

Using Collabnet to build a Agile/CMMI Process

Martin Walker

Dresdner Kleinwort Front Office IT

15th October 2008



Dresdner Kleinwort

Who Am I ?

Martin Walker, manage several front office development teams Dresdner Kleinwort (the Investment banking arm of Dresdner Bank). Worked in IT for over 15 years in a variety of roles including development, support, testing, business analysis and project management.

...and why am I here ?

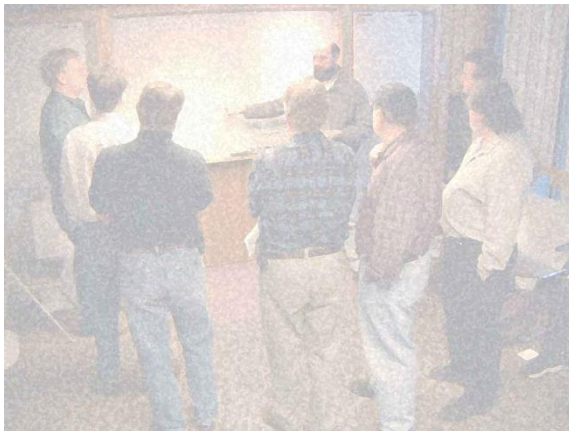
- ▶ *Not* to sell the benefits of Agile development techniques.
- ▶ *Not* to persuade you that CMMI will save you money.
- ▶ *Not* to preach about yet another software development process that will save the world.
- ▶ ...simply to describe how one organisation used Collabnet to build a process that supports our existing (and varied) Agile practices, achieve CMMI Level 3 and introduce a more standardised approach to software development.

Some Background

► Investment Banking IT



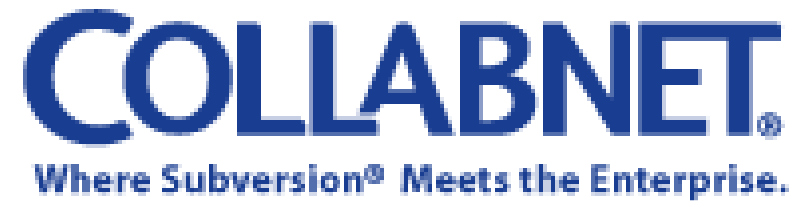
► Agile



► CMMI



► Collabnet

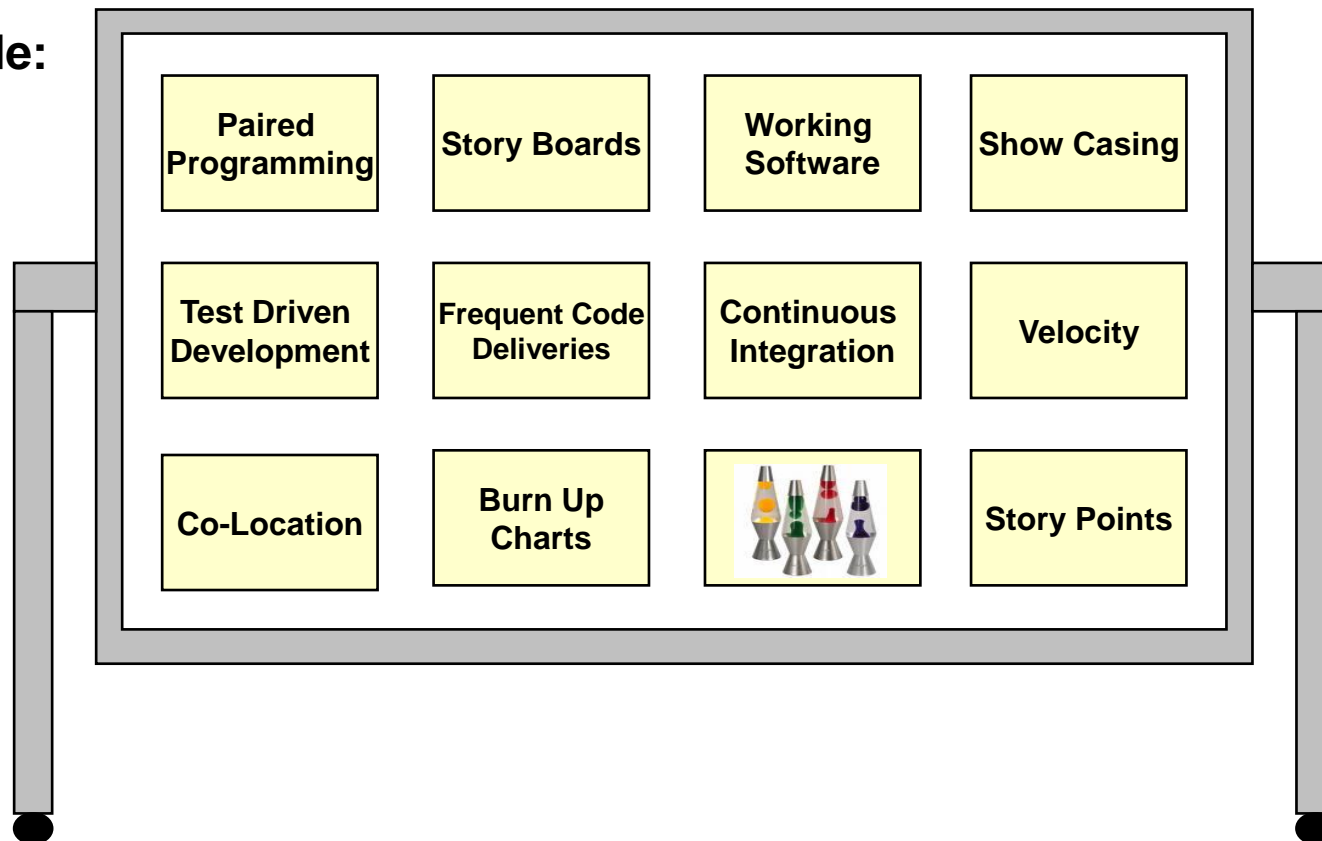


Investment Banking IT

- ▶ **Complex Global Systems.** A typical trading system may be used is used in Frankfurt, London, New York, Tokyo, Singapore & Zurich and connects to 50+ other systems.
- ▶ **Multiple Stakeholders.** Stakeholders can be split by location, business line and functional unit. Each trying to achieve their own objectives using IT teams with limited resource.
- ▶ **Rapidly Changing business Environment.** IT must be flexible and make rapid technical deliveries. Typically a project lasts between one week and three months.
- ▶ **Highly Controlled Environment.** Depending on the bank it may have to Sarbanes-Oxley and Basel II require vigorous controls on software development and deployment, to control Operational Risk and ensure correct financial reporting.
- ▶ **Software defects can have a high and immediate financial impact.**
- ▶ **High dependency on people.** The need for people with the right combination of business and IT skills means that *productivity depends on the right people more than the right process.*

Agile

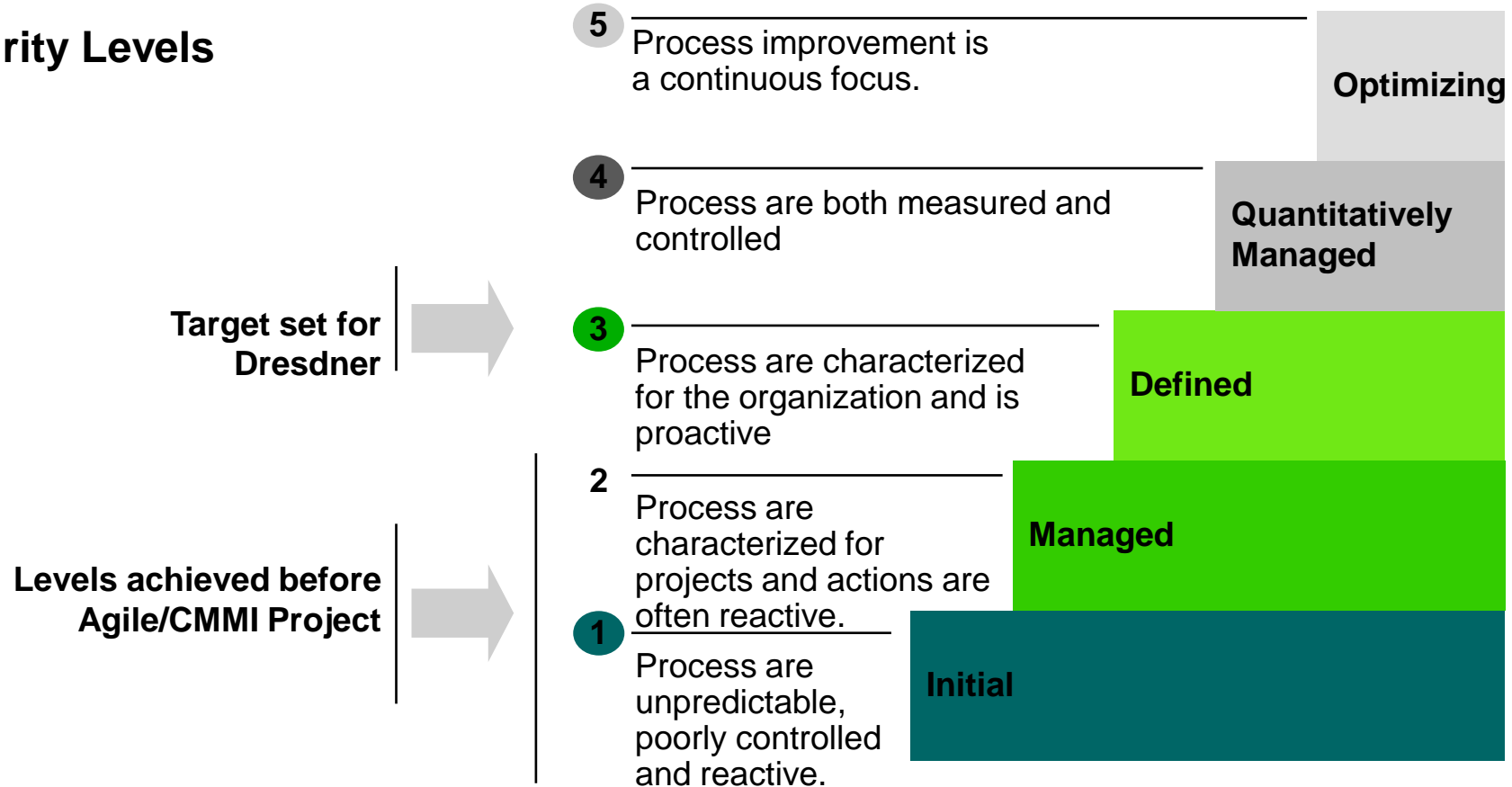
- ▶ **Family of software development techniques and methodologies emphasising communication, iterative development, customer collaboration and adaptability to change.**
- ▶ **Methodologies include Scrum, Extreme Programming and Crystal Clear.**
- ▶ **Techniques include:**



CMMI

► **CMMI** (Capability Maturity Model Integration) is a process improvement approach invented by the Software Engineering Institute of Carnegie Mellon University. It provides organizations with a way of measuring the “Maturity” of their processes (in particular software development process). Through the definition of maturity levels and best practices it aims to improve and standardize the processes used by an organization.

► Maturity Levels



Collabnet

- ▶ **Collabnet is an integrated set of tools designed to allow the people to collaborate on the creation of software across the development lifecycle.**
- ▶ **Core tools used in Dresdner Kleinwort to create process:**
 - ▶ **Subversion – Source control**
 - ▶ **Project Tracker – Requirements management, bug tracking**
 - ▶ **ALM (Application Lifecycle Manager)** - CollabNet Enterprise Edition-integrated process layer that supports both the integrating and governing of the planning, definition, design, development, testing, deployment, and management phases throughout the application lifecycle.

The CMMI Challenge (Part 1)

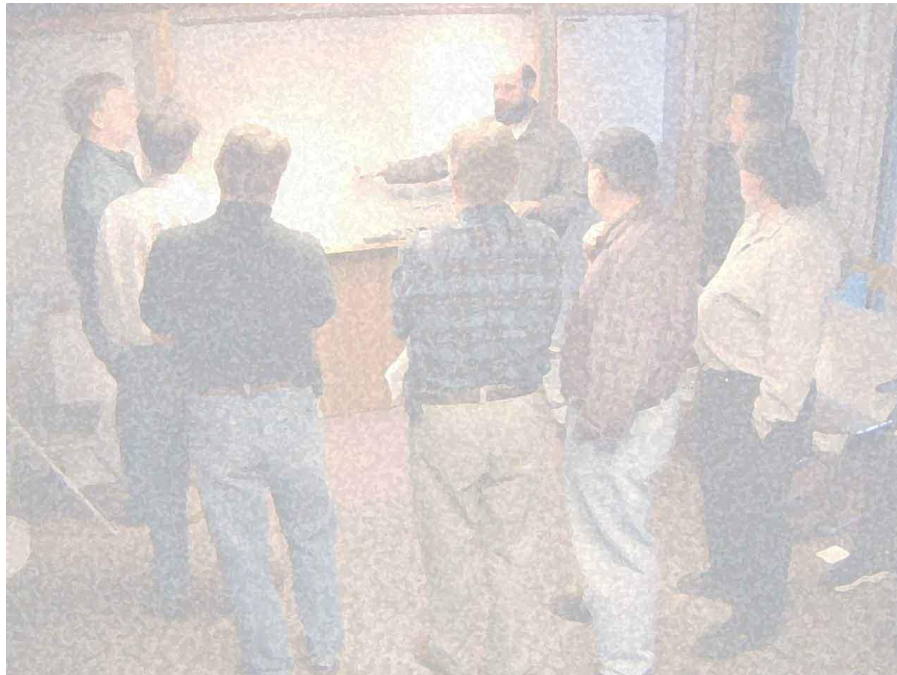
► For Maturity Level 3 Need

- To define common process across organisation.
- Incorporate specific practices into the process such as Peer Review.
- Need to be able to demonstrate in a CMMI appraisal that the process is followed.
- Primary proof of process that is looked for in an appraisal is documentary evidence.



The CMMI Challenge (Part 2)

- ▶ **Many streams of Agile are “light on documentation”**
- ▶ **Taking a photograph of the story board and checking into Subversion not good enough.**
- ▶ **Many of the Agile orientated teams in DK were hostile to CMMI because they considered it intrinsically biased to “Waterfall” type methodologies.**



The CMMI Challenge (Part 3)

- ▶ Investment banking high pressure industry, with high pressure on IT teams to deliver quickly. Emphasis on “doing what works”.
- ▶ Events mean priorities can rapidly change.
- ▶ Time pressure means many people reluctant to change process, adopt new tools or standardise.. *especially if they think what they have already works.*



Ideal Solution

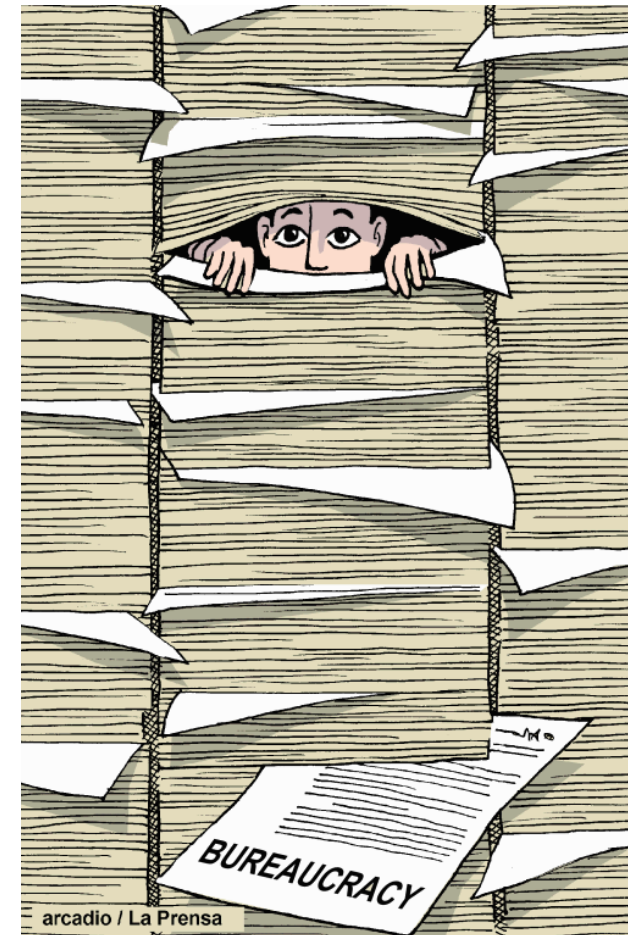
- ▶ **Process needed to be able to support key parts of Agile *but* ...without stopping some teams from continuing to use a fuller ranger of Agile techniques.**
- ▶ **Process needed to be able to produce documentary evidence that it was in use *but*...without drowning IT in bureaucracy.**
- ▶ **Process needs to be quick and cheap to adopt *but*... lays the foundation for genuine process improvement.**

Finding a Solution

- ▶ **Employed Agile and CMMI consultants.**
- ▶ **Held widespread consultation and workshops involving team members from across the organisation.**
- ▶ **Developed process the captured core elements of Agile, fitted in with general working practices and adapted to investment banking IT environment *but*...**

Finding the Right Solution

- ▶ **First iteration of process difficult to roll out.**
 - ▶ Relied largely on completion of template word documents and excel spreadsheets.
 - ▶ Templates hard to use.
 - ▶ Not obvious how to follow process.
- ▶ Seemed to many like a bureaucratic exercise rather than a positive catalyst for change.
- ▶ *Tool needed to simplify and speed up process adoption.*



Collabnet as Solution

- ▶ **Brief history of Collabnet in Dresdner Kleinwort**
- ▶ **How Collabnet become tool of choice for implementing process**
- ▶ **Examples of how process was implemented in Collabnet**

Collabnet in Dresdner Kleinwort : The Early Days

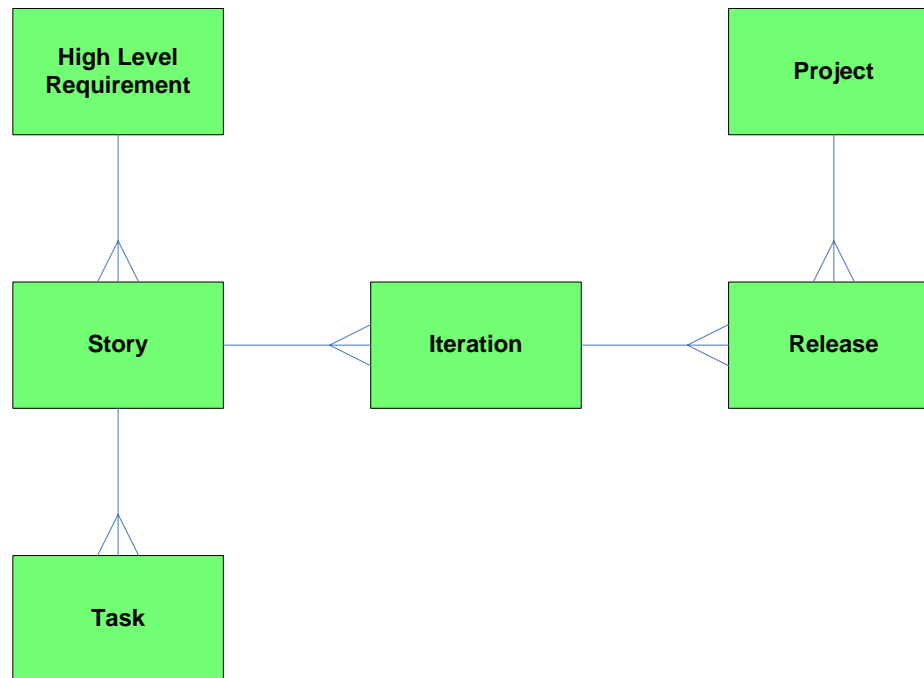
- ▶ **Initial focus on in Dresdner Kleinwort when Collabnet was purchased was as essentially an enhanced version of Subversion. Many teams migrated to the Collabnet version of Subversion but went no further.**
- ▶ **If you looked across core development processes, requirements management, QA, prioritisation, release etc.. You would have found**
 - ▶ **Very large number of tools used (at least a dozen tools for storing requirements)**
 - ▶ **Huge variety in the processes followed**
 - ▶ **High variety in the quality of processes**
 - ▶ **Every team talked essentially a different language about the way they worked.**
- ▶ **Even where other parts of Collabnet used e.g. Project Tracker, used very differently between teams.**

Collabnet in DK : From Tool to Agent of Change

- ▶ **Some teams make use of fuller capabilities of Collabnet building development and change management processes.**
- ▶ **The ability to link requirements captured in Project Tracker to code changes allowed greater control over what changes actually got released into the production environment. Integration of source control and requirements capture also allowed high degree “traceability” to our SOX (Sarbanes-Oxley) Auditors.**
- ▶ **Reporting capabilities used for business prioritisation and status reports.**
- ▶ **Flexibility of “Artefact” definition in Project Tracker meant that bug, requirement and risk artefacts could be created that had the required attributes for the software development environment**
- ▶ **“Best practice” Collabnet project definitions could be cloned for additional teams.**
- ▶ **Collabnet seemed logical choice to rollout the CMMI/Agile process.**

Artefact Hierarchy

- ▶ **Artefacts in Collabnet are the data types used to model key constituents of a process. The following are the main artefacts defined for our Agile process and their relationship.**



- ▶ **Collabnet allowed any artefact type to be defined by users but we worked with Collabnet to get a generic Parent-Child relationship added to such the relationship from High Level Requirement (HLR) to Story and Story to Task.**

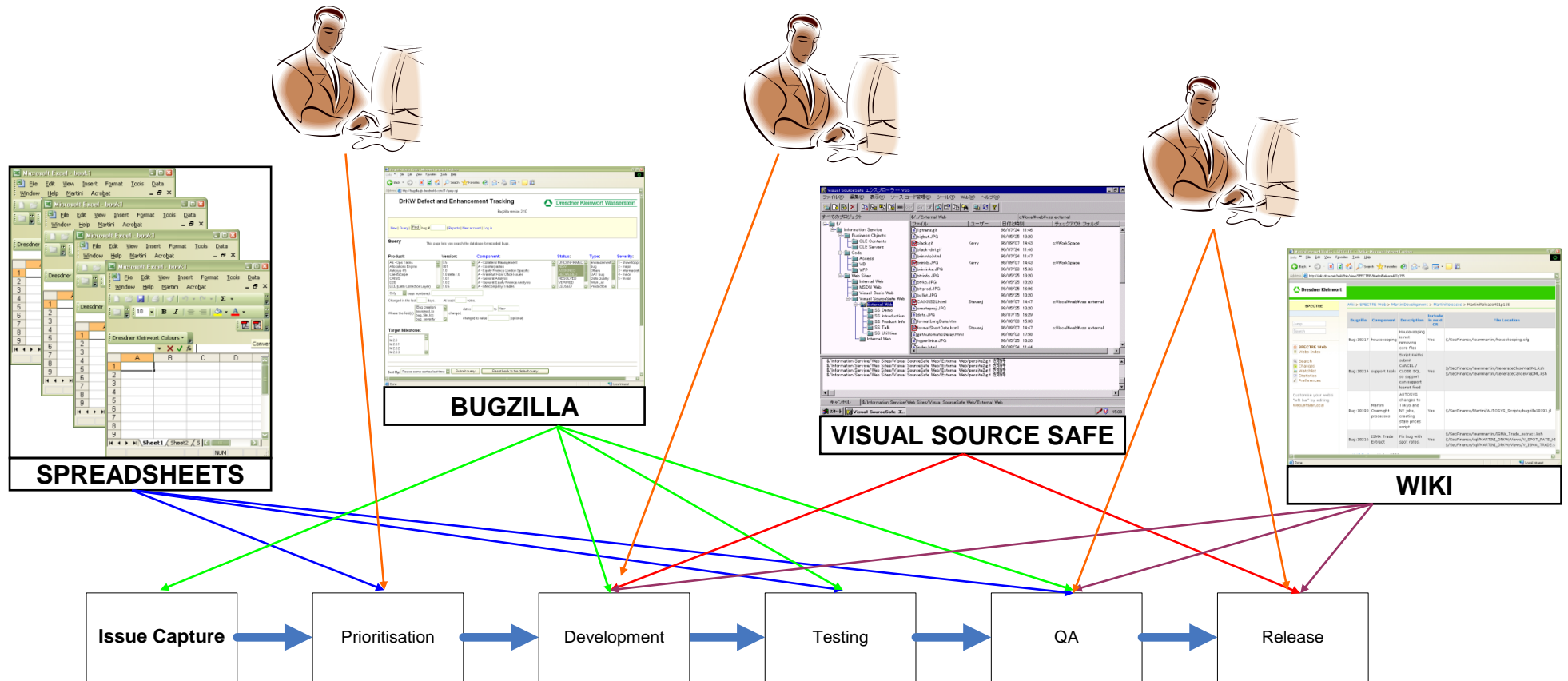
Collabnet Templates

- ▶ **Once basic data structures, relationships, reports and basic layout of a CMMI/Agile Collabnet project defined challenge was to roll it out quickly. We were able to do this through the use of ALM Templates.**

- ▶ **What is an ALM template?**
 - ▶ **A template is a project blue-print that can be used to create new projects. It contains:**
 - ▶ **Project structure and content**
 - ▶ **Project Tracker artifact types with embedded work flow**
 - ▶ **Project Tracker queries**

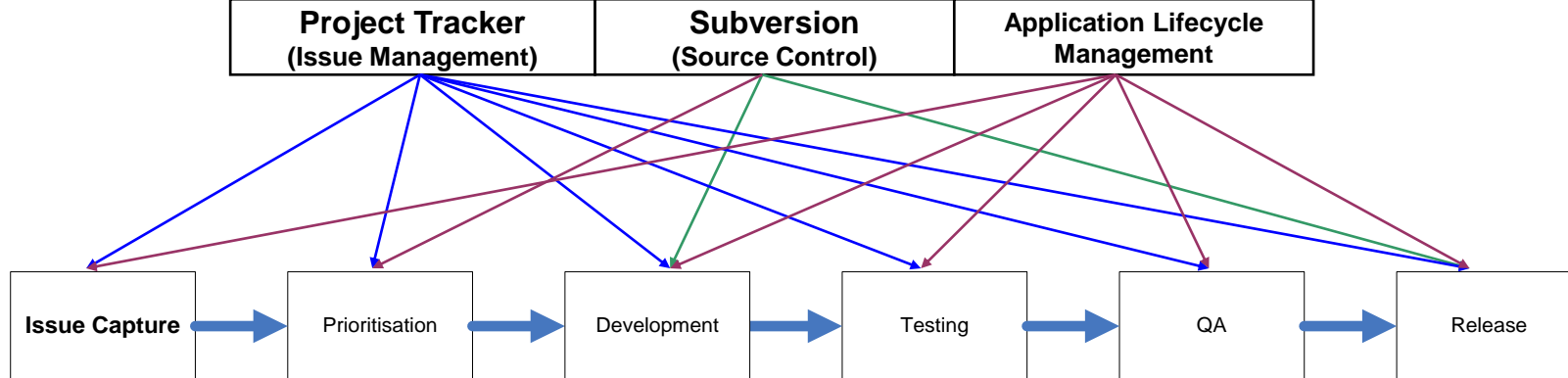
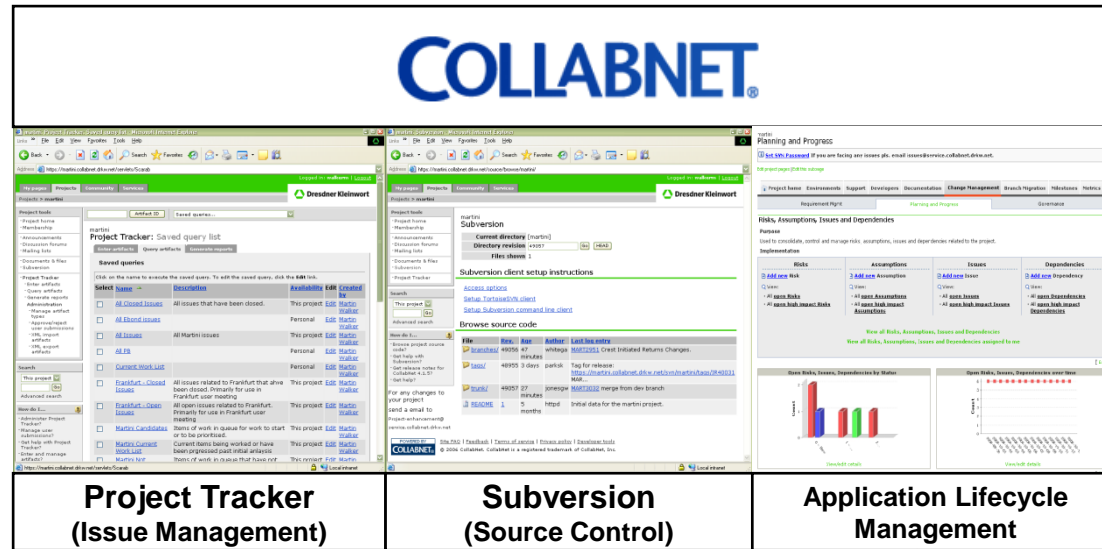
- ▶ **Use of ALM Templates made rollout a quick, repeatable but flexible process.**

A CMMI Level 2 Process



A working but disjointed and hard to replicate process

Consistent Level 3 Process on Single Platform



Single platform allows integrated process from requirement capture to release

High Level Requirement List

Purpose:

- ▶ List of High level business requirements used for planning and prioritisation.

How to Implement:

- ▶ Collabnet query that displays all artefacts that are in progress or due to be prioritised where the type is equal to “High Level Requirement”.

Notes:

- ▶ A high requirement is a business requirement that can potentially be implemented by multiple stories spread over multiple releases or iterations.
- ▶ Dividing a project into High Level requirements is a core Agile practice.

Evidence:

- ▶ Tab in team’s Collabnet project with Project Tracker Query.

Screen Shots

The screenshot shows a web browser window displaying the 'Project Tracker: Query results' page. The page title is 'Project Tracker: Query results' and it shows a search for 'High Level Requirements'. The results table is as follows:

Select	Artifact ID	Date committed	Last date/time modified	Age (days)	Complexity	Created by	Assigned to	Uncertainty	Summary	Component	Target milestone	Type	Description	Priority
<input type="checkbox"/>	MART3561	2007-11-20 14:25:59 GMT+01:00	2007-11-20 14:25:59 GMT+01:00	49	.....	walkerm	.....	.....	Comet Collateral Management Process	P - Projects	Candidate	High Level Requirement	Evaluate the use of the JPMorganChase Comet collateral management process	3 - Intermediate
<input type="checkbox"/>	MART3559	2007-11-20 13:57:11 GMT+01:00	2007-11-20 13:57:11 GMT+01:00	49	Medium	walkerm	.....	High	Martini Sao Paulo	P - Projects	Candidate	High Level Requirement	Emerging Markets business want to roll out Martini in Sao Paulo. This will be funded by a separate budget and additional resource will be recruited.	3 - Intermediate
<input type="checkbox"/>	MART3542	2007-11-09 11:05:54 GMT+01:00	2007-11-12 11:15:50 GMT+01:00	60	Medium	loringd	loringd	Medium	EUREX CCP 4.0 - Functionality - rerate, new index EURIBOR etc	A - Analysis	Not Prioritised	High Level Requirement	Requirements to be confirmed with FSM FO. Likely to require front-to-back work with Calypso and FFT Setts.	2 - High
<input type="checkbox"/>	MART3489	2007-10-15 13:46:19 GMT+01:00	2007-10-22 19:13:04 GMT+01:00	85	Medium	walkerm	.....	Medium	Collateral Pricing	P - Projects	2008 Q1	High Level Requirement	There are currently a	1 - Very Important

RAID (Risk, Issues & Dependencies)

RAID (Risk, Issues & Dependencies)

Purpose:

- ▶ Used to consolidate, control and manage risk, dependencies and assumptions and issues related to project or programme of work.

How to Implement:

- ▶ Collabnet query that displays all artefacts where the Artefact type is “Risk, Issue & Dependencies”.

Evidence:

- ▶ Tab in team’s Collabnet project under the Project Governance section.

Screen Shots

The screenshot shows the Martini Project Tracker web application interface. The browser address bar indicates the URL: https://martini.collabnet.dkw.net/services/Scrab/action/ExecuteQuery?query=risk_issues_dependencies. The page title is "Martini Project Tracker: Query results". A notification banner at the top states: "Please note new announcements posted on the community page. The SSO upgrade has been applied, any immediate issues report them to Issues To set your Subversion password please use SETPASSWORD All Team/Build accounts will remain and we will contact all owners to switch at their convenience." Below the notification, there are buttons for "Save this query", "Refine query", "Export results to:", and "Process results:". The main content area displays "Risk, Issues and Dependencies" with "7 artifact(s) found". A table lists the artifacts with columns for ID, Summary, Type, Assigned to, Description, Status, Impact, Probability, and Action.

Select	Artifact ID	Summary	Type	Assigned to	Description	Status	Impact	Probability	Action
<input type="checkbox"/>	MART3436	Low quality of Martini builds delivered by Sungard	Risk	walkerm	Quality of delivery of builds from Sungard may fall outside expectations; Failure to deliver enhancements to the business within agreed timeframes. Team effort expended on unnecessary testing.	In Progress	High	High	Weekly meetings with Sungard to discuss quality control and feedback results from Dresdner regression testing.
<input type="checkbox"/>	MART3438	Dependency on CATS team for work to improve dividend processing	Dependency	.....	Dependency on CATS team for work to improve dividend processing	In Progress	Low	High	Get business sponsors to raise work as priority with CATS team
<input type="checkbox"/>	MART3439	TradeBlade ECN Feed	Dependency	.....	Dependency on the Frankfurt connectivity team to implement Ion Tradeblade gateway	Monitored	Medium	Medium	.....
<input type="checkbox"/>	MART3440	Dependency on FFT Copnnectivity team to Implement Eurex Ion Gateway	Dependency	.....	Dependency on FFT Copnnectivity team to Implement Eurex Ion Gateway. This needs to happen before new Ion Virtual Market place can get rolled out to Frankfurt repo traders.	New	High	High	Discuss with F&SM Management and Frankfurt traders.
<input type="checkbox"/>	MART3562	Hardware Issues on Unix Servers	Issue	.....	Multiple hardware related issues how come from out Solaris upgrade. Need to make sure these problems do not occur for out Oracle or Sybase upgrades. I.	New	High	Medium	Meet with Unix team to discuss how to avoid repeat of issues

Peoples, Roles and Communication

Purpose:

- ▶ Used to provide a structure mapping people with their roles and a basic communication plan (including meetings schedules, reporting and training) for the team.

How to Implement:

- ▶ People and Roles tab on the Collabnet project with a wiki page detailing team structure, members, roles, sponsors etc.
- ▶ Communication Plan tab on the Collabnet project with a wiki page detailing team structure, members, roles, sponsors etc. This should describe how communication takes place within the team e.g. team meetings and reviews and with business stakeholders e.g. steering meetings etc.
- ▶ This should be reviewed and updated regularly to reflect changes within the project / team

Evidence:

- ▶ Tabs in team's Collabnet project.

Screen Shots

The top screenshot displays the 'Project Communication Plan' tab. It includes a navigation menu with options like 'Project home', 'Project Milestones - CR Releases', 'Project Structure', 'Project Communication Plan', 'Project Architecture Fit', and 'Project Quick Query'. Below the navigation is a table with the following columns: Date/Frequency, Participants, Communication Vehicle, Inviting Person, Object / Desired Outcome, Moderator, and Comments. The table contains one row with the following data: 'On-going', 'Project Team', 'Project wiki: Project-Sharpoint - Share project information. Provide', 'N/A', and 'Project Manager'.

The bottom screenshot displays the 'Project Structure' tab. It features a 'Project Overview' section with the following details: Summary: 'FX trade flow', Categories: 'java, technology, it, sql, application, languages, c', Owner(s): 'capelm, gohjin, pistoru, salehm, walkerm', and Your role(s): (empty). Below this is a 'Team Hierarchy' table:

Project manager: Matthew Capel		
Development Manager - Genesis: Marwa Saleh	Business Analysis Manager - Both: Alex Von Wittgenstein	Development & Support Manager - Kondor: Uwe Pistorius
Tope Olukemi	Philip Fisher	Development Team
Yahia Hebib	YuJin Goh	Markus Zander
Gregory Hopkins		Mikereine Vladislav
Iain Melville		Roland Hain
		Jean Desire Tiegom
		Marcel Walter
		Support Team
		Stephan Sembdner
		He Ping

Below the team hierarchy is an 'Application Management & Business Sponsors' section with a table:

Main Business Sponsors Application Management Team	
Duncan Rule	Brian Matthews

Peer Review

Purpose:

- ▶ CMMI requires peer review of technical changes. This can be carried in a number of ways either explicitly or implicitly.
 - ▶ Paired programming
 - ▶ Design review
 - ▶ Code Review

How to Implement:

- ▶ To demonstrate that peer review has been carried the each technical “Story” should have the Peer Reviewer field completed following the peer review or a period of paired programming.
- ▶ Any story specific changes made as a result of the peer review should be reflected by updating the relevant section of the Story artefact. Any system level suggestions should be recorded within the “Suggestion Box” i.e. creating a new Collabnet artefact of the type “Review Recommendation”.

Evidence:

- ▶ Tab in team’s Collabnet project under the Development section.



Defect Log

Purpose:

- ▶ Used to record defects or bugs either by developers or users
- ▶ Should be similar to the usual Collabnet Project tracker which are designed to capture bugs and enhancements

How to Implement:

- ▶ Collabnet query that displays all artefacts that are in progress or due to be prioritised where the type is equal to “Bug (External)”, “Bug (Internal Prod)” or “Bug (Internal Test)”.

Notes:

- ▶ A Bug (External) is a Bug in a third party system that can only be fixed by the vendor.
- ▶ A Bug (Internal Prod) is a Bug in internal code for production.
- ▶ A Bug (Internal Test) is a Bug in the test version of internally written code.

Evidence:

- ▶ Tab in team’s Collabnet project with embedded query.

Screen Shots

The screenshot shows a web browser window displaying a project tracker interface. The browser address bar shows the URL: https://martini.collabnet.dkw.net/servlets/Scarab/action/ExecuteQuery?query=martini_internal_bugs. The page title is "Martini Internal Bugs" and it reports "76 artifact(s) found".

Below the header, there is a table of artifacts. The table has the following columns: Select, Artifact ID, Last date/time modified, Age (days), Created by, Assigned to, Summary, Component, Target milestone, Description, and Priority. Three artifacts are visible in the table:

Select	Artifact ID	Last date/time modified	Age (days)	Created by	Assigned to	Summary	Component	Target milestone	Description	Priority
<input type="checkbox"/>	MART10	2007-10-09 10:43:45 GMT+01:00	457	whitega	walkerm	Update to Greenbar Crystal Report Martini_IntlAccSummary.txt to exclude Agent Lender Counterparties	A - Analysis	Other	See Comment	3 Ir
<input type="checkbox"/>	MART12	2006-10-11 14:16:19 GMT+01:00	457	whitega	parksk	Counterparty Reports Have To be combined into 1 report	C - Reports	Other	See Comment	3 Ir
<input type="checkbox"/>	MART2285	2007-12-17 20:52:13 GMT+01:00	449	howd	jonesgw	Future Dated pending returns are rejected by Loanet due to automarking creating wrong cash values	New York Specific Eq/Finance	Candidate	The issue is that when a close or a movement is PENDING and a mark is subsequently received the cash values on the movements get corrupted. The return is committed and the message gets rejected by Loanet as the cash value is not what is expected. Trade A gets CLOSED and PENDING for the 8/10/06 on the 6/10/06 and the end cash gets set to 1,000,000. Price is 1.1, quantity is 1,000,000. A Mark is received on the 7/10/06. Loanet send cash deltas and shows a cash movement of 100,000. The price is back calculated to be 1.1 and the current cash is now 1,100,000. If the trade were to be closed now the end cash on the trade would be wrong. Potential fixes include building in logic into the LAMS Marking procedure or building a batch job to correct the end cash on a daily basis. The second fix is probably the more viable. A batch process is required to locate NY Domestic Loanet trades (and their wash trades if they exist) that are in a PENDING state and have reached their end date. The process needs to run	2

Where are we now ?

- ▶ **Collabnet template approved by CMMI Consultants as meeting requirements for CMMI level 3**
- ▶ **Vast majority of teams in DK (90%) opted to use the Collabnet Agile template to achieve requirements of CMMI Level 3**
- ▶ **Collabnet template and process rolled out across 72 teams in London and Frankfurt in only 6 months.**
- ▶ **Whole development community now speak a common language of “High Level Requirements”, “RAID”, “Stories” and “Tasks”, largely using a common platform and a common process.**
- ▶ **Initial teams have had process review now waiting for final team assessments before official announcement can be made of reaching CMMI Level 3.**

What Next ?

- ▶ **Looking at integrating to Collabnet to other tools within the bank for managing IT such as Remedy.**
- ▶ **Using Collabnet as means to interface CMMI to ITIL**
- ▶ **Working with Collabnet to improve Agile functionality such as Burn-Up charts and calculation of velocity.**
- ▶ **Common practices, language and tool set can now facilitate more flexible deployment of IT resources**