

# **Webinar: CMM to CMMI – How to Expedite the Transition**

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## How to Expedite the Transition

Louis A. Poulin  
**GRafP Technologies Inc.**

- **Many organizations still favor starting with the CMM even if the model will no longer be supported after December 2005**
- **Some organizations that started their process improvement with the CMMI have had a rude awakening**
  - **Some now wish they had started earlier and with the CMM**
- **Organizations that had already started with the CMM tend to delay the transition to the CMMI until they have reached at least maturity level 3**
  - **Resistance to change prevails, and SPI is no exception**

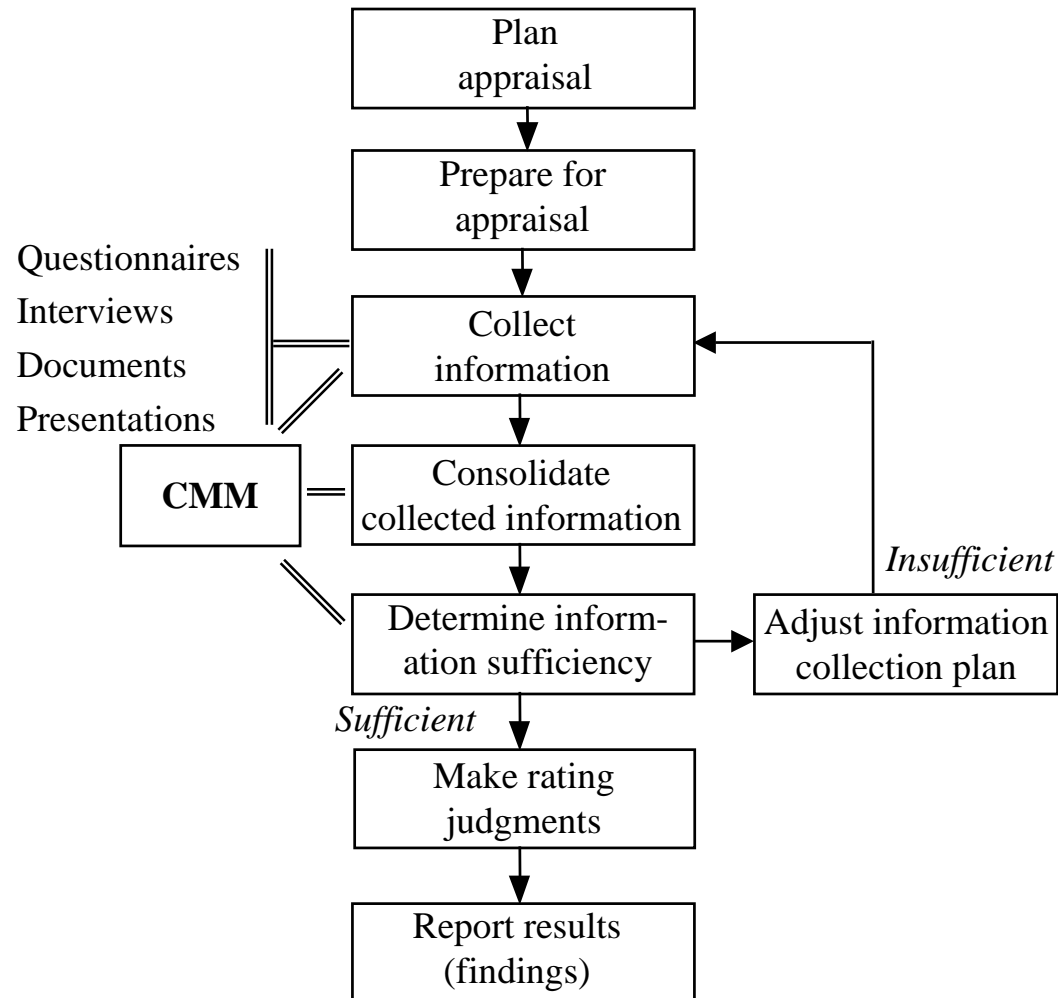
# Mapping between CMM and CMMI

- **CMM**
  - **18 Key Process Areas**
    - 6 at Level 2
    - 7 at Level 3
    - 2 at Level 4
    - 3 at Level 5
  - 316 key practices
- **CMMI (SE/SW version)**
  - **22 Process Areas**
    - 7 at Level 2
    - 11 at Level 3
    - 2 at Level 4
    - 2 at Level 5
  - 425 practices

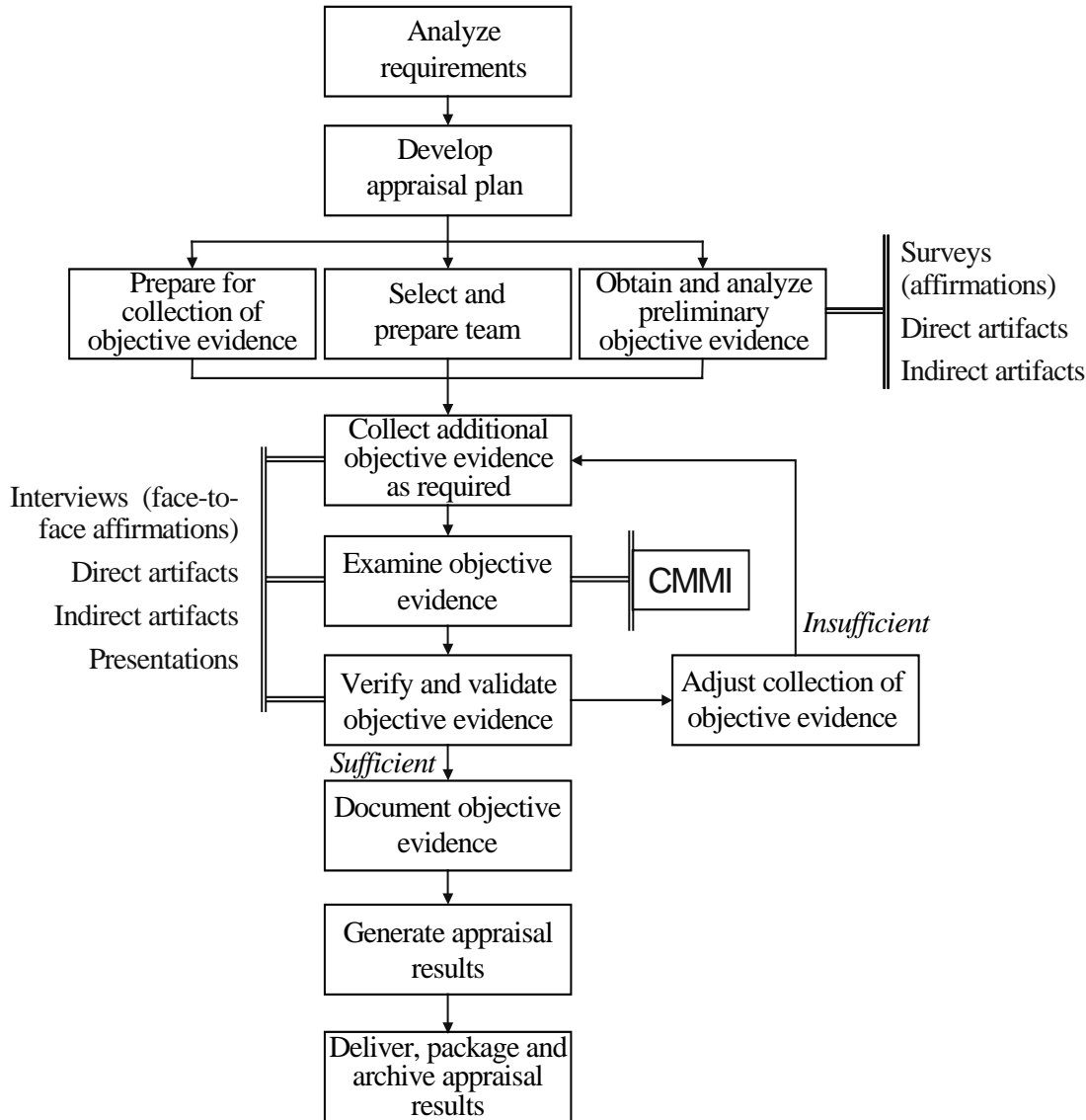
Level	Focus	Key Process Areas
<b>5 Optimizing</b>	Continuous Process Improvement	Defect Prevention Technology Change Mgt. Process Change Mgt.
<b>4 Managed</b>	Product and Process Quality	Quantitative Process Mgt. Software Quality Mgt.
<b>3 Defined</b>	Engineering and Management Process	Organization Process Focus Organization Process Defn. Peer Reviews Training Program Intergroup Coordination Software Product Engineering Integrated Software Mgt.
<b>2 Repeatable</b>	Project Management	Requirements Mgt. Software Project Planning Software Project Tracking Software Subcontract Mgt. Software Quality Assurance Software Configuration Mgt.
<b>1 Initial</b>		

Level	Focus	Process Areas
<b>5 Optimizing</b>	<i>Continuous Process Improvement</i>	Organizational Innovation and Deployment Causal Analysis and Resolution
<b>4 Quantitatively Managed</b>	<i>Quantitative Management</i>	Organizational Process Performance Quantitative Project Management
<b>3 Defined</b>	<i>Process Standardization</i>	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition Organizational Training Integrated Project Management Risk Management Decision Analysis and Resolution
<b>2 Managed</b>	<i>Basic Project Management</i>	Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management
<b>1 Initial</b>		

- **For an organization having implemented the CMM**
  - **Between 55% and 65% of the CMMI practices will be directly satisfied by currently implemented CMM key practices**
  - **Actual percentage depends on the CMM key practices implementation details**



- **Pre-appraisal frequently conducted to identify significant gaps before CBA IPI is initiated**
- **Information collected on instances making up sample, and sufficiency of information assessed by team**
- **Interviews constitute one of the mechanisms use to collect and to corroborate information**
- **Rating performed for the organization, based on collected information**



- Readiness review performed to verify that organization is ready for a formal appraisal
- Exhaustive verification that practices are implemented
- Practice implementation is expected to leave a trace in the form of a direct artifact
- Interviews are held to verify that the process is known and used
- Rating performed for each practice, for each instance, and for the organization as a whole

- **Step 1 – Assess readiness to undergo formal CMM-based appraisal**
- **Step 2 – Perform CMM-Based appraisal with modifications to help transition**
- **Step 3 – Conduct detailed CMM-CMMI gap analysis**
- **Step 4 – Provide CMMI training**
- **Step 5 – Conduct SCAMPI Class A appraisal**

- **Ensure CMM training has been adequate**
  - Poor understanding of CMM key practices is by far the biggest obstacle to successful CMM implementation
- **Identify business objectives**
  - Determine which has higher priority
    - Obtaining a formal CMM maturity level
    - Transitioning to CMMI as early as possible
- **Determine most desirable type of appraisal, taking into account business objectives**
  - CBA IPI if no formal CMM appraisal has ever been conducted
  - If a CBA IPI has been performed in the past, a CMM-Based SCAMPI will likely facilitate transition to CMMI, but it will also be more challenging

- **Have the appraisal team conduct an extensive survey with directives to respondents to provide links to direct artifacts**
  - **Comments also provide information in the form of Affirmations**
  - **Focus on obtaining direct artifacts for those practices that map to the CMMI**
  - **Ensure detailed survey results are properly archived, as they will be used in subsequent steps**

- **If a CBA IPI is conducted**
  - **Have the team start with survey results**
    - **Focus will be on verifying that these results are accurate and sufficient**
  - **During the on-site period, have the team focus on**
    - **Verifying the adequacy of the tangible outputs resulting from the implementation of each key practice (Direct Artifacts)**
    - **Corroborating Direct Artifacts with Indirect Artifacts and Affirmations**
  - **Have the team use interviews to corroborate that the process is known and applied**
    - **Let participants explain how they generate and use direct artifacts with the help of a multimedia projector**
  - **Use as a dry-run for upcoming SCAMPI appraisal**

- **Identify sample that will constitute the basis for a SCAMPI Class A**
- **If CBA IPI was conducted, have the SEPG**
  - **Verify that findings (strengths) also apply to the sample that will constitute the basis for a SCAMPI Class A**
  - **Map evidence collected for CBA IPI to CMMI practices**
  - **Prepare action plan to implement CMMI practices not covered by CMM**
    - **Ask SEPG how CMMI practices can be implemented to maximize their usefulness, in a way that satisfies their intent, instead of blindly mandating them**

- **If CMM-Based SCAMPI was conducted**
  - **Have the SEPG verify that collected evidence applies to the sample that will constitute the basis for a SCAMPI Class A**
  
- **Kill two birds with one stone**
  - **Have the Lead Appraiser use this step as one of the Readiness Reviews required by the SCAMPI approach**

- **Provide Introduction to CMMI training to a pool of potential appraisal team members**
  - Typically, a pool of 10 individuals is sufficient for a large organization (250-1,000 people in software)
- **For remaining personnel, provide a one-day orientation on the CMMI**
  - Two days if they have not been exposed to the CMM
- **Have those who attended training hold internal awareness sessions for those who cannot attend**

- **Have Lead Appraiser conduct a quick Readiness Review to ascertain that**
  - Weaknesses identified in CMM-based appraisal have been corrected
  - Gaps between CMM and CMMI have been resolved
- **Have the team conduct SCAMPI appraisal on the basis of information collected in Step 3**
  - Appraisal should be focusing on verifying deltas between CMM and CMMI
- **Unless collected information warrants it, target a transition from CMM Level N to CMMI Level N (as opposed to N+1)**

- **Maximize the use of surveys**
  - **Very inexpensive and efficient way of getting information**
  - **The more information you have, the better informed you will be about your readiness to transition and remedial actions to implement**
- **Ask yourself why you are transitioning**
  - **Marketing advantage?**
  - **Getting better at what you're doing?**
  - **Benefiting from outsourcing opportunities?**
  - **Fighting off outsourcing threats?**
- **Verify that the adopted strategy is the right one**
- **Plan according to your strategy**
  - **Keep Murphy's Law in mind at all times**
- **Make it happen**

# **Automating the Transition**

**Sammy Wahab**  
**Osellus Inc.**

- **Unstructured Process Documentation**
  - (Word, Visio, spreadsheet, web-sites etc.)
- **Limited Support for**
  - Process Tailoring & Re-use
  - Process Dissemination
  - Process Automation
- **Methodology Proliferation**
  - RUP, MSF, PM-BOK, Agile etc
- **Coordination of Resources, Skills, Tools to support processes**
- **Not Collaborative.**
  - (Silos in Process & Engineering teams)

- **Standard-based (Common Terminology)**
  - **Software Process Engineering Metamodel (SPEM)**
- **Tools-based Process Development and Tailoring**
- **Design to support Process Execution**
- **Reusable Process Libraries and component**
- **Built-in support for Process Validation**
- **Integration with SD tools**
- **Quick and Cost-effective**

# Automating the Transition

## Transition Roadmap Steps

- 1 Assess readiness to undergo formal CMM-based appraisal

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- 2 Perform CMM-Based appraisal with modifications to help transition

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- 3 Conduct detailed CMM-CMMI gap analysis

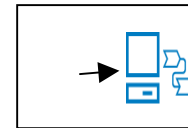
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- 4 Provide CMMI training  
  
(Process Implementation)

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- 5 Conduct SCAMPI Class A appraisal

## Process Automation



Process modeling  
(From Unstructured to Structured)



Process  
Compliance to CMMI



Published or Printed  
Process



Process Enactment



PIID Reporting

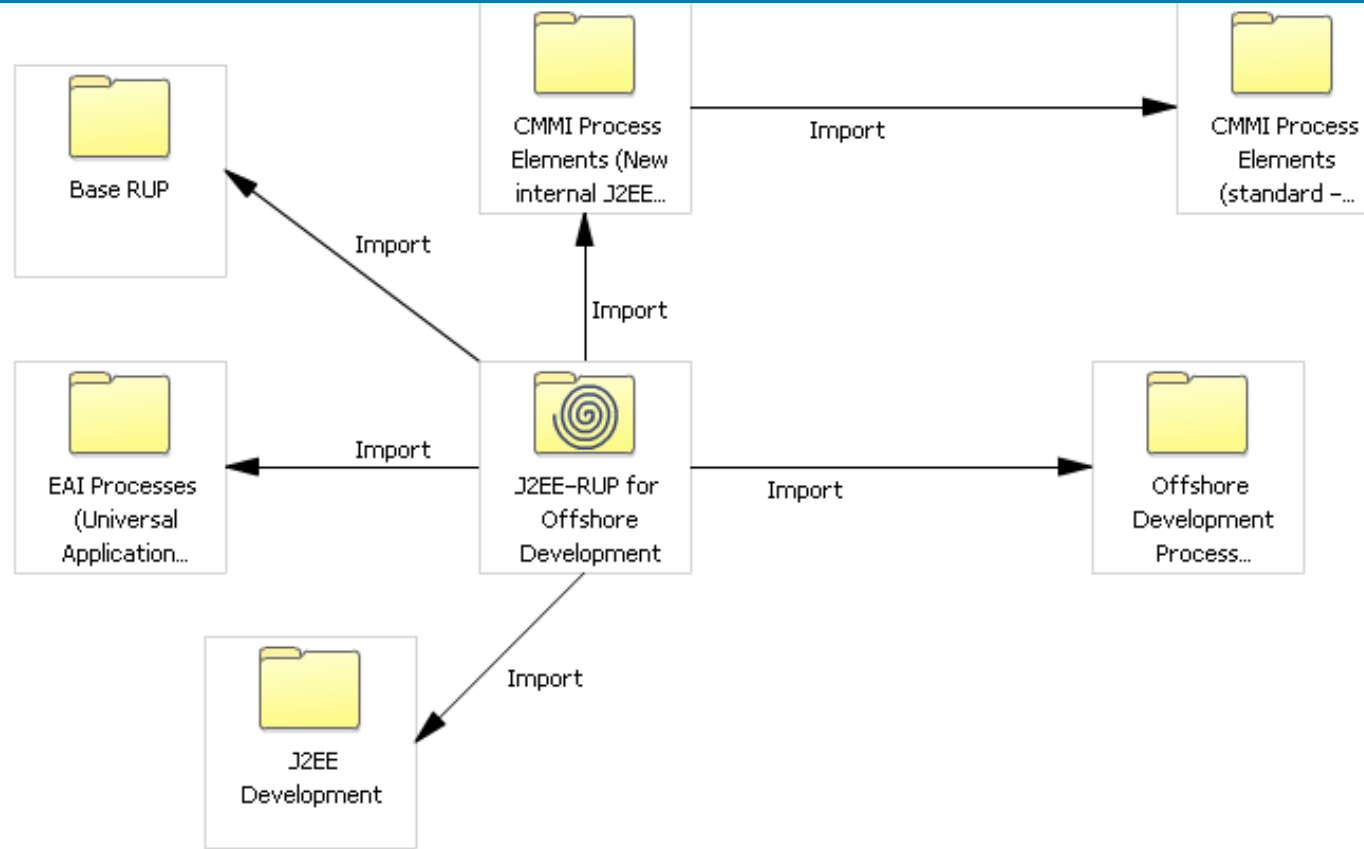
# Process Libraries

Library Name	Description
<a href="#"><u>Application Maintenance (Funds Management Applications)</u></a>	Application Maintenance Processes for Funds Management Applications
<a href="#"><u>Application Maintenance (Retail Banking)</u></a>	Application Maintenance for Retail Banking
<a href="#"><u>CMMI Process Library</u></a>	CMMI Process Library
<a href="#"><u>Client Server Development</u></a>	Client Server Development Library (PowerBuilder, VB with Oracle)
<a href="#"><u>Legacy Development &amp; Maintenance</u></a>	Legacy Application Development and Maintenance processes
<a href="#"><u>Offshore Development Library</u></a>	Offshore new application development and maintenance processes
<a href="#"><u>Packaged App. Implementation Process Lib.</u></a>	Packaged implementation for SAP, Siebel and other Corporate Applications.
<a href="#"><u>Product Development (.NET)</u></a>	New .NET product development
<a href="#"><u>SPI Six Sigma</u></a>	SPI Six Sigma

# Library Components



- Package
  - Base RUP
  - CMMI Process Elements (New internal J2EE...)
  - CMMI Process Elements (standard J2EE...)
  - EAI Processes (Universal Application...)
  - J2EE Development
  - Offshore Development Process Elements
- Process
  - Agile Process for Small EAI projects
  - J2EE RUP (CIT) - Internal project
  - J2EE-RUP for Offshore Development
  - RUP for J2EE (Organization Level)
- ProcessComponent
  - Intergroup Coordination Process
  - Offshore Project Planning
  - SAP Deployment



# Process Elements

+	Lifecycle
+	Phase
	Developing
	Envisioning
	Planning
	Stabilizing
	test Phase
+	Iteration
	Feature Development
+	WorkDefinition
	Develop Use Case
	Formulate Solution Co
	Identify Non-Function
	Stabilization Cycle
+	Activity
+	WorkProduct
+	ProcessPerformer
+	ProcessRole
+	Guidance
	Business Requirements
	Conceptual Design Ter
	Feature Proposal Tem
	Feature Set Template
	Functional Specificatio
	Logical Design Templa
	Operations Requireme
	Physical Design Templ
	Project Close-Out Rep

	Usability Testing	Activity
	User Acceptance Test	Activity
	Bug Report	WorkProduct
	Candidate Release	WorkProduct
	Configuration Scripts	WorkProduct
	Feature Description Sheet	WorkProduct
	Feature Documentation	WorkProduct
	Installation Scripts	WorkProduct
	Internal Build	WorkProduct
	Product Check List (PCL)	WorkProduct
	Project Close-out Report	WorkProduct
	Project Plan	WorkProduct
	Risk Assessment Tool	WorkProduct
	Rollout and Stability Plan	WorkProduct
	Training Materials	WorkProduct
	User Documentation Plan	WorkProduct
	Development	ProcessRole
	Product Management	ProcessRole
	Program Management	ProcessRole
	Quality Manager	ProcessRole
	Release Management	ProcessRole
	Test	ProcessRole
	User Experience	ProcessRole
	Business Requirements Template	Guidance
	Conceptual Design Template	Guidance

# Workflow Diagram

- Small Internal Products
  - Work Breakdown Structure
    - Product Development Lifecycle
      - Envisioning
      - Planning
      - Developing
        - Feature Development Cycle
          - Develop Feature Set
          - Code Review
          - Feature Build
          - Feature Set Sign Off
          - Feature Test
          - Develop Test Cases
          - Create Feature Documents
          - Feature Integration
          - Develop Installation and Configuration
          - Functional Testing
          - Usability Testing
          - Create Rollout and Stability Plan
          - Configuration Testing
          - Functional Testing
          - Finalize User Documentation
          - Documentation Testing
          - Finalize Rollout and Stability Plan
        - Stabilizing
  - Work Breakdown Elements
  - WorkProducts
  - ProcessRoles
  - Disciplines
  - Guidances
  - Element Categories
  - Supplementary Diagrams
  - Glossary

Overview

Workflow Diagram

Iterations

WorkDefinitions

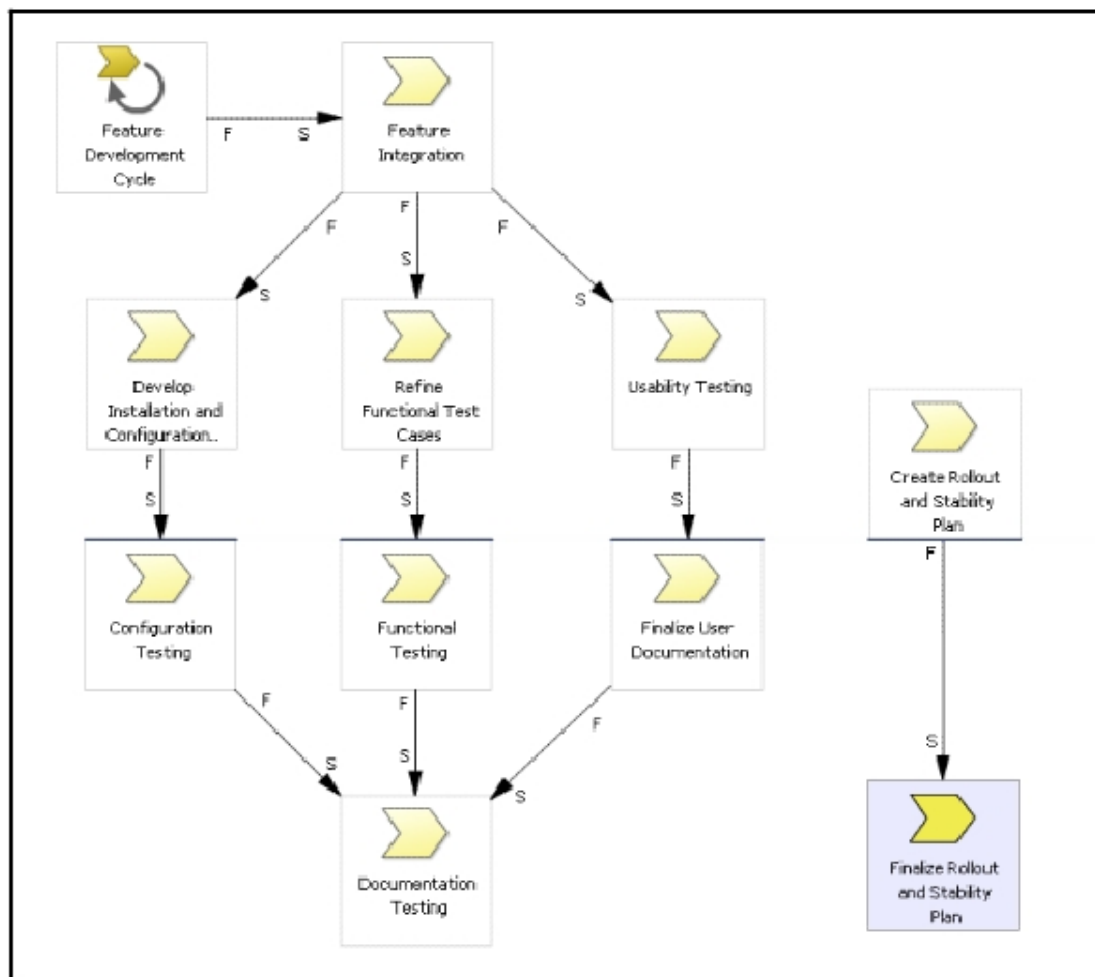
Activities

WorkProducts

Dependencies

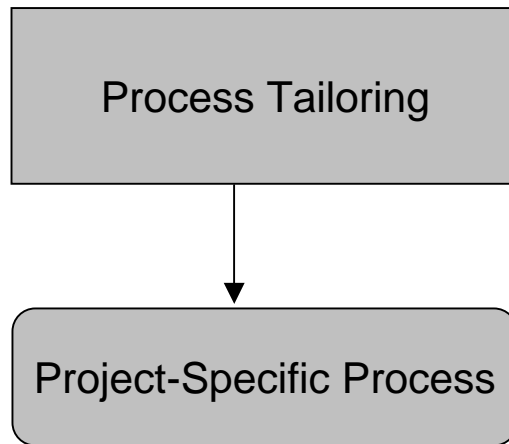
## Phase: Developing

(Product Development Lifecycle) → Developing



## Report: Process Compliancy

**Printed or Published Process  
(OSSP and Tailored)**



## Process Execution

Process Dissemination  
(Integrated web-site, PDF,  
Word)

Project Management  
(e.g. MS-Project  
Template)

Process Management  
Solutions (IRIS)

Integrated with  
SCM/IDEs

Manual



Automated

# Process Management Solution (IRIS)

osellus

Ron Francis

CapSys v2.1

- Project Home
- Activities
- Issues
- Schedule
- Work Products
- Supporting Documents
- Additional Information

## View Activity

### Activity : Develop Object Model

#### My Role

Name	Activity Role	Allocation	Process Role	Work Status	Expected Effort (hr)	Actual Effort (hr)
Ron Francis	Owner	100%	Development			

- Update Activity
- Start Activity
- End Activity
- View Dependencies
- Find in Workflow Diagram
- View Open Risks/Issues
- Create Related Risk
- Create Related Issue
- View My Activities
- View Schedule - List View
- View Schedule - Chart View

#### Inputs and Outputs

-- For Selection --

0 rows selected

Name	Input	Output	Current State	Type	Owner
Feature Set		⇒	start	Software	
Object Model		⇒	start	Document	
Logical Design Template				Template	
Logical Design.doc					
Product Concept	⇒			Document	
Usage Scenarios	⇒		start	Document	
Vision/Scope	⇒		agreed	Document	
Feature Set Template				Template	
Logical Design Template				Template	

#### Steps

Description	Complete
1 Development identifies the objects that will be needed to support the design, along with their attributes, behaviors, and relationships.	
2 As the object definitions are being developed, Development compares them to against the Feature/Function List in the Vision/Scope document and starts drafting the Feature Set list. Feature Sets are classified if possible (or obvious); otherwise, just identifying them is sufficient.	

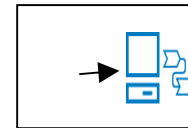
## **Report: Practice Implementation Indicators**

# CMM to CMMI – How to Expedite the Transition (Summary)

## Transition Roadmap Steps

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## Process Automation



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Published or Printed  
Process



Process Enactment



Report: Practice  
Implementation  
Indicators

## **End of Presentation**

CMM to CMMI – How to Expedite the Transition

For additional information please visit  
<http://www.osellus.com/resources.html>  
Or contact [info@osellus.com](mailto:info@osellus.com)