Agile and Earned Value Management (EVM) Complementary or Contradictory

Earned Value Management and Agile Software Development Meeting
02/19/2015

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Agile Software Development and EVM

“A problem well stated is a problem half-solved.”

- Charles Kettering
Complementary or Contradictory?

Agile Software Dev.

EVM
Agile Software Development

VALUES

- Working software over comprehensive documentation
- Working software is the primary measure of progress
- Simple design, not comprehensive documentation
- Staying simple, adding complexity only when necessary
- The best architecture, requirements, and design emerge from the development team's interactions
- Changes in requirements are welcome as we learn more
- Delivering working software frequently, from a cooperative team, is the primary goal
Agile Software Method and Practices

AGILE
VALUES
AND
PRINCIPLES

- Working software over comprehensive documentation
- Working software is the primary measure of progress
- See: www.agilemanifesto.org

AGILE
METHODS

- SCRUM
- Kanban
- eXtreme Programming
- DSDM

AGILE
PRACTICES

- Iterative
- Product Backlog
- Release Planning
- Kanban Board
- Backlog Grooming
<table>
<thead>
<tr>
<th>Agile Practices</th>
<th>AND MANY MANY MORE</th>
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<tbody>
<tr>
<td>Time Boxing</td>
<td>Unit Testing</td>
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<td>Increment</td>
<td>Continuous Integration</td>
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<td>Iteration</td>
<td>User Stories</td>
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<td>Definition of Done</td>
<td>Multi-disciplinary Teams</td>
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<td>Release Planning</td>
<td>Prototyping</td>
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<td>Estimation</td>
<td>Small Teams</td>
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<td>Daily Stand-up</td>
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The Link between Agile Methods and Agile Practices

- Agile methods put a collection of practices together to use as a STARTING point!

*Depicting a subset of practices commonly associated with Scrum

- Definition of Done
- Daily Meeting
- Time box
- Increment
- Backlog
- Multi-disciplinary teams
- Unit Testing
- Continuous Integration

*Scrum

* Depicting a subset of practices commonly associated with Scrum
Characteristics of Building a Highway

- **Construction Crew**
  - Forman, design engineer, laborers, equipment operators, quality engineer, etc.

- **Testing**
  - Concrete is tested every ~1-2 miles to ensure the integrity of the concrete mix.

- **Standards**
  - Must meet specific standards.

- **Schedule is the prime constraint**

- **Foreman meets with the construction crew regularly**
Another View

1-2 Miles

Quality

Forman Meeting

Schedule

Integration

Requirements

Construction Crew

Testing
Look Familiar?

* Depicting a subset of practices commonly associated with Scrum
“Agile” Highway Development

Increment 1
(Edsall Road to Dumfries Road)

Increment 2
(Dumfries Road to Garrisonville Road)
What if a “Traditional” development approach was used for Highway Development?

<table>
<thead>
<tr>
<th>Increment 1</th>
<th>Increment 2</th>
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<tbody>
<tr>
<td>(Edsall Road to Dumfries Road)</td>
<td>(Dumfries Road to Garrisonville Road)</td>
</tr>
<tr>
<td>Requirements</td>
<td>Requirements</td>
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<tr>
<td>Design</td>
<td>Design</td>
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<tr>
<td>Implementation</td>
<td>Implementation</td>
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<tr>
<td>Verification</td>
<td>Verification</td>
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<tr>
<td>Maintenance</td>
<td>Maintenance</td>
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</tbody>
</table>
Is Agile the Problem?

Agile Software Dev.

EVM
Earned Value Management (EVM)

- An essential Program Manager and Technical Lead tool for supporting proactive decision making.
Defining the Problem?

Software Dev.

Value

EVM
Similarities Between Software and Highway Development

• Both are designed in a Vacuum
  – Use aerial topography
  – “Guess” where utilities are located

• Both encounter “unknowns” during AND after construction
  – Weather
  – Sewer lines are shallower than expected
  – Historical monuments
  – Endangered animals
  – Contaminated Soil or Sub-Structure
  – Indigenous Burial Sites
Differences Between Software and Highway Development

• Highway development has a shared understanding of “VALUE”
  – Section of road completed
  – Bridge completed

• Highway construction has a shared understanding of the most effective level of detail to measure
  – Typically Miles
How might software development better complement EVM?

• Have a solid definition of “VALUE”
  – What is your “section of road completed?”

• Define the most effective level of detail to measure
  – What is your “mile?”