Murray Cantor

Murray Cantor has over 30 years experience applying leading edge ideas in the management of software and system development, in startups, government, and IBM. He has been a lead developer, software and systems architect, development manager, and principal consultant.

He recently retired from IBM where he was a Distinguished Engineer, a member of the Rational CTO Council, and the Rational lead for Analytics and Optimization for Software and Systems organizations. He has 15 patent filings and 5 patents granted.
This Webinar Series

1. Agile Management: What and Why
This webinar provides insights to any manager who is either managing Agile software teams, desires to have a more agile organization, or both.

2. Agile Management Best Practices
This webinar drills a bit deeper into the principles introduced in webinar 1. This webinar introduces specific techniques that, when applied, enable organization agility.

3. The Agile Management Solution
The third webinar discusses how one builds a roadmap for based on your organization’s attributes. These include your mix of work, your goals, size of your organization, and quality and availability of relevant data.
Today’s topics

• Quick review
• The agile organization
• Adopting agile management
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What is agility?

• ‘Agility’ is the ability to quickly react to change
  • In your environment
  • In your position, status
• Being agile requires the ability to
  • Detect the changes
  • Change direction quickly
  • Innovate when needed
• **Agile** is the opposite of **stable**.
  • Jet fighters are agile, but unstable
  • Commercial airlines are stable, but not agile
What can of organization do you want to run?

• When the world changed more slowly, management theory was that stability was good.
  • Find a working system and do what has always worked. (stable, not agile)

• Because world is now rapidly changing, modern management theory favors the ability to adapt.
  • Detect and react to change. (agile, not stable)
Agile Management Overview

• Agile management is a:
  • Mindset
  • Set of principles
  • Wide set of practices.

There is much literature on the cultural aspects of building an agile organization, e.g. Angel Medinilla, *Agile Management*, Springer

We will instead focus on specific techniques and how to tailor them to your organization and its nature of work.
The Agile management mindset

• Change is an opportunity, not a threat.
• Embrace, not ignore uncertainty.
• Flexibility over consistency
• Empower the teams with their processes and productivity.
  • Command and control is slow to react
Novelty entails uncertainty and Risk:

- During something new usually implies incomplete information
- To make precise predictions requires complete information

“Risk is the uncertainty in quantities that matter to the business”
Two key process dimensions for Agile Management

- **Variation**
  - Manufacturing
  - Stock Trading
  - IT Change Requests
  - New Features

- **Consistent**
  - Airline check-ins
  - Manufacturing Stock Trades
  - Tract home building

- **Bespoke**
  - New Systems
  - Sky Scrapers

- Need to react to changes in flow

- Need to react to learning: new information

Type 1
Type 2
Type 3

Uncertainty
Analytics essential for aligning goals

- For each level to meet its goal, the leader is dependent on the lower level.
- So, the leader seeks commitments from that layer. Meeting those commitments becomes the goal of the next layer.
- Hence the analytics serve to integrate the organization.
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Sorts of Measures

- Sustaining Engineering
- New Features
- New Systems

- 80% point is about 105 days
- 80% point is about 60 days

- Too Conservative
- Just Right
- Too Aggressive

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Command and control versus empowerment

• Command and control:
  • You give them detailed instructions on how to do their job.
  • Workers not responsible for dealing with change
  • Very difficult to respond to change

• To empower, focus on the what, not the how?
  • Workers are responsible not for carrying out a task, but for delivering some outcome that adds value.
  • You assign what changes (state transitions) to what work products
Command and control versus empowerment

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Measure process adherence (impedes agility)

Measure efficiency of delivering value (rewards agility)
In this module we discuss the principles of building an agile organization

- Blackbox, whitebox perspective
  - Focusing on the environment
- Focusing on the work products, not the tasks
- Brook’s law and the diseconomy of scale
Visualizing Your Organization

- **Blackbox**
  - How your organization looks to the outside world.
  - Defines your environment

- **Whitebox**
  - Opens the blackbox to see the internals of the organization.
  - Defines your networks
Brook’s Law

- Fredrick Brook’s delivered the IBM 360 mainframe operating system 2 years late.
  - Very innovative: First multi-tasking, multi-user system
  - Led to anti-trust suit that constrained IBM for over a decade.
- Led to publishing *Mythical Man-Month* in 1975
- Brook’s Law: Adding people to a late project just makes it later.
- The reason: The number of conversations it takes for n people to collaborate grows faster than n (up to n(n+1)/2)). So more time is spent on coordinating than on ‘useful work’.
- This is why Agile advocates prefer small teams so more time is spent doing ‘useful work’.

  This is sometimes called ‘Diseconomy of Scale’.
• Sometimes it takes more than a few people to get something done.
• Can’t have everyone talking to everyone all the team.
  • Nothing useful gets done.
• On the other hand, need to encourage cross team collaboration in order to foster learning:
  • Break stovepipes, avoid local optimizations.
  • Can’t know in advance who needs to collaborate with whom.
• Kinds of collaboration to support:
  • Internal team: ongoing.
  • Team leads with each other: planned and frequent.
  • Anyone with anyone when it is useful.
Blackbox view

- Funders
  - Your Organization
  - Community 1
  - Community 2
  - Supplier 1
  - Supplier 2
  - Client/Cust 1
  - Client/Cust 2
  - Client/Cust 3
  - Supplier 1
  - Supplier 2
Whitebox view

Client/Cust 1
Client/Cust 2
Client/Cust 3
Team 1
Team 2
Team 3
Team 4
Lead
Funders
Supplier 1
Supplier 2
Community 1
Community 2
Your Organization

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Team 3 whitebox view
Whitebox view (command and control)
Agile organizations need a balance of
• **Integration to**
  • Optimize value streams
  • enable organization learning
• **Separation to**
  • Eliminate bottlenecks
  • avoid diseconomies of scale
Defining Teams

• Teams should be defined in terms of being responsible for set of state transitions of one or more work products.
• Each team understand its providers and suppliers
  • They coordinate their backlogs, work in progress
• Each team understand its role in meeting its stakeholder’s goals
• Each team works to eliminate wasted effort in its activities
• Each team understands and manages it’s own backlogs and work in progress
• If the work products are part of larger work product then there can be a team of team representatives.
Defining Teams

• Teams should be defined in terms of being responsible for set of state transitions of one or more work products.
• Each team understands its providers and suppliers.
• They coordinate their backlogs and work in progress.
• Each team understands its role in the total value stream.
• Each team works to eliminate wasted effort in its activities.
• Each understands and manages its backlog and work in progress.
• If the work products are part of larger work product then there can be a team of team representatives.

Manager’s role:
Either partition or empower
partitioning of work products
Team assignments
Set and track goal attainment
Support and enable the team with resources to optimize flow across the organization.
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Agile Management Adoption: Walking the Walk

• You need to be agile to adopt agile.
• 'You can’t preach agile with a ‘plan your work, work your plan’ in an agile roadmap.'
• Agile adoption needs to be a managed ongoing process with sense and respond loops.

“In preparing for battle I have always found that plans are useless, but planning is indispensable.”

By Nicodemus David Hufford (1915–1986)
Building the Agile Solution

1. Adoption workshop:
   - Executive, management training
   - Agile goal setting (2 levels)
   - Work mix inventory

2. Agile Assessment, as is:
   - Work products/artifacts inventories
   - Organization system design
   - Measures and data

3. Adoption Document
   - Initial rollout plan by teams
   - Sense and respond loop design for agile adoption management
     - Frequency
     - Measures
Building the Agile Solution

Adoption, for each organization/team:
• Sense and respond design
• Derived goals goals
• Goal Question Measures workshops
• Artifact value stream mapping
• Organization refactoring
Agile Management Key Points

• Being agile is the ability to quickly respond
• Command and control organization are slow to respond to change, not agile
  • Even the modern military
• Agile managers are aware of and respond to:
  • Their mix of kinds of work
  • Their environment
  • Their organization’s status, performance, ...
• Learning requires agility and agility requires learning
• Your job as manager/executive is not to be the point of control, but to build, and empower an Agile organization
Thank You
The agile managers bookshelf

• Mike Rother, James Shook, *Learning to See: Value Stream Mapping to Add Value and Eliminate MUDA*, Lean Enterprise Institute, 1999
• Donald Wheeler, *Understanding Variation*, SPC Press, 2004
The ‘Goal, Question, Measure’ Method

A brief introduction
Metrics are essential for sense and respond loops to achieve goals

When choosing measures consider whether

- The measures let you know how whether you are achieving the goals?
- You have a way to respond to the measures?

Avoid building dashboards just to use the data
Three key principles

• **Kelvin’s Principle**: “To measure is to know. If you cannot measure it, you cannot improve it”
  • Measures are part of control loops

• **The converse principle**: “Don’t bother to measure what you do not intend to improve”
  • Find a small set of measures, not a long laundry list

• **The Einstein Principle**: The solution should be as simple as possible, but no simpler
Why GQM?

- Operationalizes ‘business alignment’
  - Shared ‘goals’ is the essence of business alignment
- It is the method for going from organizational needs to technical specification
  - Like going from user stories to software specifications
- Immediately establishes link between organization goals and use of analytics
  - Know why you are measuring
- Disciplined practice
  - Avoid platitudes like ‘Operational excellence’
  - Avoid Common anti pattern: Lots of ill focused metrics
From Goals to Measures to Data (GQM-ish)

1. Identify a set of corporate, division and project business goals and associated measurement goals.
2. Specify a sense-and-respond loop to steer to the goal.
3. Generate questions based on the goal that if answered:
   - Let you know have achieved, are trending to the goal?
   - Provide the level of detail necessary to take action
     - Where is the problem, bottleneck?
   - Communicate progress to stakeholders
     - Summaries, rollups
4. Select or specify data needed to answer the questions in terms of state transitions of the relevant artifacts
5. Study the data to specify the data set and statistic needed to be collected to answer those questions and track process and product conformance to the goals.
6. Develop automated mechanisms for data collection.
7. Collect, validate and analyze the data in real identify patterns to diagnose organization situation and provide suggestions for corrective actions.
8. Analyze the data in a post mortem fashion to assess conformance to the goals and to make recommendations for future improvements.