

Change & Configuration Management in an Agile World

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(& Brad Appleton)

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Implications of Change

| "Requirements changes late in the lifecycle are competitive advantage, **IF** you can act on them!"
– Mary Poppendieck

*"Change is not the enemy – stagnation is!
Don't try to prevent change! Plan for it!"*

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Achieving Agility

Responding quickly & effectively to change requires minimizing:

- | The cost of knowledge-transfer
- | The cost of knowledge capture (documents!)
- | The time between making a decision, and exploring its results to learn the consequences of implementing it

| Close collaboration and frequent iteration are critical for success!

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BS15000 Service Management (ITIL)

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What is SCM? (Traditional View)

- | Configuration Identification
- | Configuration Control
- | Status Accounting
- | Audit & Review
- | Build & Release Management
- | Process Management, etc

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An Alternative SCM Definition

- | The most frustrating software problems are often caused by poor configuration management. The problems are **frustrating** because they take time to fix, they **often happen at the worst time**, and they are **totally unnecessary**. For example, a **difficult bug that was fixed at great expense suddenly reappears**; a developed and tested **feature is mysteriously missing**; or a fully tested program **suddenly doesn't work**. Configuration management helps to reduce these problems by coordinating the work products of the many different people who work on a common project.
- | **Watts S Humphrey, Carnegie Mellon Software Engineering Institute (CMM)**

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Simple (Agile?) SCM

- | "The goal is to set up the simplest system possible to achieve the desired result of control. If you can make the system so it's totally automatic and transparent, then you have achieved a perfect system."
 - "Principles of Configuration Management", Mike Daniels, 1985

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Agile Change

- | Part of moving to Agility is creating the conditions for self-organization and innovation.
- | Esther Derby, Blog

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SCM Practices

Through the Lifecycle

SCM Through the Lifecycle

- | Requirements
 - Included architecture for delivery
 - Web based vs. fat client
- | Tracking work done
 - Status reporting
- | Building
 - Cleanly/easily
- | Releasing/delivering
 - What's planned/included
- | Maintenance/support

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Applicable Patterns

- | Task Level commit
- | Integration Build
- | Smoke Test/Regression Test
- | Release Prep Codeline
 - Policy

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SCM and Trust

- | Build Trust with Trustworthy Builds
 - Reproducible?
 - Reliable?
 - Consistent?
- | Who is responsible?

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Producing Release Notes

- | Key indicator for process health
- | List of changes
 - Bugs fixed/features added
 - Code changes made by developers

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Easier Release Notes

- | Task driven development
 - Release contents planned
 - No code changes without associated task
- | Workflow
- | Automated link of task to code change (change set)
- | Tool support to track associations across release lines (and report)

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Track Change Propagation

The diagram illustrates the flow of code changes across releases. A horizontal line represents the 'Main' branch. Three vertical lines represent releases: R1.0, R1.1, and R2.0. Arrows show the progression from Main to R1.0, R1.0 to R1.1, and R1.1 to R2.0. A box labeled 'Bug fixes' has an arrow pointing to a change in R1.1, which then propagates to R2.0.

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Introducing Agility

(into development)

Adding agility without extremes

- | **Automate and share the build process**
- | Test framework/unit tests
- | **Adopt a continuous integration process**
- | Plan and deliver in short iterations/small releases
- | Identify and collaborate with your customer
- | Manage your test data; don't let it manage you
- | Embrace collective ownership and share code

Source: Peter Schuh, Better Software Jul/Aug 04

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Automate & Share Build Process

- | Automate repetitive and mundane tasks
- | Saves chasing compilation/convergence issues
- | Reduces dependencies and bottlenecks

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SCM is a “whole team” responsibility

- | SCM and development must collaborate
 - Remove “*Great Walls of Ire!*”
- | SCM is part of every team member’s day-to-day tasks and activities:
 - Integrate/build/test in sandbox before check-in
 - If the build breaks, the whole team takes ownership
- | Experiencing needs and benefits leads to understanding and appreciation (SCM and development)
- | Job satisfaction

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Concerns

Agile vs. Traditional SCM

Coordination and Automation

- | SCM tools & practices/processes cannot hinder development or they won’t get used!
- | Tools and processes need to be simple, pragmatic, and enhance communication and coordination or reduce rework.
- | Tracking systems and version control tools should not interrupt “flow” by causing a “wait” for tools to collect data or complete lengthy operations.

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Change Management

- | Story card pluses
 - Planning game
 - Communication dynamics
 - Visibility within the team
- | Story card minuses
 - Lack of versioning
 - Getting lost?!
 - Lack of visibility across the organisation
 - Requirements Decomposition

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Traceability

- | Impact Analysis
 - To communicate to other stakeholders
 - To assist with estimation & risk assessment
- | Product Conformance to requirements
 - Eliminate ‘back doors’ etc.
 - Corporate governance (Sarbanes-Oxley etc)
- | Process Compliance
 - Standards body says you must do it
 - Contracting party mandates it

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Case Study



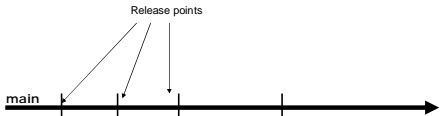
WDS GLOBAL
it simply works...

WDS Global

- | Integrated Service Framework to the wireless industry:
 - Nokia, Vodaphone, AT&T Wireless, Singatel, Telstra, Siemens
- | Web based services, mainly java
- | 25 developers: Seattle, Poole & Singapore
- | Transitioned to XP 2½ years ago
- | Daily handovers via conference call
- | Story card planning
- | Migrated from CVS

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Mainline model

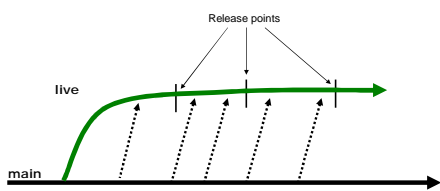


main

Release points

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Release via live branch



main

live

Release points

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WDS Global Experiences

- | Working well
 - Visibility dramatically better
- | Multi-site fine
- | Still use only story cards – from Product Backlog spreadsheets

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SCM Industry News



Marketing Features

- | Corporate Governance (SOX etc)
- | ITIL support
- | Agile support
- | Task Driven Development

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Microsoft Moves

- | Visual Studio Team System (due 2005)
- | Team Foundation provides SCM
 - Integrated defect tracking and workflow
 - Atomic change-sets
 - Path space branching
 - Everything stored in SQL Server
 - Supposedly 5 – 500 users

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Events

- | BCS CMSG (Specialist Group for Change, Configuration and Release Management)
 - [Configuration Management - Agile versus Traditional
 - 12 October 2004]
 - CM and Service Management – The ITIL Way
 - 14 April 2005
 - The World of Change, Configuration and Release Management
 - 21 & 22 June 2005

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Summary

Agile SCM

Is not:

- | About throwing out good SCM principles and practices
- | Losing control

It should:

- | Serve its practitioners and not vice-versa!
 - while still serving the needs of the business
- | Unite SCM and developers
- | Respond to change vs. prevent changes
- | Track, guide/facilitate & coordinate vs. control
- | Be transparent and “frictionless”

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Improving your Agile SCM

- | Automation
- | Education/training
- | Simple SCM

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Web Sites

- | www.bcs-cmsg.org.uk
- | www.cmcrossroads.com
- | www.itil.org
- | www.bs15000.org

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Other Agile/SCM References



- | **Software Configuration Management Patterns**, Stephen Berczuk and Brad Appleton
- | **Configuration Management Principles and Practice**, Anne Mette Jonassen Hass
- | **Software Configuration Management Strategies and Rational ClearCase**, Brian White
- | **Requirements by Collaboration**, Ellen Gottesdiener
- | **Lean Software Development**, Mary & Tom Poppendieck
- | **The Laws of Software Process**, Phillip G. Armour
- | **Agile Software Development Ecosystems**, James Highsmith
- | **Agile Software Development**, Alistair Cockburn
- | **Domain Driven Design**, Eric Evans
- | **Refactoring: Improving the Design of Existing Code**, Martin Fowler
- | *Addison-Wesley's XP Series of Books*

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