Raytheon

Customer Success Is Our Mission

Integrated Implementation Of Process Documentation, Process Asset Library, And Project Tailoring

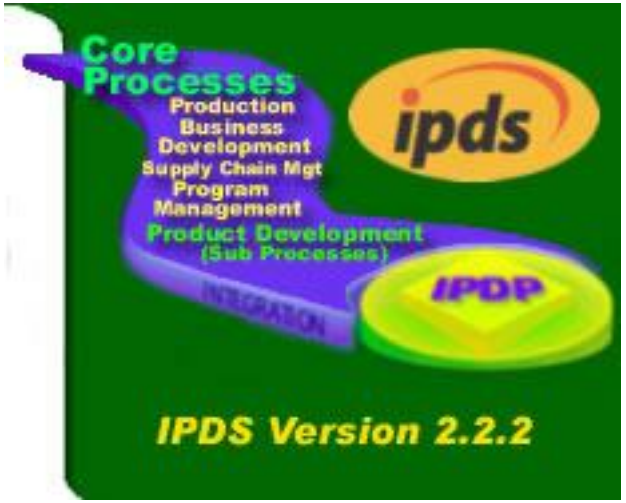
Raytheon Missile Systems

Steve Lacy

Manager III, Program Operations – Process and Tools

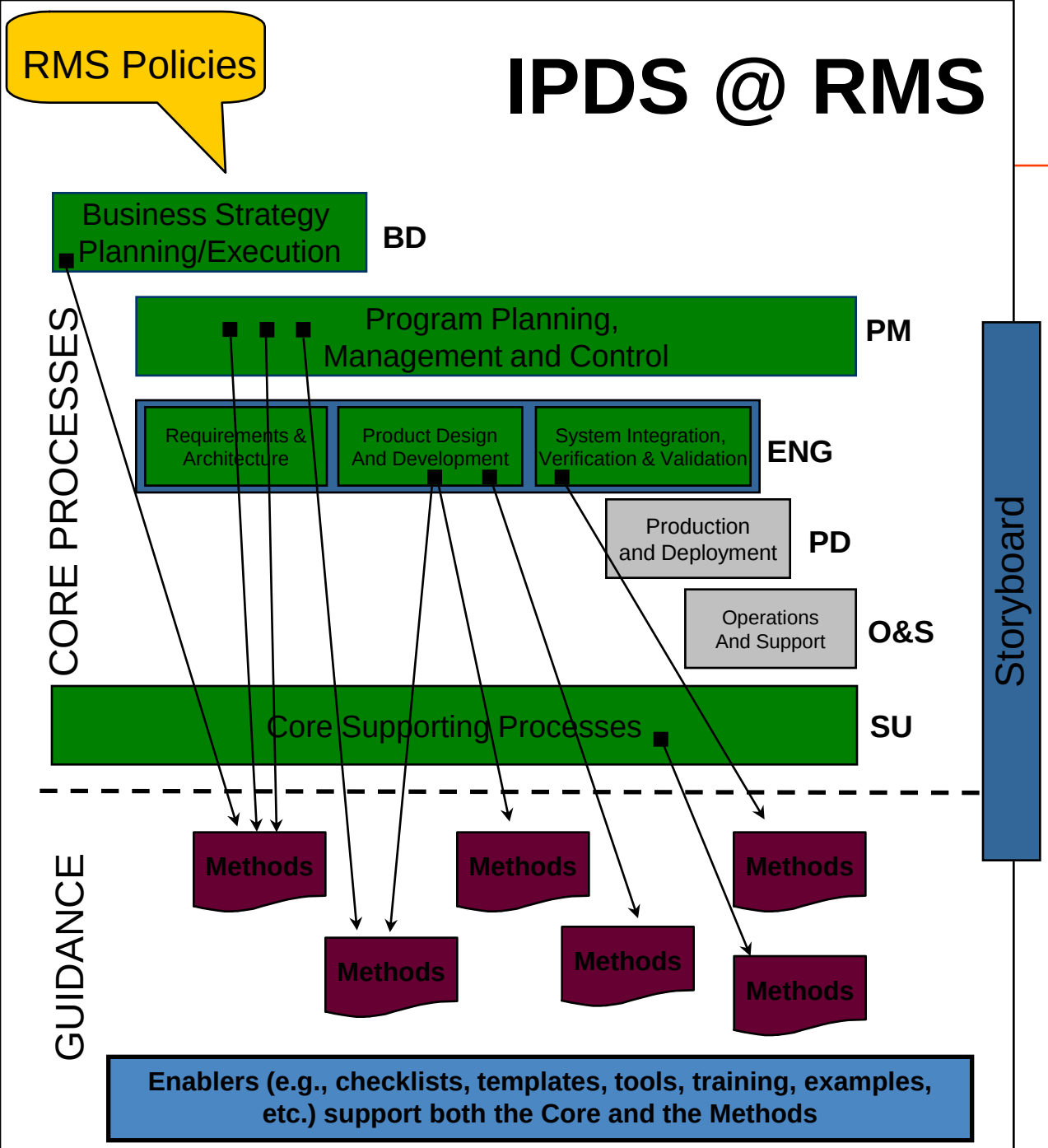
November 19, 2003

Why IPDS @ RMS?



- Corporate Process System
  - Raytheon Integrated Product Development System (IPDS)
  - Established 1995
  - Limited Adoption at Raytheon Missile Systems Facility
- Raytheon Missile Systems (RMS) Process System
  - IPDS@RMS – Tailored version of Corporate System
  - Integrated with Planning and Tailoring Systems
  - Released September 12, 2003
- RMS Pursuing CMMI Level 3 (Feb 03)

IPDS @ RMS



Raytheon

Each *CORE* process represented by process flows, task descriptors, and storyboards.

Combination of the six Core processes must be fully CMMI and ISO compliant.

Six *CORE* Processes → Tailored → Programs

What processes will be used, modified, or added. What products will be included. Selection of appropriate methods.

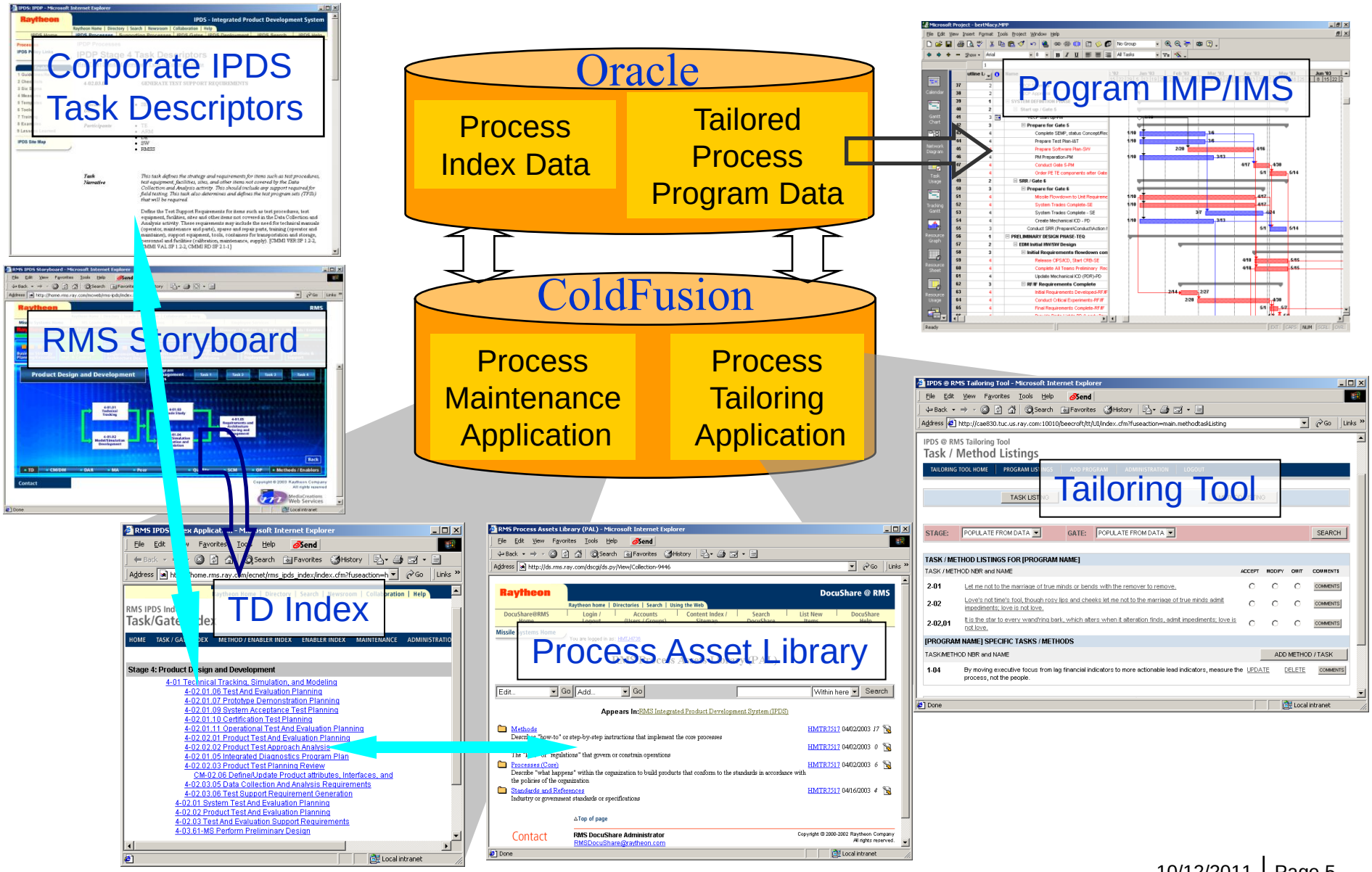
Methods help plan and execute tasks or sets of tasks. They describe preferred, discipline-specific ways of doing things.

System Requirements

- Integrated PAL, Process Library (Storyboard), And Tailoring Architecture
- Easy To Use (Web Based)
- Facilitates Program Tailoring
- Program Tailoring Process Yields Program Framework Artifacts (IMP/IMS, Master Phasing Schedule, Initial Program Schedule, SEMP, SDP, PMP,etc.)

Easy to Use Integrated Architecture that Supports Programs

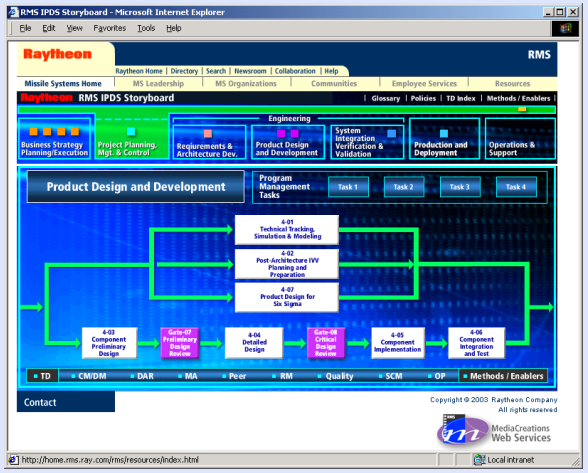
Architecture Overview

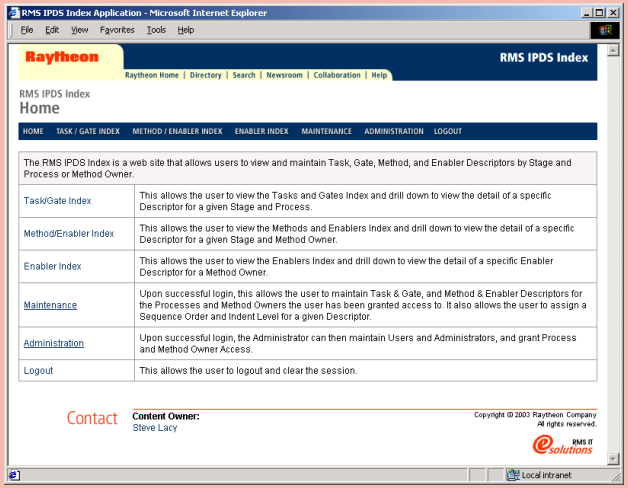


Storyboard Overview

IPDS @ RMS Storyboard

- Navigation
- Stages
- Program Management
- Process Flowchart
- Supporting Processes
- Index Integration

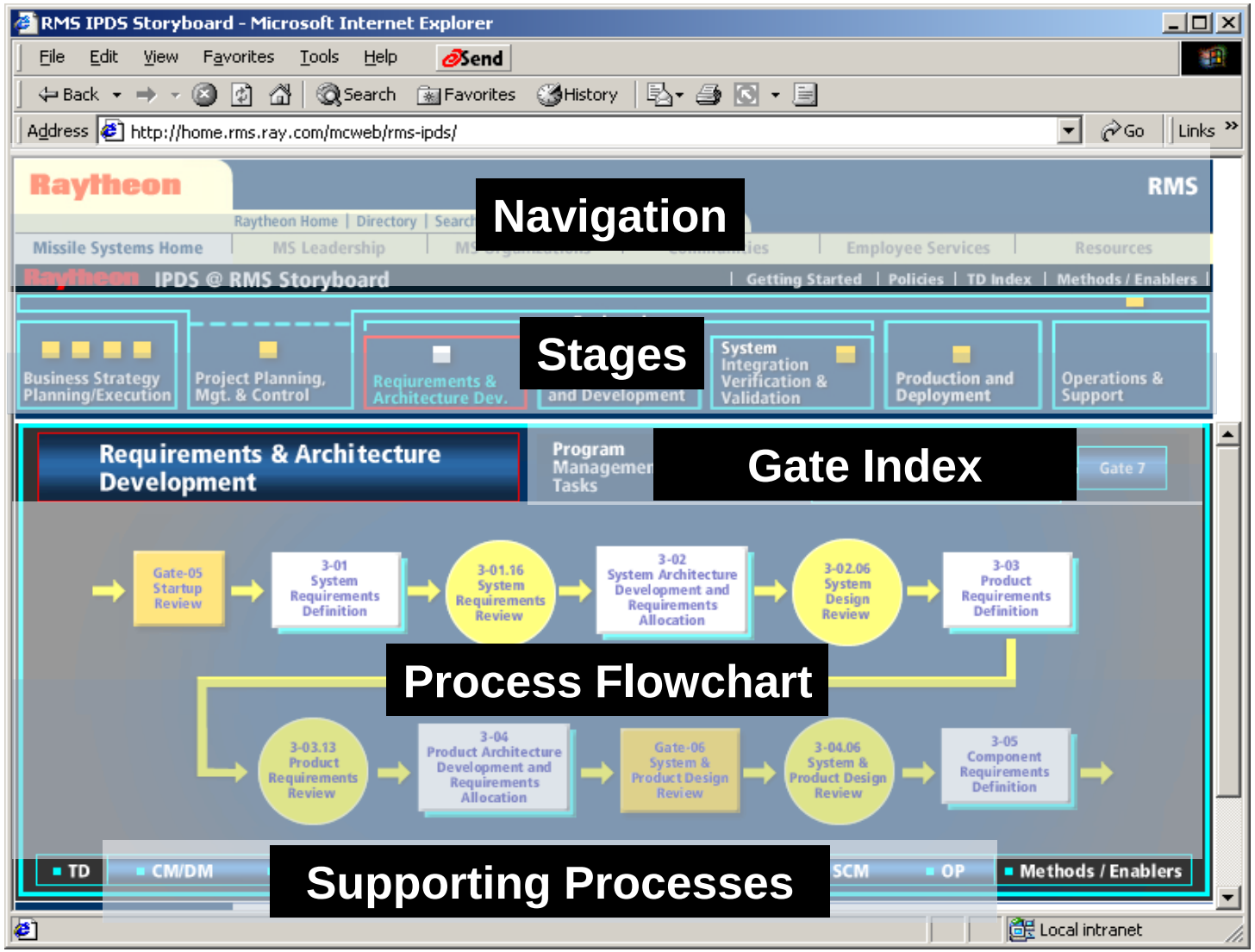




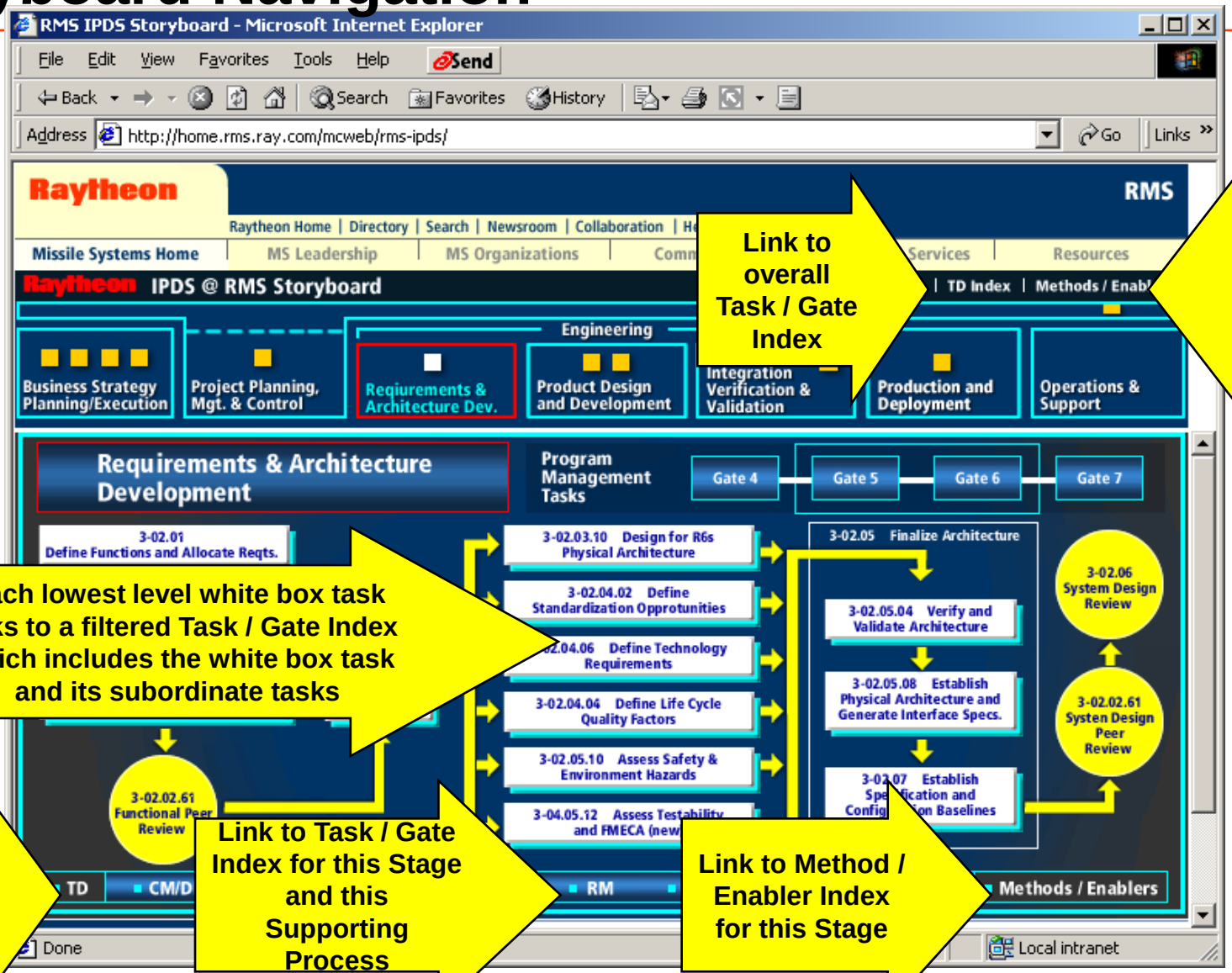
IPDS @ RMS Index

- Roles (Admin, Maintenance, User)
- Access (Process, Method Owner)
- Descriptors (Task, Gate, Method, Enabler)
- Descriptor Associations (Stage, Process / Method Owner, Sequence, Indent)

Storyboard Layout



Storyboard Navigation



Link to overall Task / Gate Index

Link to overall Method / Enabler Index

Each lowest level white box task links to a filtered Task / Gate Index which includes the white box task and its subordinate tasks

Link to Task / Gate Index for this Stage

Link to Task / Gate Index for this Stage and this Supporting Process

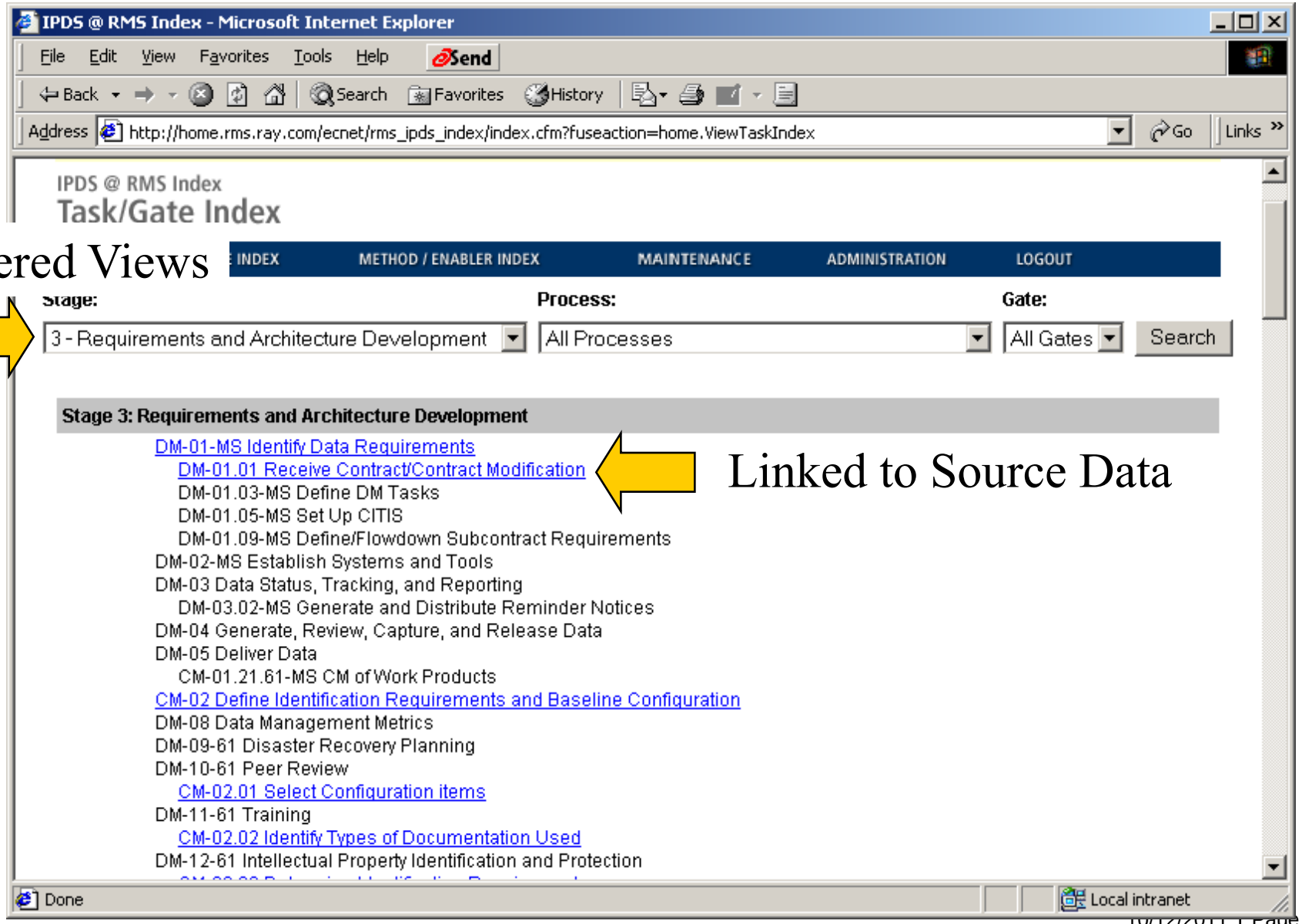
Link to Method / Enabler Index for this Stage

Storyboard Features

- Appealing Graphical User Interface
- Limited to 2 levels of Flow Graphics
- Linked to Index Listing at all Levels
- Standard Graphical Convention
  - White Box = Process
  - Shadowed White Box = Drill Down Graphic
  - Yellow Circle = Review
  - Gold Box = Gate
- Gate Index View Accessible Within Each Stage

Appealing, Simplified Presentation Of Process Documentation

Index Overview



Filtered Views

Linked to Source Data

Index Maintenance

IPDS @ RMS Index - Microsoft Internet Explorer

File Edit View Favorites Tools Help Send

Back Search Favorites History

Address http://home.rms.ray.com/ecnet/rms_ipds_index/index.cfm?fuseaction=home.TaskDescriptorList Go Links

IPDS @ RMS Index

Task/Gate Maintenance

HOME | TASK / GATE INDEX | METHOD / ENABLER INDEX | MAINTENANCE | ADMINISTRATION | LOGOUT

Stage: All Stages

Process: All Processes

Search

Add Task Descriptor Add Gate Descriptor

Stage 1: Business Strategy/Planning Execution

CM-00-MS Configuration Management (SEQ=1, IND=1)	Update	Delete	Associations
CM-01 Perform CM Planing (SEQ=2, IND=1)	Update	Delete	Associations
DM-01.03-MS Define DM Tasks (SEQ=3, IND=2)	Update	Delete	Associations
CM-01.01 Review for CM requirements, subcontractors, relate (SEQ=4, IND=2)	Update	Delete	Associations
DM-01.05-MS Set Up CITIS (SEQ=5, IND=2)	Update	Delete	Associations
DM-01.05.04-MS Identify Tool Training Needs (SEQ=6, IND=3)	Update	Delete	Associations
DM-01.09-MS Define/Flowdown Subcontract Requirements (SEQ=7, IND=2)	Update	Delete	Associations
CM-01.01.01 Collect and summarize requirements and distribute (SEQ=8, IND=2)	Update	Delete	Associations
DM-02-MS Establish Systems and Tools (SEQ=9, IND=1)	Update	Delete	Associations
DM-03 Data Status, Tracking, and Reporting (SEQ=10, IND=1)	Update	Delete	Associations
DM-03.02-MS Generate and Distribute Reminder Notices (SEQ=11, IND=2)	Update	Delete	Associations
CM-01.03 CM Plan Required (SEQ=12, IND=2)	Update	Delete	Associations
CM-01.21.61-MS CM of Work Products (SEQ=13, IND=2)	Update	Delete	Associations
DM-01-MS Identify Data Requirements (SEQ=14, IND=1)	Update	Delete	Associations
DM-01.01 Receive Contract/Contract Modification (SEQ=15, IND=2)	Update	Delete	Associations
DM-08 Data Management Metrics (SEQ=17, IND=1)	Update	Delete	Associations

Single Application Supports Both Participants and Administrators

Process Index Key Features

- Indentured/Outline View Of Processes And Methods
- Hyper-links To Source Data (IPDS Or PAL)
- Web Based Coldfusion/Oracle Application
- Single Tool For Process Administrator And Process Browser
- Integrated/Shared Database With Tailoring Tool
- Interactive Search/Filter Displays
  - Gate Views, Stage Views, Etc
  - Linked To White Boxes (Predefined Filter Views)
- Controlled Access To Process And Method Areas
- Single Descriptor Mapped To Multiple Locations
- Ability To Reorganize (Sort And Indent)
- Validation Of Url's To Source Data
- Directory Services Login Based

PAL Overview

RMS Process Assets Library (PAL) - Microsoft Internet Explorer

File Edit View Favorites Tools Help Send

Back Search Favorites History

Address http://ds.rms.ray.com/dscgi/ds.py/View/Collection-9446 Go Links

Home Logout (Users / Groups) Sitemap DocuShare Items Help

Missile Systems Home

You are logged in as: HMTJ4736

RMS Process Assets Library (PAL)

Edit... Go Add... Go Within here Search

Appears In: RMS Integrated Product Development System (IPDS)

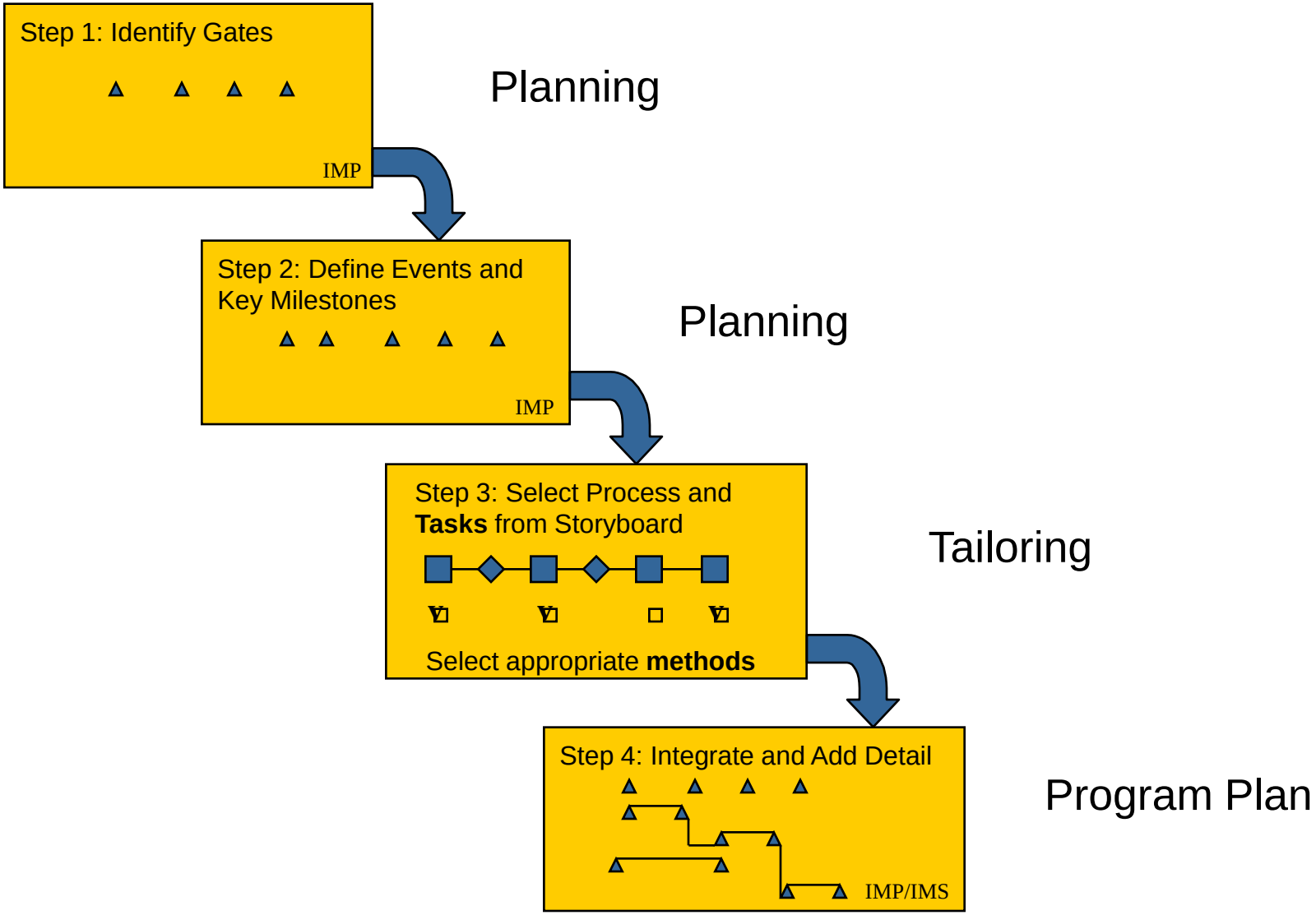
Methods Describes "how-to" or step-by-step instructions that implement the core processes	Doug Corlew	04/02/2003	20
Policies The "laws" or "regulations" that govern or constrain operations	Doug Corlew	04/02/2003	1
Processes (Core) Describe "what happens" within the organization to build products that conform to the standards in accordance with the policies of the organization	Doug Corlew	04/02/2003	7
Standards and References Industry or government standards or specifications	Doug Corlew	04/16/2003	4
Templates	HMTJ4736	07/01/2003	7
IPDS Index	Doug Corlew	07/17/2003	-

Local intranet

PAL Key Features

- Docushare Based
- Organized Into A Hierarchy Of Collections
- Utilizing Docushare Security System
- Linked Directly To Storyboard Index
- Planned Migration To Corporate PAL In The Future

Planning & Tailoring Concept of Operations



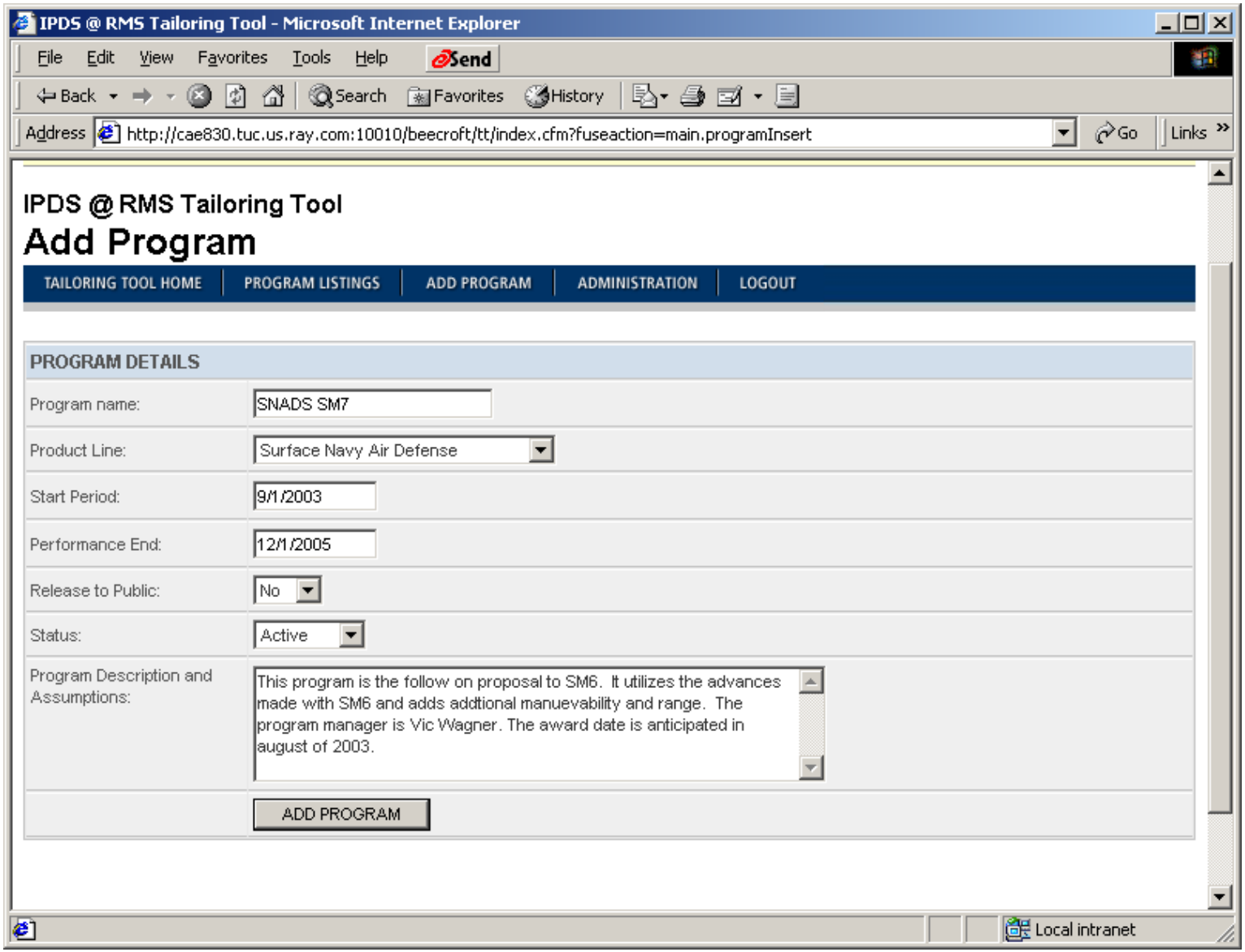
Tailoring is integral to building the program plan

Tailoring Process Flow

1. Create Program
2. Assign Approvers
3. Select Stages
4. Select Gates
5. Add Major Milestones/Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details

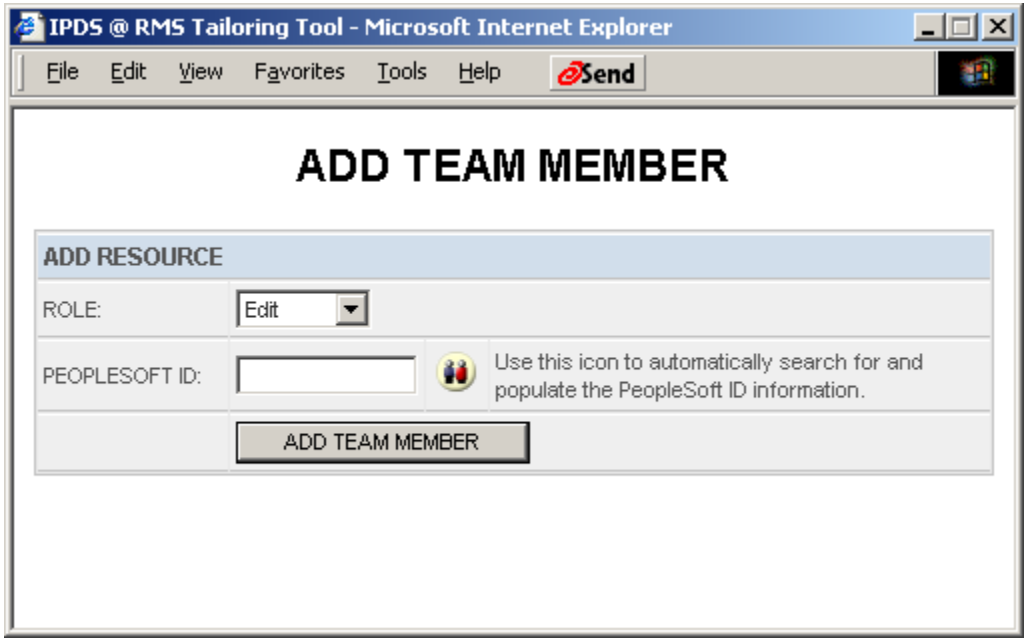
Add Program for Tailoring

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details



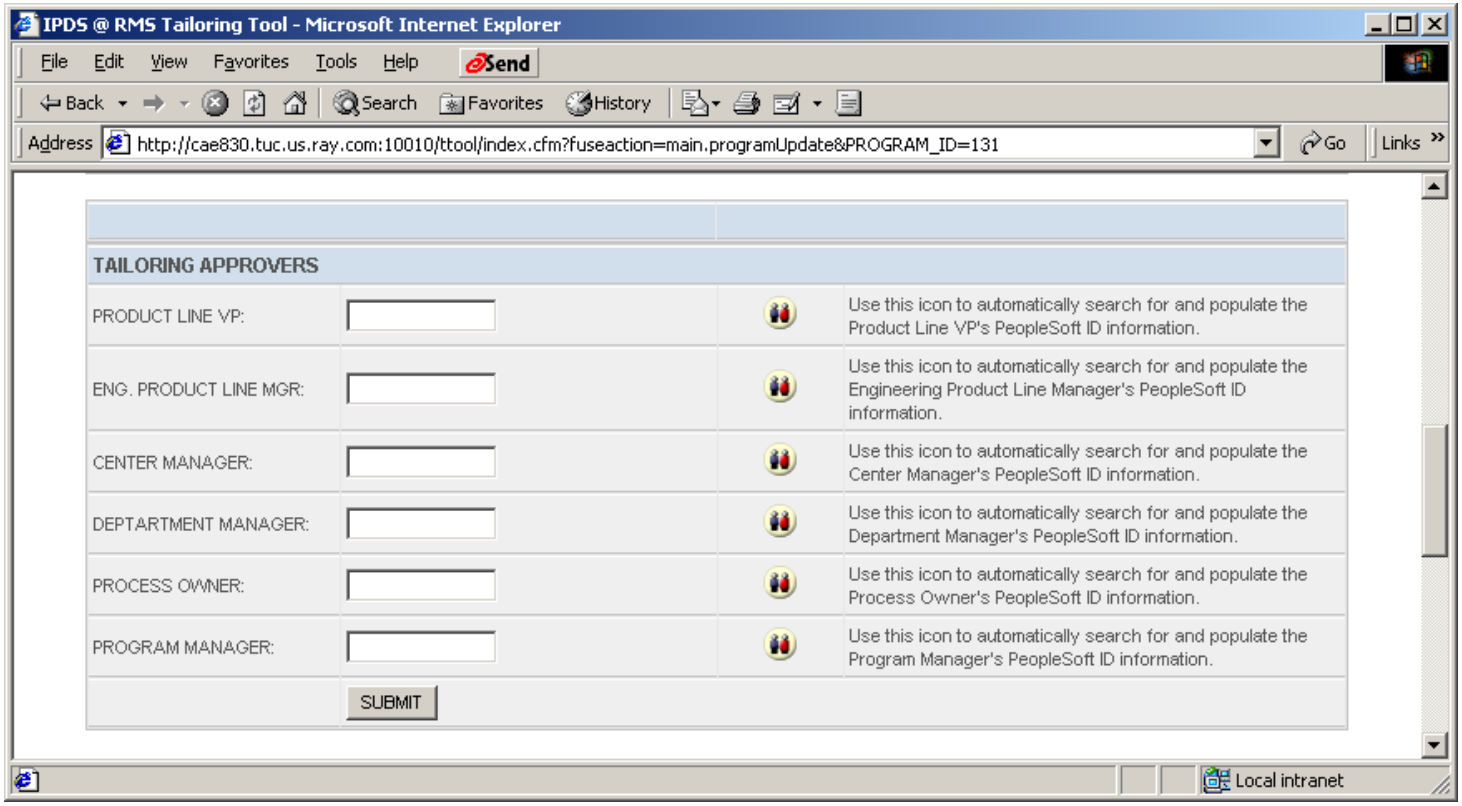
Add Team Members

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details



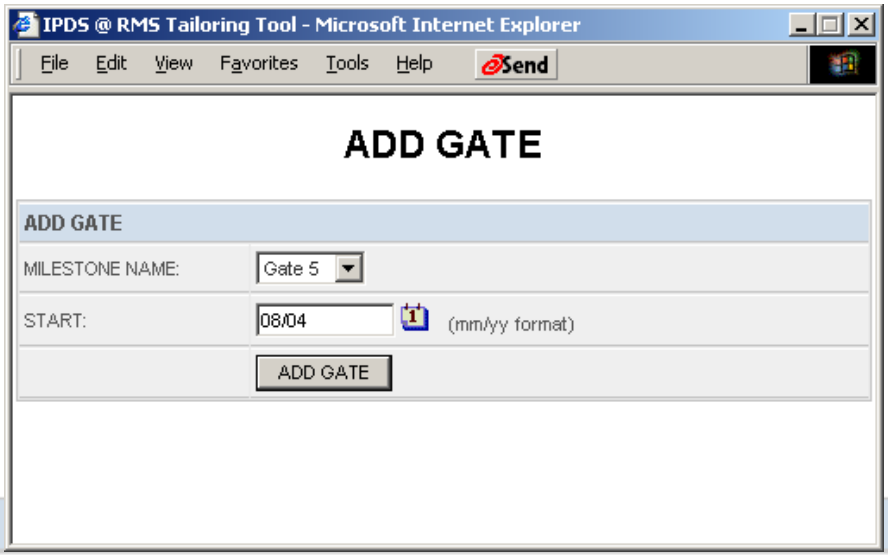
Define Approvers

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details



Define Stages, Gates, and Milestones

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9.
10.



STAGES / GATES / KEY PROGRAM MILESTONES

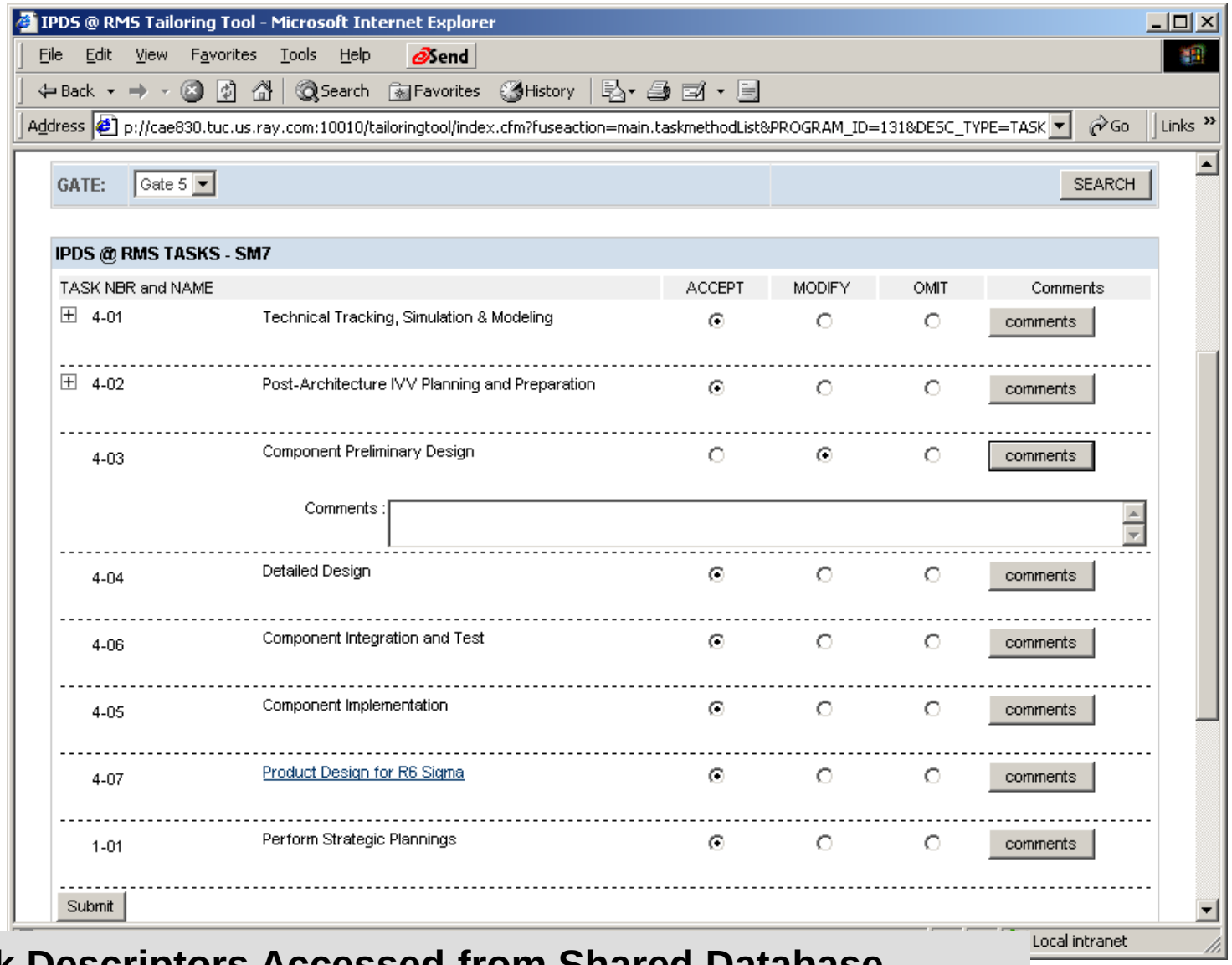
STAGES			ADD STAGE
STAGE:	START:	FINISH:	

GATES		ADD GATE
GATE:	START:	

KEY PROGRAM MILESTONES			ADD EVENT
MILESTONES:	START:	EVENT TYPE:	

Tailor Task Descriptors

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details



Task Descriptors Accessed from Shared Database

Tailor Tasks and Methods

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
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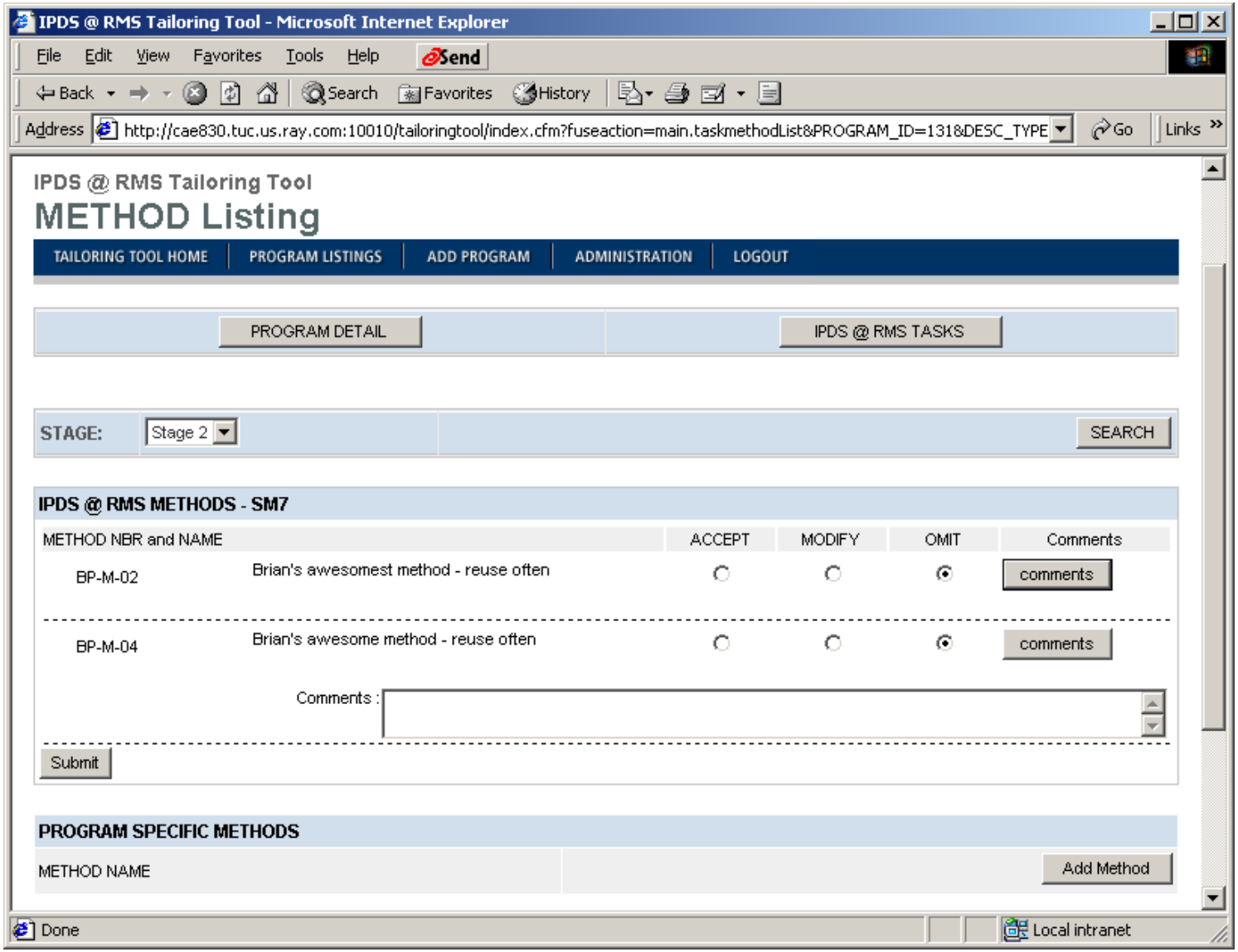
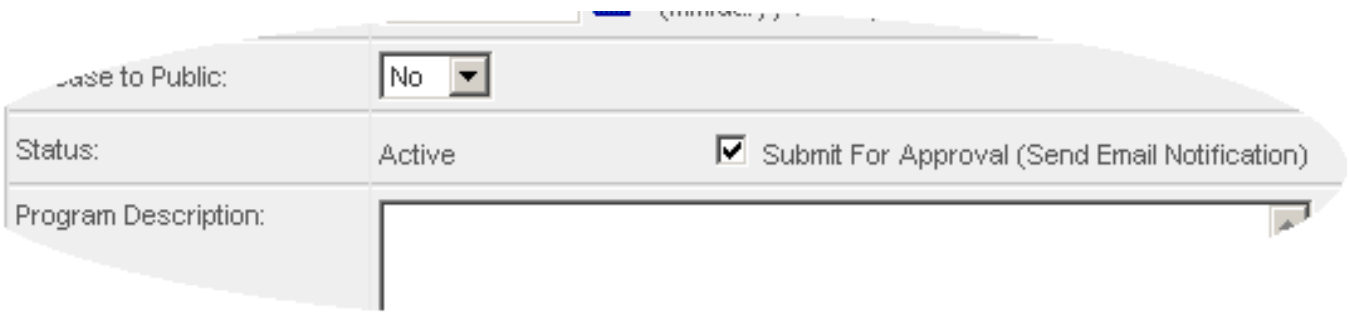


Tailoring Approval

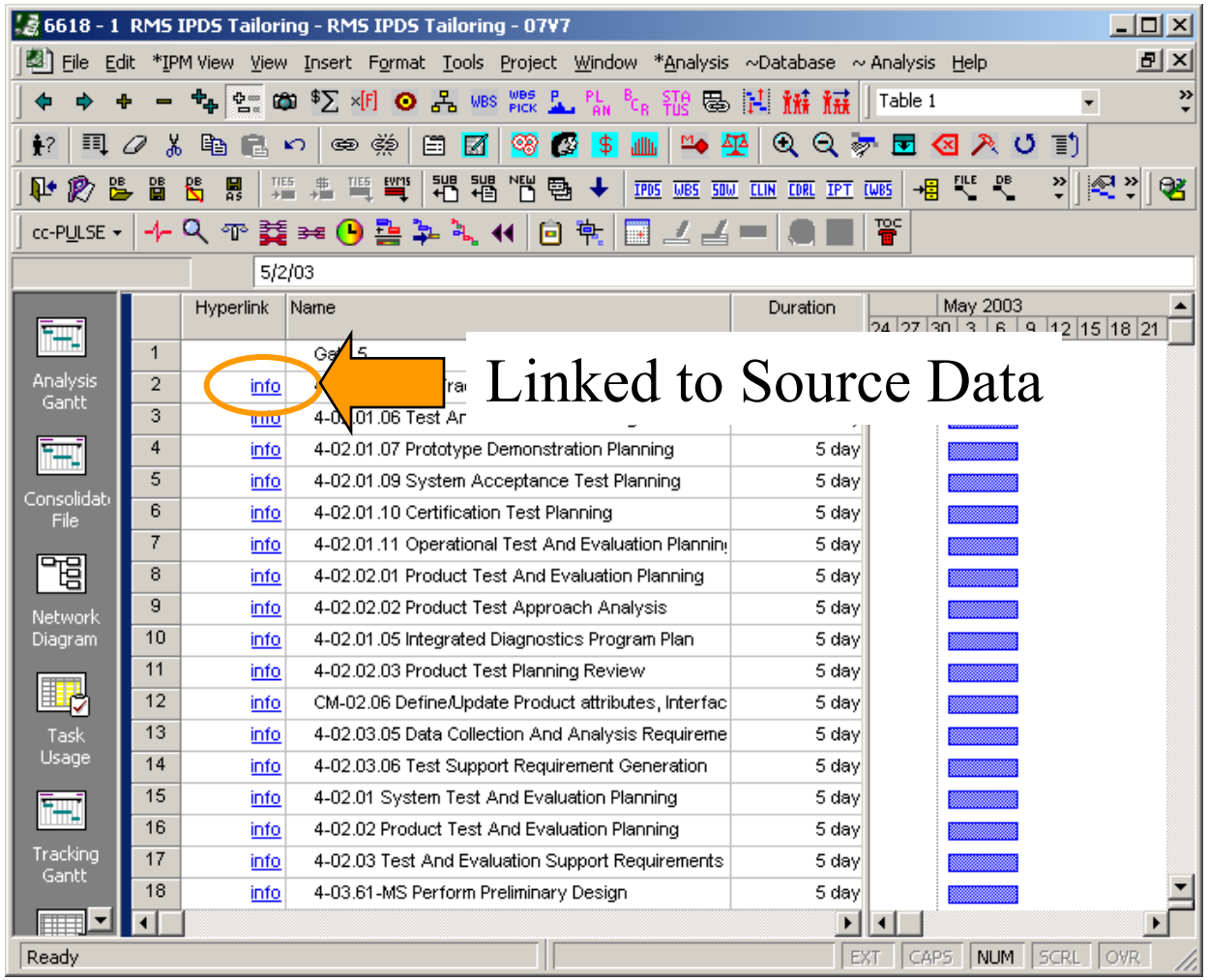
1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details

- Automatic Email Request To Approver(s)
- Dynamic Tailoring Reports Available
  - Filter On Modified, Omitted, Etc.
- Online Approval Of Tailoring
- Ability To Embed Approval Process Rules
  - Process Owner, Programmatic, Etc.



Export Tailoring to MS Project

1. Create Program
2. Assign Approvers
3. Add Stages
4. Add Gates
5. Add Major Milestones & Events
6. Tailor Tasks
7. Tailor Methods
8. Submit for Approval
9. Export to MS Project
10. Plan Program Details



Tailoring Key Features

- Web Based Friendly Interface
- Integrated With Storyboard Index Database
- Exports To MS Project File And Other Planning Tools
  - Links To Source Information Embedded
- Ability To See Tailoring Of Previous Programs
- Ability To Control Admin And Access Per Roles
- Ability To Add Key Program Milestones
- Supports Multiple Iterations
- Accept, Modify, Omit TD's And Methods
- Create New Task Descriptors
- Tailoring Approval – Auto Email System
- Gate And/Or Stage Based View Of Tailoring
- Enforces Rationale For Modify Or Omit

Simple Tailoring Process with Direct Results

Current Status

- Preparing for CMMI Level 3 Assessment (Feb 04)
  - Front Runner Programs Identified
- Completed the Process Architecture (Sep 03)
  - Process Flow Depiction
  - Process Index Population
  - PAL Population
- Tailoring Tool Initial Pilots
  - Tailoring Completed In Hours (Vs. Days)
  - Automated, Engaging, (Fun?)
  - Positive Feedback From All Programs

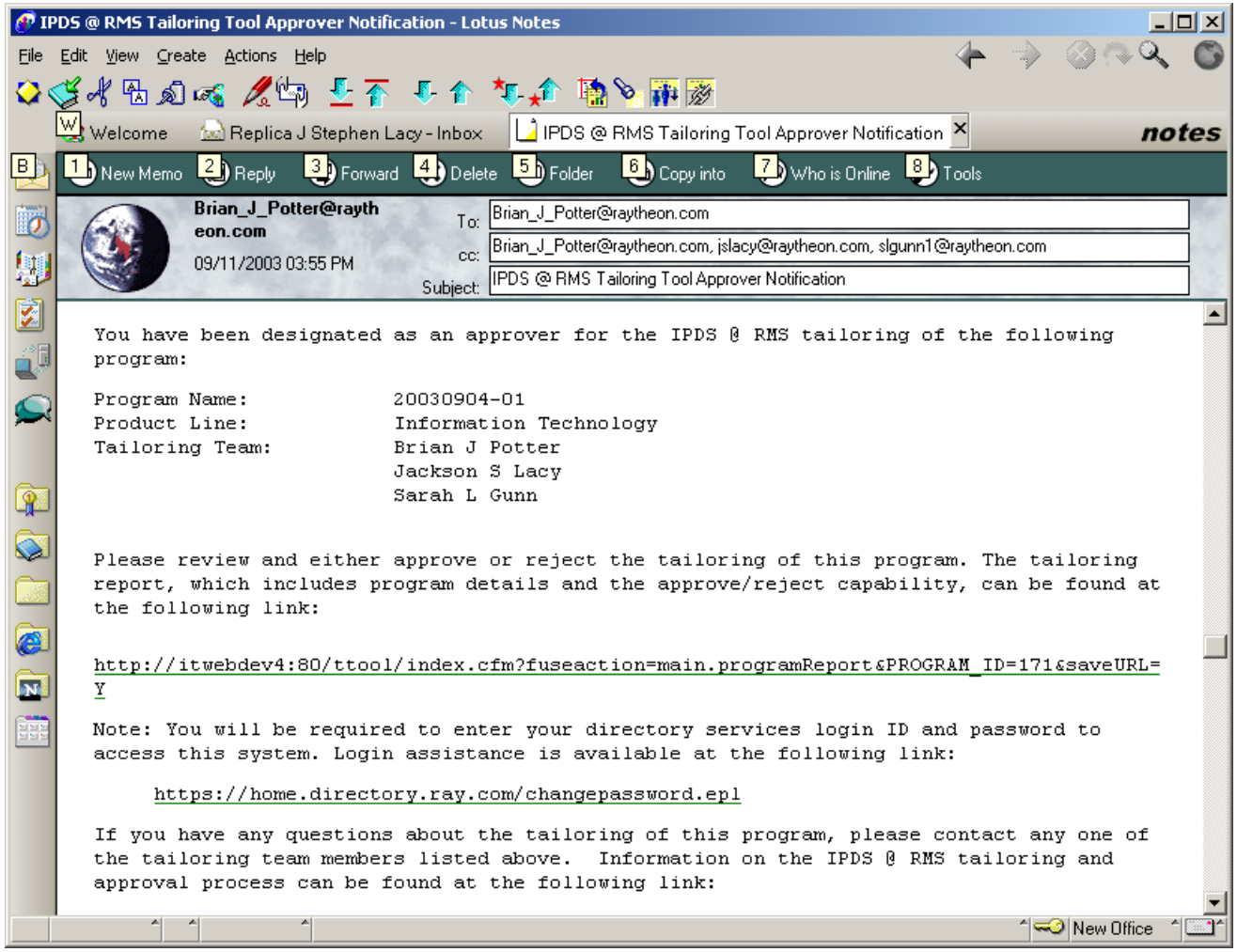
Benefits of the Integrated Architecture

- Integrated System
  - Individual Updates feed Multiple Systems
    - i.e. - An update to a PAL Artifact is automatically available to Index, Storyboard, and Tailoring tool
  - Process System Initiates Program Plans
- Enterprise Tailoring Tool and Database
  - Visibility To Commonly Omitted/Modified/Added Processes
    - Trend Analysis
  - Integration Of Program Plans With Process Data
    - Process Actual Cost
  - Centralized Library Of Program Tailoring Data
    - Normalize Into Standard Pre-defined Templates

Integrated Architecture is Foundation for CMMI Level 4 & beyond

Questions

- Steve Lacy (jslacy@raytheon.com)

Backup Material

Tailoring Approval Email