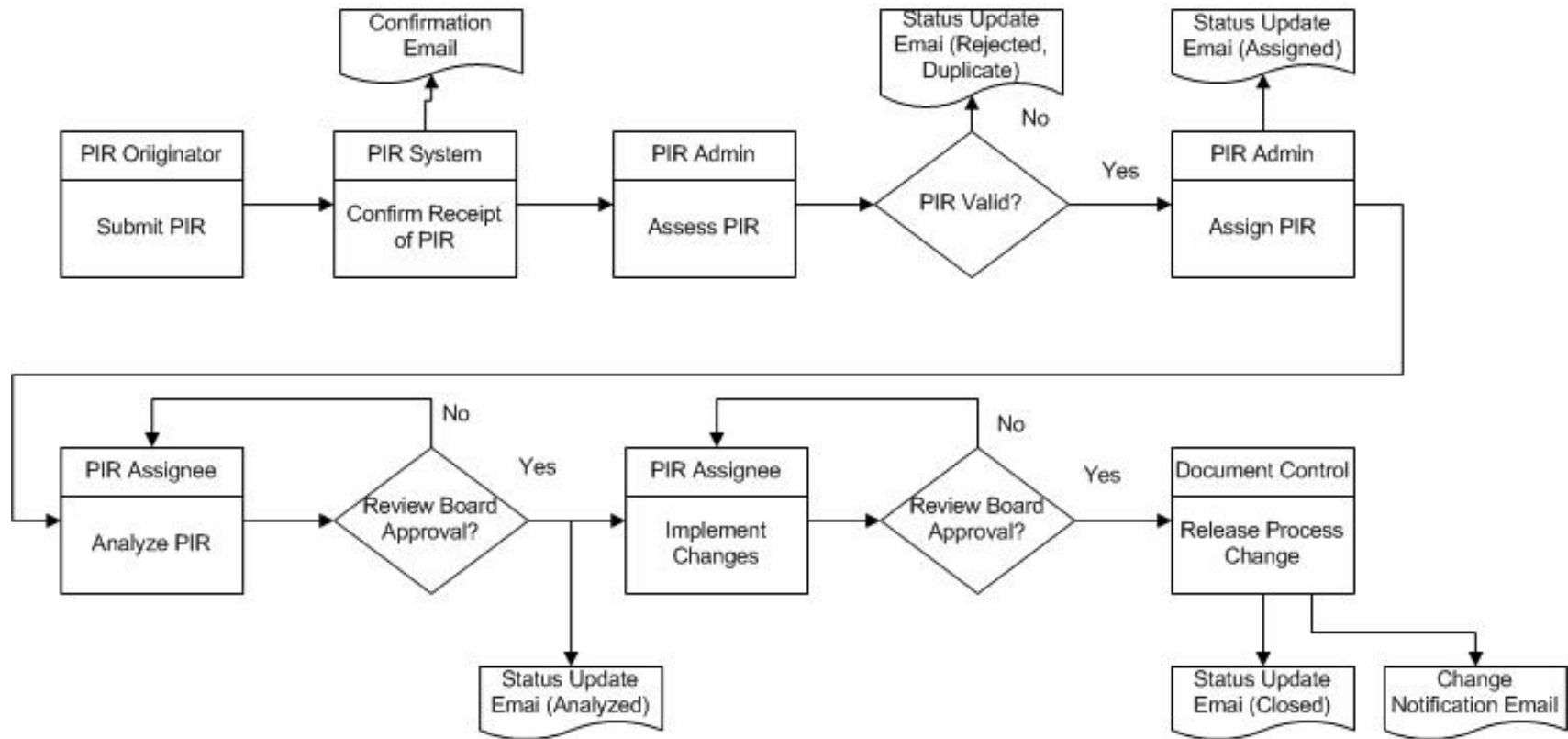
Implementation

- Process Owner/Assignee implements Approved corrective/preventive actions
  - ↗ Using BPQ-INS-5.2.1 Editing Organization Process Documents
  - ↗ Ensure that all affected documents are updated including supporting assets
- Coordinates implementation with other functional areas that are affected by proposed changes, reference Stakeholder Analysis procedure

Implementation (continued)

- When the PIR is ready for PRB for review
  - ↗ List files deleted, changed, added in the Corrective Action or Preventive Action fields along with any special instructions, such as adding, deleting, or changing links
  - ↗ File(s) with changes shown
    - Word file(s) with **Track Changes** turned on
    - PowerPoint training course files with change history updated indicating what slides have been changed by the PIR
  - ↗ Email files to "PIR Admin,AIS"
    - PIR number in Subject
    - Files changed or added attached

Implementation (continued)

- ↗ Use **View Submitted Documents** button to verify
  - ▪ All submitted file(s) have been received by PIR Administration and posted to the Submitted folder for the PIR
  - ▪ There are no old or invalid files for the PIR
- ↗ PIR Checklist
  - ▪ Answer
  - ▪ Implement as needed
- ↗ Enter the date in the "Date Implementation Completed" box
- ↗ Set "Place on PRB Agenda for Approval" to "Yes"

Implementation Review

- PRB reviews implementation
- If implementation is not approved, identify issues for additional action
- If implementation is approved
  - ↗ Obtain approval, if needed
    - Legal
    - Human Resources
  - ↗ Determine any additional actions that are critical to effective release of process changes
    - How the change is communicated throughout the organization
    - What training is needed

PIR Reporting

Reports

◆ Function Area / Status — Summary Report by Function Area and Status

◆ PIR Summary Report — Customizable Summary Report of PIR counts.

◆ PIR Overdue Summary — Summary Report of PIRs that are coming due or already overdue. Also included are PIRs with no analysis mid-way to the due date and later.

◆ PIR Average Cycle Time — Customizable report of PIR average cycle time.

Charts

◆ PIR Charts — Customizable charts to provide a graphical view of the PIRs

◆ PIR Trend Charts — Customizable trend charts to provide a graphical view of the Open versus New versus Closed PIRs

◆ PIR Cycle Time Charts — Customizable average cycle time charts to provide a graphical frequency chart view of the closed High, Medium, and Low priority PIRs for the last number of months (default is 12 months)

◆ PIR Cycle Time Trend Charts — Customizable average cycle time trend charts to provide a graphical frequency chart view of the closed High, Medium, and Low priority PIRs within a reporting period (default is all).

◆ Change Notification Subscription Chart — Chart to provide graphical view of the function areas subscribed to in the Change Notification System

PRB Reports

◆ PRB Agenda — List of PIRs on the PRB Agenda

◆ PRB Schedule — PRB meeting schedule

◆ PIRs with No Analysis — Active PIRs with no analysis at least mid-way to the PIR due date

◆ PIR Reminder — Active PIRs due in the next month

◆ Overdue PIRs — Active PIRs not closed by the due date and escalated for closure to the responsible Director / Vice-President

◆ PIR Escalation — Active PIRs not closed within the extension period, and escalated to the President for action. For High priority PIRs the extension period is 30 days. For Medium and Low priority PIRs the extension period is 60 days.

◆ Deferred PIRs — List of deferred PIRs sorted by defer to date.

Online reports facilitate monitoring of system effectiveness

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PIR references from Compliance Matrix

- OPF SP 1.3 Identify the Organization's Process Improvements -- Identify improvements to the organization's processes and process assets.
- OPF SP 2.4 Incorporate Process-Related Experiences into the Organizational Process Assets -- Incorporate process-related work products, measures, measurement results, and improvement information derived from planning and performing the process into the organizational process assets.
- OPD SP 1.5 Establish the Organization's Process Asset Library -- Establish and maintain the organization's process asset library.
- OID SP 1.1 Collect and Analyze Improvement Proposals -- Collect and analyze process- and technology-improvement proposals.
- OPF SP 1.1 Establish Organizational Process Needs -- Establish and maintain the description of the process needs and objectives for the organization.
- OPF SP 1.3 Identify the Organization's Process Improvements -- Identify improvements to the organization's processes and process assets.
- All Pas GP 3.2 Collect Improvement Information – One of three methods to collect improvement information

- OPD GP 2.3 Provide Resources
- OPD GP 2.4 Assign Responsibility
- OPD GP 2.6 Manage Configurations
- OPD GP 2.7 Identify and Involve Relevant Stakeholders

Summary

- **Business commitment to continual improvement is critical**

- **Enterprise Process Architecture integrates all processes under a Common Framework**

- **Process ownership at the VP/GM level highlights importance**

- **An automated online system is critical to accomplishing continual improvement in a large geographically dispersed organization.**

Quality Policy: Customer Satisfaction through flawless execution and continual improvement

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Contact Information

- Presenters:
  - ↗ Fred Roberts
    - Frederick.roberts@gd-ais.com
      10925 Pump house Road
      Annapolis Junction, MD 20701
      (240) 456- 5639

  - ↗ David Preklas
    - David.preklas@gd-ais.com
      100 Ferguson Dr.
      PO Box 7188, Mountain View, CA 94043
      (650) 966- 4180

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