**Introduction**

• In this presentation we will:
  – Follow one organisation’s transition from “predictive” to “agile” methods
  – Dispel some common CMMI and agility myths
  – Demonstrate that CMMI is supportive of agile approaches
  – Show how CMMI can provide the discipline needed to deploy agile methods in large development environments
Agile Manifesto

“We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

• Individuals and interactions over processes and tools
• Working software over comprehensive documentation
• Customer collaboration over contract negotiation
• Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.”

CMMI Misconceptions

• There are a number of common misconceptions about CMMI, which suggest it is at odds with Agile methods:
  – Cumbersome, Overly prescriptive or dogmatic
  – Artefact intensive
  – Encourages ‘Heavy-weight’ processes
  – Stifles innovation
  – High process inertia
Agility Misconceptions

• Similarly, Agile methods have their fair share of misconceptions:
  – Agility is another name for ‘Cowboy development’
  – Agile approaches are largely unplanned
  – Agility is synonymous with a lack of discipline
  – Agile methods cannot be used in large scale development environments

Formality vs Discipline

• CMMI is highly supportive of agile approaches
• The Problem is one of perception
• Agile methods demand Discipline from developers
  – By applying discipline ruthlessly, you can trade away formality
• CMMI is perceived as demanding formality
  – Agility is seen as being informal
• In fact, CMMI promotes discipline
  – Encourages the type of behaviour demanded by effective agile approaches.
‘Scaling’ Agile Methods

- Agile approaches can work as well on large projects as small

- Success in large teams situations depends on:
  - Skill and enthusiasm of staff
  - Processes used and level of adherence
  - Management and reporting systems in place

CMMI ML2 as an Agile Enabler

- Success with Agile methods is dependant on ‘discipline’
  - Process formality is traded for process discipline

- CMMI encourages disciplined behaviour
  - essential for agile methods

- Maturity Level 2 is of particular interest
  - A ‘Managed’ process is a disciplined process
  - ML2 Process areas define practices that encourage disciplined development approaches
"Managed" Processes

- Capability Level 2 is about ‘Managed Processes’:
  - Follow Policy
  - Planned and run according to a plan
  - Properly resourced with trained and responsible staff, empowered to succeed
  - Have an appropriate level of CM
  - Adequately involve stakeholders
  - Are subject to objective evaluation and management oversight

- Which of the above are at odds with ‘Agile Methods’?

Core CMMI ML2 Process Areas

- At Maturity Level 2, there are 6 core process areas, common to all constellations:
Requirements Management

• Manage Requirements
  – “Responding to Change” is a key principle of the Agile Manifesto
    • REQM is all about supporting change
  – Regardless of development paradigm, unclear, constantly changing requirements introduce huge risks into a development.

Project Planning

• Project Planning has three goals:
  – Establish Estimates
    • Agile methods rely on estimates
  – Develop A Project Plan
    • Planning is a key part of most agile methods
    • The focus of the detailed plans is different
  – Obtain Commitment To The Plan
    • Agile methods are reliant on the developers buy in
    • Securing Commitment is vital
Project Monitoring & Control

There are two Specific Goals in PMC:

- **Monitor Project Against Plan**
  - There is no point having a plan unless you are going to use it!
  - Agility is about having a plan that you can use
  - Monitoring tends to be more frequent and more reactive

- **Manage Corrective Actions To Closure**
  - Agile methods operate in a finer timescale
  - If something can go wrong – it will go wrong quickly
  - Taking effective corrective action is vital

Measurement And Analysis

- **Align Measurement And Analysis Activities**
  - CMMI encourages you to only gather measurements that you need
  - This applies regardless of development paradigm
  - Work out what measures you need, based on your specific project activities.

- **Provide Measurement Results**
  - If you need some data, collect it, and use it
  - This applies irrespective of what development approach you choose
**Process & Product Quality Assurance**

- **Objectively Evaluate Processes and Work Products**
  - Agile Methods are not intended to result in lower quality products!
  - QA activities are still required
  - Greater reliance on
    - Early validation
    - Frequent peer reviews

- **Provide Objective Insight**
  - The finer grained nature of agile methods promotes lessons learned activities
  - Systemic problems can be spotted and addressed early.

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**Configuration Management**

- **Establish Baselines**
  - In order to be truly ‘agile’ you must be ‘controlled’
  - Effective baseline discipline is essential if you wish to sustain any development activities.

- **Track And Control Changes**
  - Responding to Changes is one of the principles within the Agile Manifesto.
  - You cannot be agile, if you cannot manage change.

- **Establish Integrity**
  - A successful product needs to be robust.
  - So development activities must also be robust.
CMMI Goals vs Practices

• The CMMI draws a distinction between ‘Goals’ and ‘Practices’
  – Goals are ‘required’ components
  – Practices are ‘expected’ components
• To satisfy a process area, all Goals must be implemented
• Practices are considered important in achieving their associated goal, but are not mandatory.
• Agile Approaches may satisfy the Goals through alternative practices.

A Question of Perspective…

• Agile methods tend to focus on a detailed level
  – Planning emphasis is on short iterations
• It is important to keep the frame of reference E.g. To establish a project plan:
  • 2 weeks might be OK for a 6 month waterfall development
  • 2 hours might be more appropriate for a 2 week sprint!
• If your planning activity is 2 hours long, you do not want to spend several days documenting that plan!
  – Appropriateness is a key factor to consider.
Case Study

- Large business unit in a government department
  - 1200 Engineers
- Core business was software development
- Partial success with CMMI ML2
- Turned to agile practices
- Successful areas were:
  - ones that had been successful with CMMI
  - Among the largest development groups

Problems and Pitfalls

- Appraisal Issues
  - SCAMPI appraisals are evidence based
  - Direct and indirect evidence may be more difficult to identify
  - May need greater reliance on interpretation of Model practices

- Process Discipline is particularly vital when rolling out agility into large development teams
Lessons Learned

• Agility and CMMI – it needn’t be one or the other
• Scaling Agile approaches does work
  – But only if you do it in a disciplined way
• Any development method done half-heartedly is likely to fail…
• Keep your expectations realistic.
  – There are no magic bullets in the process world
  – There are lots of useful approaches out there, but they only really work if you fully embrace them.

Any Questions?
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