

Global Information Systems: Development Frameworks

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Assumptions

- Scenario: Global Software Development

- Multiple developers in different locations
- Developing software for various markets
- Distributed development, distributed distribution

- Process Framework

- Detailed discussion of process parts

- Assumption: Usage of development models



Potential views

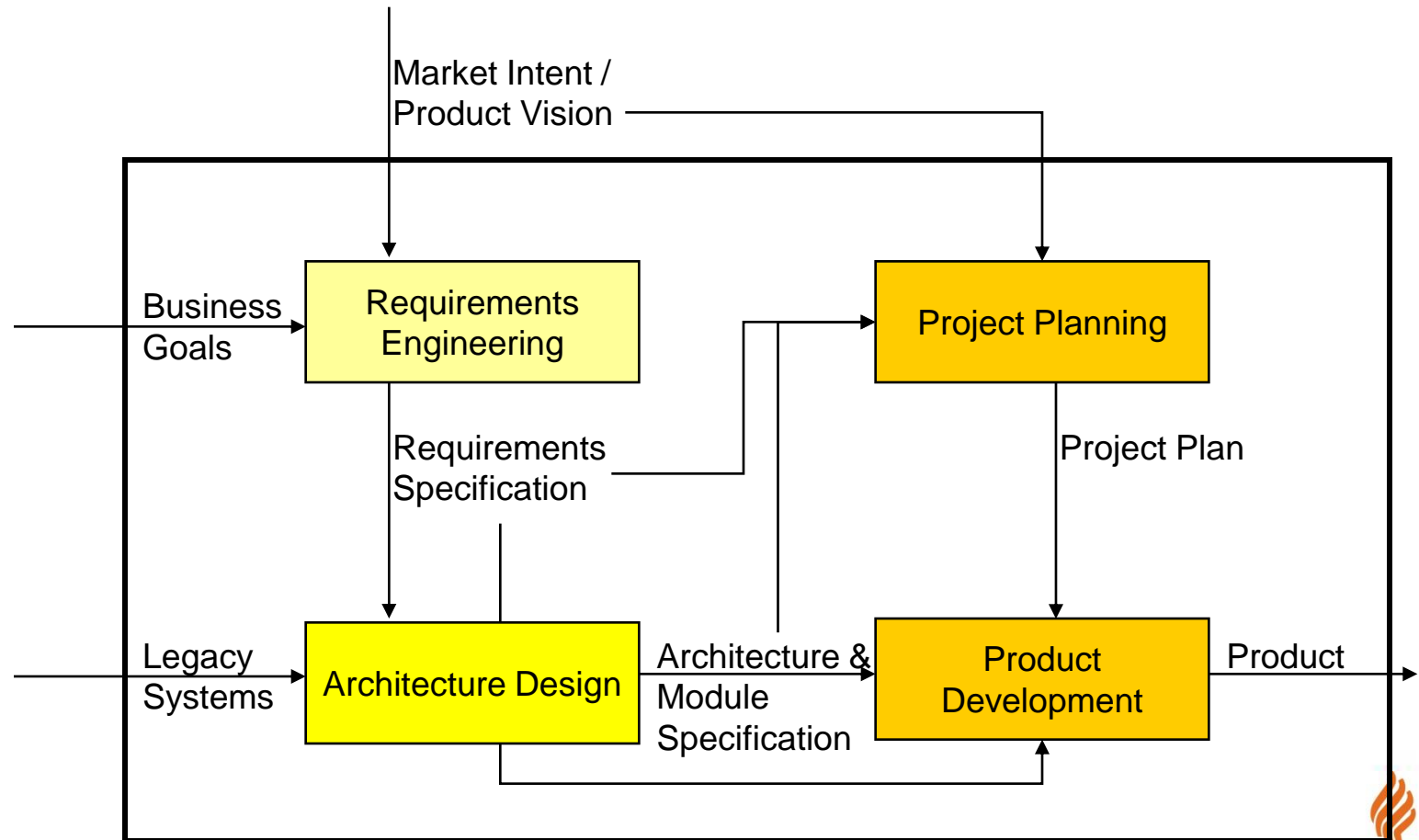
- Internationalization (Management, strategy)
- Outsourcing / offshoring (Management, strategy)
- System development methods / process view (Information Systems)
- Network view (multiple perspectives)
- Specific views
 - Culture
 - Coordination
 - ...



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Process Framework (Sangwan et al., 2006)



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Decision points (Sangwan et al., 2006)

1. Initiate research
 - Developing new products / services
2. Initiate requirements definition and architecture design
3. Developing a product / service
 - Scope
 - Schedule
 - Investments
4. Releasing a product / service
5. Removing a product / service



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Process Framework: The Open Unified Process

- Basis to structure the development of global information systems
- Framework for software engineering
- Adaptable framework
 - E.g., agile unified process, configured methods, plugins
- Goals (Eclipse, 2007)
 - Collaborate to align interests and share understanding
 - Balance competing priorities to maximize stakeholder value
 - Focus on the architecture early to minimize risks and organize development.
 - Evolve to continuously obtain feedback and improve
- <http://www.eclipse.org/epf>



The Open Unified Process – Project Lifecycle

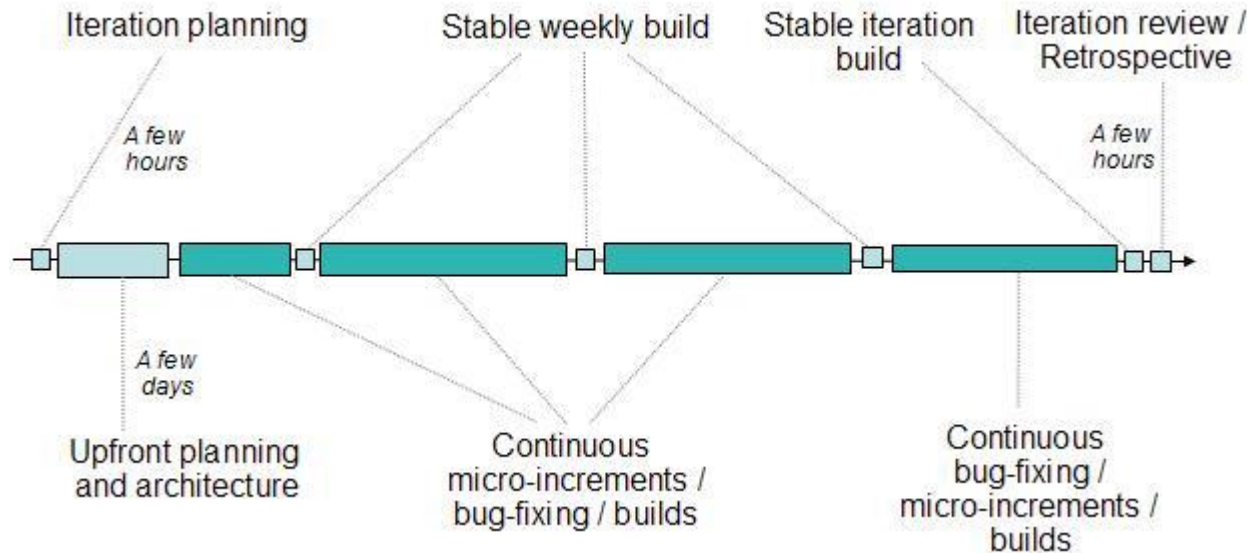
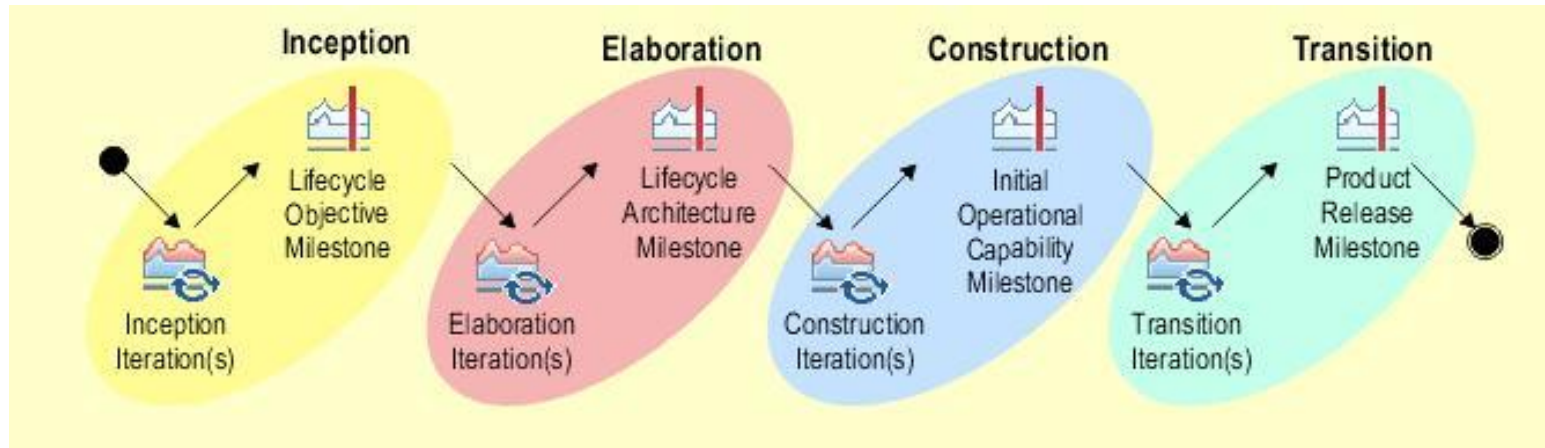
- ❏ Inception. Do we agree on project scope and objectives, and whether or not the project should proceed?
- ❏ Elaboration. Do we agree on the executable architecture to be used for developing the application and do we find that the value delivered so far and the remaining risk is acceptable?
- ❏ Construction. Do we find that we have an application that is sufficiently close to being released that we should switch the primary focus of the team to tuning, polishing and ensuring successful deployment?
- ❏ Transition. Is the application ready to release?



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Open Unified Process – Project Lifecycle



[Source: <http://www.epfwiki.net/wikis/openup/>]



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The Open Unified Process – Disciplines

- Architecture
- Configuration and Change Management
- Development
- Project Management
- Requirements
- Test

[Source: <http://www.epfwiki.net/wikis/openup/>]



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The Open Unified Process – Disciplines

- Structured as *tasks*
- Leading to *work products*
- Architecture
 - Architecture Notebook
- Configuration and Change Management
- Development
 - Design
 - Build
 - Developer Test
 - Implementation
- Project Management
 - Iteration Plan
 - Project Plan
 - Work Items List
 - Risk List
- Requirements
 - Supporting Requirements Specification
 - Vision
 - Use Case
 - Glossary
 - Use-Case Model
- Test
 - Test Case
 - Test Log
 - Test Script

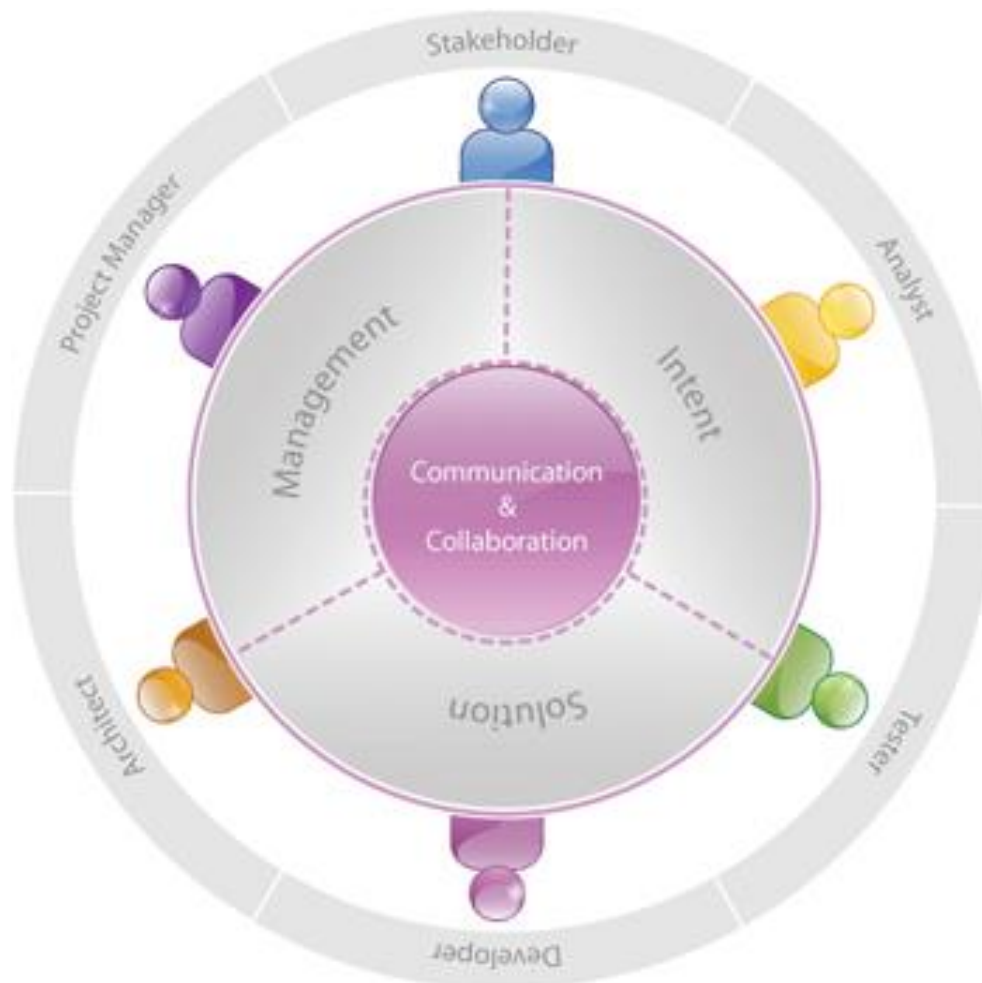
[Source: <http://www.epfwiki.net/wikis/openup/>]



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The Open Unified Process – Roles



[Source: <http://www.epfwiki.net/wikis/openup/>]



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Eclipse Process Framework

The screenshot displays the Eclipse Process Framework Composer interface. The main window shows a project named 'openup_lifecycle' with a table of activities. The table columns are: Presentation Name, In... (Index), Predecessors, Model Info, Type, Planned, Repea... (Repeatable), and M... (Milestone). The activities listed include 'OpenUP lifecycle', 'Inception Iteration [1..n]', 'Initiate Project', 'Plan and Manage Iterati...', 'Identify and Refine Req...', 'Agree on the Technical...', 'Lifecycle Objectives Mileston...', 'Elaboration Iteration [1..n]', 'Plan and Manage Iterati...', 'Identify and Refine Req...', 'Develop the Architecture...', 'Develop Solution Increm...', 'Test Solution', 'Ongoing Tasks', 'Lifecycle Architecture Milesto...', 'Construction Iteration [1..n]', 'Plan and Manage Iterati...', and 'Identify and Refine Req...'. The 'Plan and Manage Iterati...' activity at index 17 is selected.

Presentation Name	In...	Predecessors	Model Info	Type	Planned	Repea...	M...
OpenUP lifecycle	0			Delivery Pro...	<input type="checkbox"/>	<input type="checkbox"/>	
Inception Iteration [1..n]	1		extends 'inception_p...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Initiate Project	2		extends 'initiate_pro...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Plan and Manage Iterati...	5		extends 'plan_mana...	Activity	<input type="checkbox"/>	<input type="checkbox"/>	
Identify and Refine Req...	9	2	extends 'identify_an...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Agree on the Technical...	13	2	extends 'agree_tech...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Lifecycle Objectives Mileston...	15	1		Milestone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Elaboration Iteration [1..n]	16	15	extends 'elaboration...	Activity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Plan and Manage Iterati...	17		extends 'plan_mana...	Activity	<input type="checkbox"/>	<input type="checkbox"/>	
Identify and Refine Req...	21		extends 'identify_an...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Develop the Architecture...	25		extends 'develop_ar...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Develop Solution Increm...	34		extends 'develop_so...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Test Solution	40		extends 'test_solutio...	Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Ongoing Tasks	44		extends 'ongoing_ta...	Activity	<input type="checkbox"/>	<input type="checkbox"/>	
Lifecycle Architecture Milesto...	46	16		Milestone	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Construction Iteration [1..n]	47	46	extends 'constructio...	Activity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Plan and Manage Iterati...	48		extends 'plan_mana...	Activity	<input type="checkbox"/>	<input type="checkbox"/>	
Identify and Refine Req...	52			Activity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

The Properties window shows the 'Activity : manage_iteration' with the following details:

- General Information**
- Name: manage_iteration
- Presentation name: Plan and Manage Iteration
- Optional:
- Multiple Occurrences:
- Planned:
- Support:
- Event Driven:
- Ongoing:
- Repeatable:

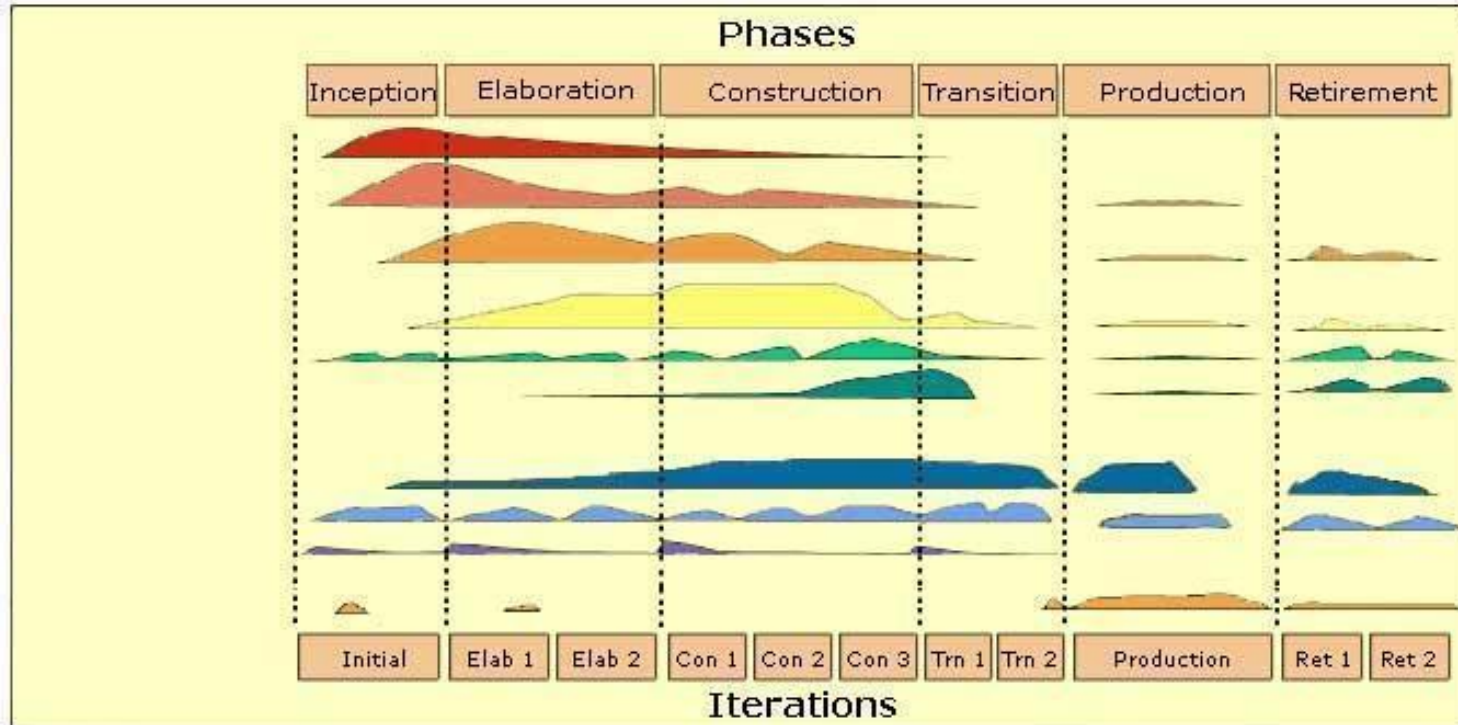
Extensions: Enterprise Unified

Development Disciplines

- Business Modeling
- Requirements
- Analysis & Design
- Implementation
- Test
- Deployment

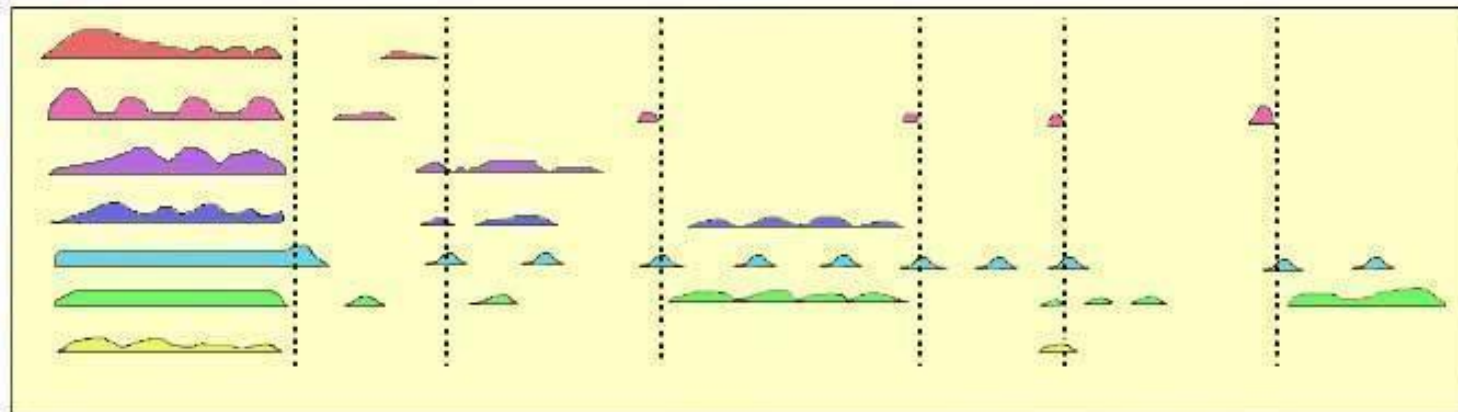
Support Disciplines

- Configuration and Change Mgmt.
- Project Management
- Environment
- Operations & Support



Enterprise Disciplines

- Enterprise Business Modeling
- Portfolio Management
- Enterprise Architecture
- Strategic Reuse
- People Management
- Enterprise Administration
- Software Process Improvement



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Summary

- ❏ Unified Process as a basis for software development process
- ❏ Focus on different aspects of the lifecycle
 - E.g., risk management, communication
- ❏ Extension model for globally distributed processes and stakeholders



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References

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