THE AGILE EVOLUTION: IT’S MORE THAN PROCESS

28TH ANNUAL ASEE SYMPOSIUM ON SOFTWARE & SYSTEMS ENGINEERING EXCELLENCE
IS THIS FAMILIAR?

How the customer explained it
How the project lead understood it
How the analyst designed it
How the programmer wrote it
How the tester received it
How the consultant described it

How the project was documented
What operations installed
How the client was billed
How it was supported
How marketing advertised it
What the customer really needed

http://www.projectcartoon.com/
DEVELOPMENT METHODOLOGIES (SDLC)

Development Methodologies

Agile Method

Waterfall Method
# Agile Mindset Shifts

<table>
<thead>
<tr>
<th>Traditional Mindset</th>
<th>Agile Mindset</th>
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<tbody>
<tr>
<td>Stability is the norm</td>
<td>Chaos is the norm</td>
</tr>
<tr>
<td>The world is linear, and predictable</td>
<td>Uncertainty reigns</td>
</tr>
<tr>
<td>Do agile</td>
<td>Be agile</td>
</tr>
<tr>
<td>It's controllable</td>
<td>Murphy's law rules</td>
</tr>
<tr>
<td>Minimize change</td>
<td>Welcome change</td>
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## Strive for efficiency vs. Strive for effectiveness

<table>
<thead>
<tr>
<th>Strive for efficiency</th>
<th>Strive for effectiveness</th>
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<tbody>
<tr>
<td>Deliver on the planned result</td>
<td>Discover the desired result</td>
</tr>
<tr>
<td>Planning drives results</td>
<td><strong>Results drive planning</strong></td>
</tr>
<tr>
<td>Aim, fire</td>
<td><strong>Fire; redirect the bullet</strong></td>
</tr>
<tr>
<td>Establish procedures and policies</td>
<td>Agree on guidelines, principles and values</td>
</tr>
<tr>
<td>Control the process</td>
<td><strong>Keep flexible and adaptive</strong></td>
</tr>
<tr>
<td>Correct to the baseline</td>
<td>Correct to what's possible</td>
</tr>
<tr>
<td>Be a task master</td>
<td>Be a relationship manager</td>
</tr>
<tr>
<td>Get it right the first time</td>
<td><strong>Get it right the last time</strong></td>
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</table>
"I’m thrilled! I was able to see my actual product while it was being developed and give feedback to refine my idea so I got just what I wanted!"

"I got what I asked for, but it is not what I wanted. I only saw the actual product when it was too late to make changes."
WHEN DID AGILE FORMALIZE?

The Agile Manifesto was written in February of 2001 by 17 independent-minded software practitioners.
THE 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
- Working software
- Customer collaboration
- Responding to change

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

*Source: [http://Agilemanifesto.org](http://Agilemanifesto.org)*
Maximize the rate at which we deliver value to our consumer.
WHAT IS AGILE?

Agile is an umbrella term for a mindset that promotes a project management and delivery approach rooted in iterative development, with frequent inspection and adaptation.

“Agile software development is based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, a time-boxed iterative approach, and encourages rapid and flexible response to change.”

Agile is a different way of building software. It is culturally distinctive which requires mindset change.
WHY AGILE?

- **Smaller, More Frequent Deliveries** – Instead of a long development and then (finally!) a solid (hopefully, relatively problem-free) release.

- **An “MVP” Mindset** – Builds only what is most valuable – just-in-time.

- **Increased Business Agility & Flexibility** – Able to pivot easier, based on market demands.

- **Get it Right as You Go** – Tests and refines releases, before building on additional capability. (Re: Gets the 1st floor solid, before building the 2nd floor.)

- **Course Correct Sooner** – More immediate, regular feedback means more certainty and predictability.

- **Do We Have Everything?** – Development teams and business experts work in lockstep the entire way, rather than getting to the end and realizing a key piece is missing.

1. Early Return on Investment
2. Ability to Adapt to Rapidly Changing Priorities
3. Accelerated Time to Delivery
4. Satisfied Customers and Stakeholders
5. Enhanced Software Quality
6. Reduced Costs
7. More Transparency and Better Visibility
8. Better Time Utilization
9. Constant Customer Feedback
10. Better Alignment Between IT and the Business
THE SCRUM FRAMEWORK AT A GLANCE

The Agile Scrum Framework at a Glance

Inputs from Executives, Team, Stakeholders, Customers, Users

Product Owner
The Team

Product Backlog
Sprint Backlog

Sprint Planning Meeting
Team selects starting at top as much as it can commit to deliver by end of Sprint

Task Breakout

Sprint end date and team deliverable do not change

1-4 Week Sprint

Scrum Master

Burndown/up Charts

Every 24 Hours

Daily Scrum Meeting

Sprint Review
Finished Work
Sprint Retrospective

AGILE FOR ALL
Making Agile a Reality®
Both Waterfall and Agile methodologies recognize triple constraints in a “Iron Triangle”
✓ Resources/Cost
✓ Schedule
✓ Features

Waterfall – “Tries” to lock down requirements so schedule and cost can be estimated
✓ Extensive Planning is done
✓ Even Best Estimates will change
✓ Project dates remain fixed, even if project scope changes

Agile – Scope is always changing; Schedule and cost should be fixed
✓ Planning is done at release level
✓ Potentially deployable after each iteration
✓ Implement highest value features first

The Plan Creates cost/schedule estimates
Release themes and features drive releases
We’re too busy.
We won’t make our dead-line.
Our Customers won’t pay for it.
Our Leadership won’t pay for it.
It’s too risky.
This is the way we’ve ALWAYS done things.
This works fine for our organization.
It will lead to excess capacity.
DR. JOHN KOTTER’S CHANGE MODEL

“Kotter’s Eight Steps of Change”

1. Increase Urgency
2. Build the Guiding Team
3. Get the Right Vision
4. Communicate for Buy-in
5. Empower Action
6. Create Short-term Wins
7. Don’t Let Up
8. Make it Stick

Creating a climate for change
Engaging and enabling the whole organization
Implementing and sustaining change

REQUIRED COMPONENTS FOR MANAGING COMPLEX CHANGE

Vision - Skills - Incentives - Resources - Action Plan - Verification

CHANGE

CONFUSION

ANXIETY

GRADUAL CHANGE

FRUSTRATION

FALSE STARTS

BACKSLIDING
PERSISTENT TEAMS: TUCKMAN MODEL WITH EDISON EXPANSION

Team Performance

Time

Tuckman’s Four-Stage Model

Edison’s Expansion on team dysfunction

Forming

Norming

Storming

Performing

High Performing

Conforming

Transformation

Performing

Dysfunctional

Disbandment
SERVANT “FIRST” LEADERSHIP

• While servant leadership is a timeless concept, the phrase “servant leadership” was coined by Robert K. Greenleaf in The Servant as Leader, an essay that he first published in 1970.

• In that essay, Greenleaf said:

  • **The servant-leader is servant first**… It begins with the natural feeling that one wants to serve, to serve first.

  • “The difference manifests itself in the care taken by the servant-first to make sure that other people’s highest priority needs are being served. The best test, and difficult to administer, is: **Do those served grow as persons?**

  • A servant-leader **focuses primarily on the growth and well-being of people** and the communities to which they belong.

Sourced from: https://www.greenleaf.org/what-is-servant-leadership/
The EQ-I 2.0 toolset measures five distinct aspects of emotional and social functioning:

- **Self-Perception**: understanding your emotions
- **Self-Expression**: expressing your emotions
- **Interpersonal**: develop and maintain relationships
- **Decision Making**: use emotions to make better decisions
- **Stress Management**: cope with challenges
<table>
<thead>
<tr>
<th>Stage</th>
<th>Examples</th>
<th>Key Breakthroughs</th>
<th>Guiding Metaphor</th>
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<tbody>
<tr>
<td>Red</td>
<td>• Mafia</td>
<td>• Division of Labor • Command authority</td>
<td>Wolf Pack</td>
</tr>
<tr>
<td></td>
<td>• Street gangs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Tribal militias</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td>• Catholic church</td>
<td>• Formal Roles • Processes</td>
<td>Army</td>
</tr>
<tr>
<td></td>
<td>• Military</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Most government agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Public school systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>• Multinational companies</td>
<td>• Innovation • Accountability • Meritocracy</td>
<td>Machine</td>
</tr>
<tr>
<td></td>
<td>• Charter schools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>• Culture driven organizations</td>
<td>• Empowerment • Values Driven culture • Stakeholder model</td>
<td>Family</td>
</tr>
<tr>
<td></td>
<td>• Southwest Airlines</td>
<td></td>
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<tr>
<td>Teal</td>
<td>• Made up of self-managing teams</td>
<td>• Self-Management • Wholeness • Evolutionary Purpose</td>
<td>living organism or living system</td>
</tr>
<tr>
<td></td>
<td>• No/limited HR department</td>
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Adapted from Frederick Laloux’s book: Reinventing Organizations: A Guide to Creating Organizations Inspired by the Next Stage of Human Consciousness
### How are we going to do this? (1 of 2)

<table>
<thead>
<tr>
<th>Our Role</th>
<th>Leader Tasks</th>
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| Create/Maintain the Environment | • Promote an environment of trust  
• Challenge teams to take risks (“It's ok to fail, as long as we learn from it.”)  
• Foster a more nimble organization essential for rapid delivery  
• Ensure staffing levels are adequate to support Agile adoption |
| Drive Culture Change    | • Drive MVP mentality – keep it simple  
• Appoint Change Champions – empower them to drive transformation  
• Instill a sense of urgency – “We work in **Hours** not **Days**”  
• Incent the right behavior (measure it, reward it openly, be purposeful)  
• Include, Incent, Involve our Off-Shore Team Members |
# HOW ARE WE GOING TO DO THIS? (2 OF 2)

<table>
<thead>
<tr>
<th>Our Role</th>
<th>Leader Tasks</th>
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| **Drive Process Changes** | • Implement processes, tools, technology and environments for rapid delivery  
• Identify and address barriers that prevent adoption. Recognize that existing processes may not shift in the short term (e.g., prioritization or production release frequency)  
• Leverage industry best practices by adopting Agile as it was designed  
• Challenge all teams across Business and Technology to consistently improve their processes and products |
| **Empower Employees**   | • Set the goal, delegate as much as possible and then get out of the way  
• Empower employees to own the process – trust that they will get the job done  
• Thoughtfully choose the people, teams and resources. |