

MASS Project Management

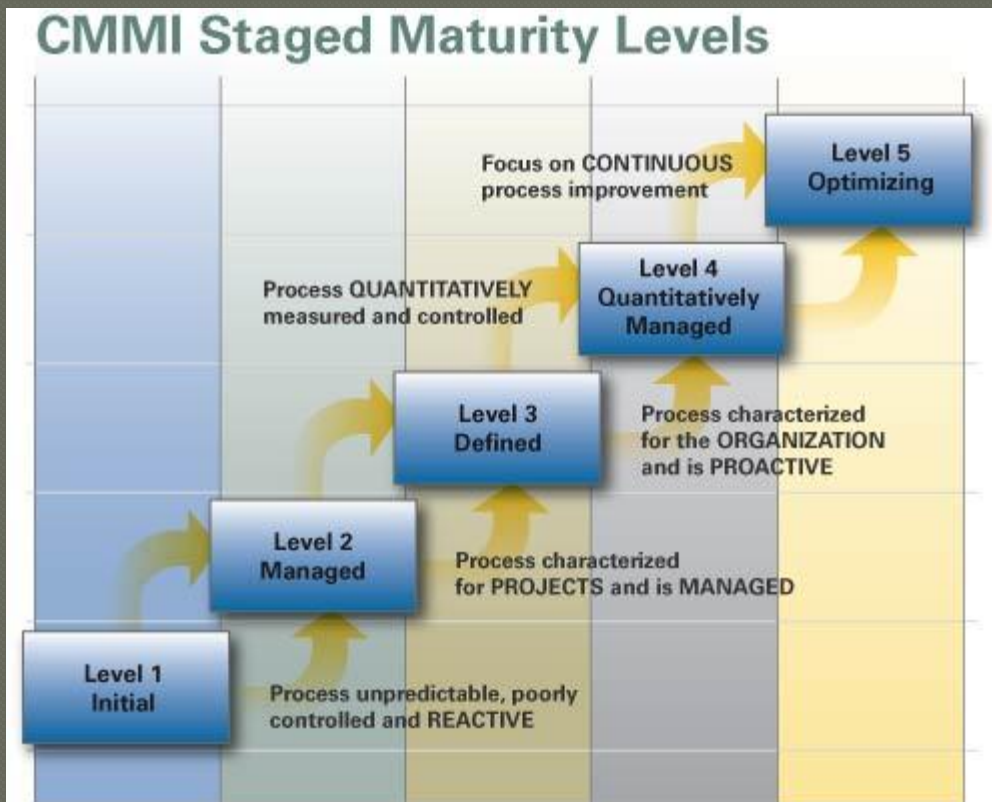
New Tools and Documentation

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MASS Research Participant, August 2014

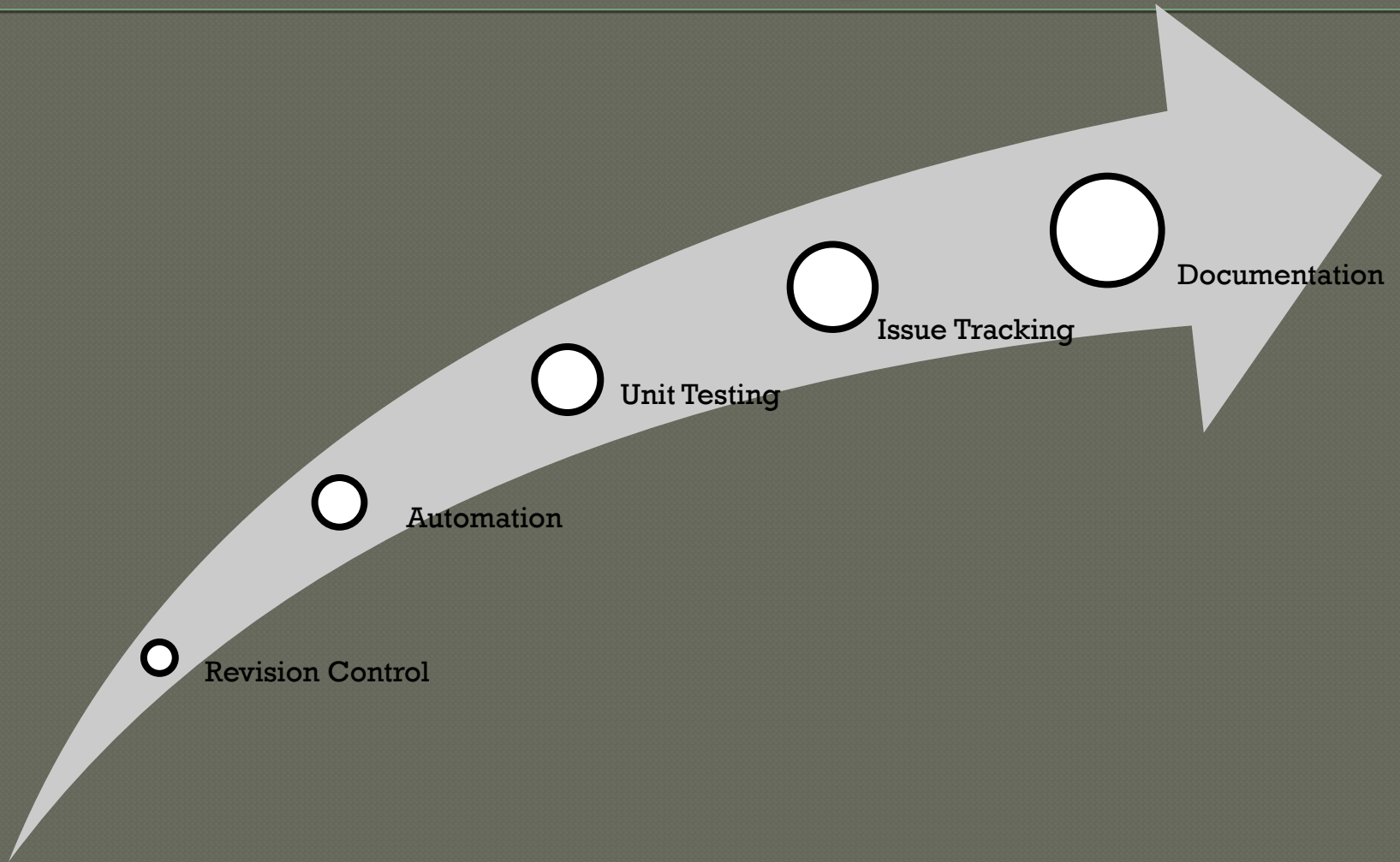
Project Evolution...

- ◉ CMMI is a good model



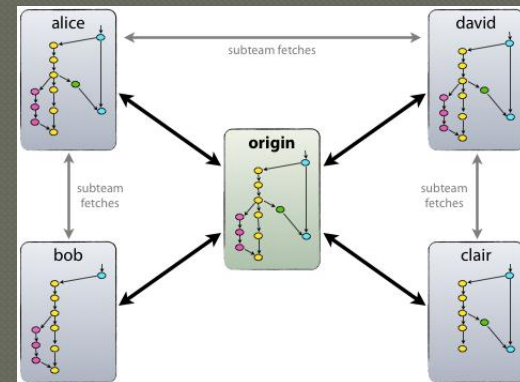
← **TARGET**

Improvements



Revision Control

- GIT repositories - implemented
- Coming soon:
 - GitBlit for repository management



Automation

- Apache Maven
 - Project Metadata
 - Dependency Management
 - “Artifactory” for hosting libraries
- Jenkins
 - Automated build from Git repository
 - Unit testing / code coverage
 - Build / test failure notifications
 - Integrates with issue tracker
 - Browser based, hosted at UWB



Jenkins – Dashboard

The screenshot shows the Jenkins dashboard with a sidebar on the left containing navigation links: New Item, People, Build History, Project Relationship, Check File Fingerprint, Manage Jenkins, and Credentials. The main content area features a table of project builds and a 'Build Queue' section. The table has columns for status (S), weather icon (W), Name, Last Success, Last Failure, and Last Duration. Below the table is an 'Icon: S M L' legend and three RSS feed links.

S	W	Name ↓	Last Success	Last Failure	Last Duration
		CADAS	3 mo 11 days - #13Z	N/A	4 min 59 sec
		FIS JClient	1 yr 3 mo - #5	1 yr 4 mo - #4	21 sec
		PlugApps	4 mo 29 days - #99	4 mo 16 days - #104	33 sec
		Skynet_JEE	20 hr - #394	N/A	6 min 37 sec

Build Queue: No builds in the queue.

#	Status
1	Idle
2	Idle

Icon: [S](#) [M](#) [L](#)

Legend: [RSS for all](#) [RSS for failures](#) [RSS for just latest builds](#)

Project Status

Project Health

Jenkins – Details

Jenkins Skynet-JEE

Back to Dashboard
Status
Changes
Workspace
Build Now
Delete Maven project
Configure
Delete All Disabled Modules
Modules
Git Polling Log
Coverage Trend

Maven project Skynet-JEE

Factory Information Systems Production Database

[Workspace](#)
[Recent Changes](#)
[Latest Test Result \(45 failures / ±0\)](#)
[Latest Test Result \(45 failures / ±0\)](#)

Build History

Build Number	Date and Time
#394	Aug 20, 2014 2:30:10 PM
#393	Aug 20, 2014 1:37:05 PM
#392	Aug 20, 2014 1:30:08 PM
#391	Aug 15, 2014 3:30:10 PM
#390	Aug 15, 2014 10:30:09 AM
#376	Aug 4, 2014 11:30:06 AM

[RSS for all](#) [RSS for failures](#)

Permalinks

- Last build (#394), 21 hr ago
- Last stable build (#376), 17 days ago
- Last successful build (#394), 21 hr ago
- Last unstable build (#394), 21 hr ago
- Last unsuccessful build (#394), 21 hr ago

Test Result Trend

count

#376 #390 #391 #392 #393 #394

(just show failures) enlarge

Code Coverage Trend

6,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

#376 #390 #391 #392 #393 #394

enlarge

lineCovered
lineMissed

Historical

Unit Test Trend

Unit Test Coverage

Jenkins - Notifications

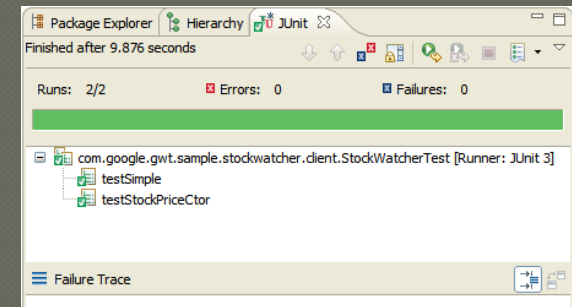
- ◉ Compile Failure
 - Missing dependencies? (update Maven POM!)
- ◉ Unit Test Failure
 - Some behavior changed
 - New bug introduced
- ◉ Code Coverage Insufficient
 - Need more unit tests
 - Weak test cases



Unit Testing

⦿ Junit + EasyMock

- JUnit for exercising methods
 - EasyMock to simulate dependencies
 - Easy to run within IDE – execute often!
- ## ⦿ One test class for each class implementation
- “UtilitiesTest” for “Utilities”, and so on



Unit Testing

- Test for correct behavior
 - Methods return correct results
- Test for consistent behavior
 - Methods interact with dependencies as expected
- Found a bug? Write a unit test!
 - Test fails – bug reproduced
 - Test passes – bug resolved



Issue Tracking

○ Redmine Issue Tracker

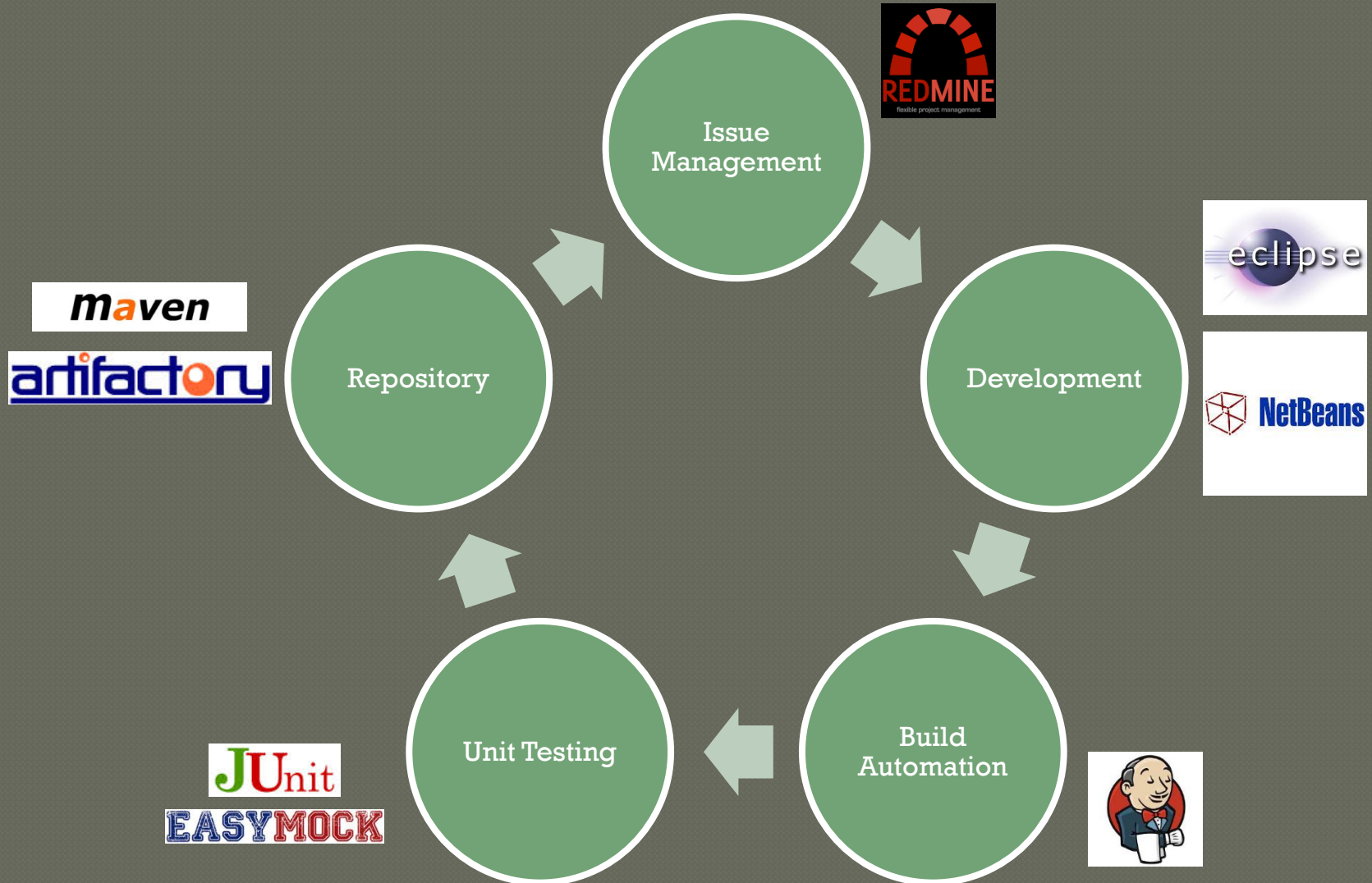
- <http://www.redmine.org>
- Browser based, hosted at UWB

○ Issue types:

- Bugs (deficiencies, flaws, opportunities, etc.)
- New Features / Enhancements
- Tasks

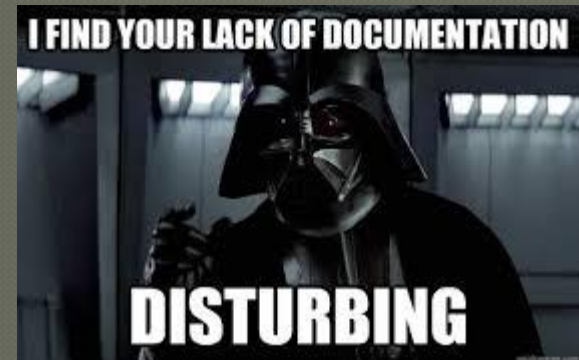


It ALL ties together...



Documentation

- User's Guide
 - Theory of operation
 - API documentation + Javadocs
 - Using MASS
- Developer's Guide
 - Project / IDE configuration
 - Build instructions
- Administrator's Guide
 - System administration
 - System configuration
 - Installation steps



Progress To Date

Revision Control

- Git Repository - complete
- GitBlit – not started

Automation

- Maven – nearly complete
- Jenkins – nearly complete

Unit Testing

- Junit + EasyMock – “Utilities” complete

Issue Tracking

- Redmine – installation in progress

Documentation

- Docbook version started

Questions?

- Check Redmine issue tracker for progress (once operational)