John Hughes

Waterfall Comfort... in an Agile World

Giving Federal Executives the Information They Used To Get Before Going Agile
What Is This Session About

Translating the information stored in our Agile toolset to that of the Waterfall tools our leadership has been accustomed to using.

Give Federal and corporate executives the information they “used to get” before going Agile.
Session Objectives

Upon completion of this session, you will...

- Understand the information leadership needs to run their business and report up their chain

- Know how to use our Agile toolset to integrate the data we keep and provide the information leadership is accustomed to getting

- Leave confident in your ability to keep your Agile program alive anticipating and providing the information needed to be successful
A Little About Me

John Hughes

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LinkedIn: www.linkedin.com/in/johnwhughesjr
http://www.meetup.com/DC-Organizational-Agility-Practitioners

My Stance

I have been a student of Agile for six years. I have learned the practices but am passionate about the mindset!

Enjoy facilitating sessions that produce value and change... seeking outcomes, not checking the boxes

4 Years coaching Agile teams and organizations. Hold ICP-ACC, ICP-ATF, PMI-ACP, CSM, PMP

4 Years coaching Agile teams and organizations. Hold ICP-ACC, ICP-ATF, PMI-ACP, CSM, PMP

15+ Years Technical Delivery: Tester, Developer, Architect, DBA, Pm/PgM

Last 2 years began embracing concepts of org change, systems thinking and behavioral theory

Coaching Competency Model from Agile Coaching Institute; Spayd, Adkins

Blackstone technology group
Why this topic?

My passion for this topic began 4 years ago coaching a sizable Agile transformation...

Thou Shalt Be Agile...

Thou Shalt Have No Other Methodologies Before Me...

Remember the Sprint Ceremony day and keep it holy...

Thou Shalt Not Covet Your Neighbors Waterfall...
What We Had

Capacity = 460 hrs

Velocity = 36

Consistent Sprints lengths

Semi-estimated Backlog

- 3 Pts
- 5 Pts
- 1 Pts
- 1 Pts
- 3 Pts
- 3 Pts
- ??? Pts
- ??? Pts
- ??? Pts
- ??? Pts

Scrum Teams

Daily ScrumReport

DISCLAIMER: Also had EV – a budding art form
What they started asking

Will we have everything done by July?

Do we have all the requirements documented?

Can we continue to work daily overtime and weekends to get all the added work done?

Do we have enough people to complete all of the requirements by the promised date?

Are we getting what we paid for?
What They Started Wanting

Fully Resourced Project Schedules & IMS

Gantt Charts

Stoplight Charts

Rqts Document

The System Shall...

The System Shall...

PM

SM

Staffing Model

Dev

Dev

Tester

...
Waterfall World

Waterfall has been around for a long time so...

We were comfortable with the reporting coming out of our project using traditional Waterfall tools

We knew what Waterfall tools to use to manage our programs and get the information in our reports
What Executives Need to know...

What is the status of my program?
Are we working within budget?
Will we get everything done on time?
When can I deploy?
Am I getting value out of my development team(s)?

How can I complete my OMB 300 for the Federal IT Dashboard mandated by the E-Government (E-Gov) Act?

- If you are interested in an insider’s use case of Federal reporting such as this, then go see Joshua Seckel’s presentation of “50 Shades of Agile” Thursday 9:00am
Waterfall Tools

• Contracts firmly binding fixed scope of work
• Work Breakdown Structures (WBS)
• Fully resourced project schedules
• Monthly Status Reports
• Process Documents
  - Fully Comprehensive Requirements Documents
  - Big Design Up Front (BDUF)
• Process Gates
• Earned Value Management
MONTHLY STATUS REPORT
Time Period: 02/01/2005 – 02/28/2005

SUMMARY OF TASKING
- Task 1 - Data Architecture Development & Management Support
- Task 2 - Data Management Strategy Implementation Support
- Task 3 - Database Administration Support
- Task 4 - XML Artifact and Namespace Management Strategy Development and Implementation
- Task 5 - Information System Maintenance, Modifications, and Enhancement Services

SUMMARY OF TASKS ACCOMPLISHMENTS (See details on pages 9 – 12)
- "To Be" PROD Environment w/ RAC Project
- "To Be" UAT Environment w/ RAC Project
- Enterprise Reporting Maintenance
  - Ad hoc reports
  - Monthly/Periodic Reports
  - ODS ETL and schema updates
  - Enterprise Application Integration (EAI)
  - Reporting requirements gathering
- DBA and Mid-tier (Ops) Maintenance
  - Application deployments on database, application, and web servers
  - Troubleshooting and analyzing application and environment problems
  - Monitoring server status and utilization
  - Supporting DR/COOP, Beta, and [sic?] UAT environments

TASKS PLANNED FOR NEXT PERIOD
- Continue to provide support in the Mid-tier and DBA areas for troubleshooting releases
- Continue to perform application deployments on database, application, and web servers
- Continue to monitor system resources and server utilization
- Document Enterprise Reporting Strategy
- Begin implementing the Reporting Strategy through Phase I

ISSUES REQUIRING CLIENT ATTENTION
- No issues needing immediate attention

MAJOR RISKS AND ACTIONS

<table>
<thead>
<tr>
<th>Risk/Activity</th>
<th>Mitigating Action</th>
<th>Assigned to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract almost out of money, burn rate over 95%</td>
<td>Continue to follow up on request for additional funding allocation</td>
<td>Fred</td>
</tr>
<tr>
<td>Budget cuts limit our ability to perform work desired in current contract</td>
<td>Re-scope contract to provide for tasking under the lowered ceiling</td>
<td>Fred and Jim</td>
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MILESTONE ACTIVITY REPORT

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsibility</th>
<th>Planned Completion</th>
<th>Actual Complete</th>
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<tr>
<td>Administrative Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performed team streamlining due to budget cuts</td>
<td>Data Manager</td>
<td>Feb 04, 2005</td>
<td>Feb 04, 2005</td>
</tr>
<tr>
<td>Task 1 - Data Architecture Development and Management Support</td>
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<td></td>
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<tr>
<td>Task 2 - Data Management Strategy Implementation Support</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tasking scaled back due to budget cuts</td>
<td>Data Manager</td>
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<td>Task 3 - Database Administration Support</td>
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<tr>
<td>Tasking scaled back due to budget cuts</td>
<td>Data Manager</td>
<td>Feb 04, 2005</td>
<td>Feb 04, 2005</td>
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</table>
Let’s Look... Status Reports

What do they tell us?

• What was worked on this past month
• What will be worked on over the next month
• Milestones, Action Items, Risks, Etc.

Who created them?

• Project Manager

Why were these so loved???
Let’s Look… Status Reports

Why were they so loved?

• Could justify month’s expense in a single massive report
• Knew “exactly what” got done for the whole month
• Can send them up the chain to update our executive leadership
• If there are a lot of details then it looks like a lot of work got done
• Makes contract people happy

What are some problems we Agilists have with them?
## Let’s Look… Fully Resourced Project Schedule

<table>
<thead>
<tr>
<th>WBS Code</th>
<th>Task Name</th>
<th>Work</th>
<th>Duration</th>
<th>% Complete</th>
<th>Assigned To</th>
<th>Start</th>
<th>Finish</th>
<th>Predecessors</th>
<th>Total Slack</th>
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<tbody>
<tr>
<td>OFM_1.5.2.17.1</td>
<td>Site Development Completed</td>
<td>0 hrs</td>
<td>0 hrs</td>
<td>100%</td>
<td>Rich</td>
<td>Tue 9/6/15</td>
<td>Tue 9/6/15</td>
<td>235,263,274,317</td>
<td>0 hrs</td>
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<tr>
<td>OFM_1.5.2.17.2</td>
<td>Feature Development Integration Completed With Indexed List, HTML Viewer, and Custom Announcement Feature</td>
<td>0 hrs</td>
<td>0 hrs</td>
<td>100%</td>
<td>Rich</td>
<td>Wed 6/10/15</td>
<td>Wed 6/10/15</td>
<td>210,274,317,256,366</td>
<td>0 hrs</td>
</tr>
<tr>
<td>OFM_1.5.2.17.3</td>
<td>Feature Development Integration Completed With Knowledgebase Feature</td>
<td>0 hrs</td>
<td>0 hrs</td>
<td>100%</td>
<td>Rich</td>
<td>Wed 6/17/15</td>
<td>Wed 6/17/15</td>
<td>230</td>
<td>0 hrs</td>
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<tr>
<td>OFM_1.5.2.17.4</td>
<td>Feature Development Integration Completed With Forms Feature</td>
<td>0 hrs</td>
<td>0 hrs</td>
<td>100%</td>
<td>Rich</td>
<td>Sat 6/6/15</td>
<td>Sat 6/6/15</td>
<td>262</td>
<td>0 hrs</td>
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<tr>
<td>OFM_1.5.2.18</td>
<td>Complete Site Catalog Form</td>
<td>8 hrs</td>
<td>8 hrs</td>
<td>95%</td>
<td>Rich</td>
<td>Sun 6/28/15</td>
<td>Mon 6/29/15</td>
<td>537,95</td>
<td>244 hrs</td>
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<tr>
<td>OFM_1.5.2.19.1</td>
<td>Migration Utilities</td>
<td>441.8 hrs</td>
<td>31 days</td>
<td>96%</td>
<td>Rich</td>
<td>Tue 6/2/15</td>
<td>Mon 6/29/15</td>
<td>19.5 days</td>
<td>244 hrs</td>
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<tr>
<td>OFM_1.5.2.19.1.1</td>
<td>Document Migration Utility</td>
<td>131 hrs</td>
<td>11.38 days</td>
<td>86%</td>
<td>Mike</td>
<td>Fri 6/12/15</td>
<td>Mon 6/29/15</td>
<td>31.13 days</td>
<td>285.5 hrs</td>
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<td>OFM_1.5.2.19.1.2</td>
<td>Create document migration utility</td>
<td>48 hrs</td>
<td>48 hrs</td>
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<td>291.1 hrs</td>
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<td>Unit test utility</td>
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<td>3 hrs</td>
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<td>Mon 6/29/15</td>
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<td>OFM_1.5.2.19.2</td>
<td>Data Migration Utility</td>
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<td>31 days</td>
<td>90%</td>
<td>Mike</td>
<td>Tue 6/2/15</td>
<td>Tue 7/14/15</td>
<td>19.5 days</td>
<td>249 hrs</td>
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<td>OFM_1.5.2.19.2.1</td>
<td>Ensure target lists are present – schedule with development of various sites</td>
<td>2.2 hrs</td>
<td>2 hrs</td>
<td>100%</td>
<td>Williams</td>
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<td>OFM_1.5.2.19.2.2</td>
<td>Develop data access layer</td>
<td>86 hrs</td>
<td>86 hrs</td>
<td>98%</td>
<td>Williams</td>
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<td>Tue 5/2/15</td>
<td>548</td>
<td>0 hrs</td>
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<td>OFM_1.5.2.19.2.3</td>
<td>Develop the client interface to the SharePoint web services</td>
<td>132 hrs</td>
<td>132 hrs</td>
<td>90%</td>
<td>Williams</td>
<td>Mon 7/6/15</td>
<td>Mon 7/6/15</td>
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<td>202.4 hrs</td>
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<tr>
<td>OFM_1.5.2.19.2.4</td>
<td>Develop data transfer code</td>
<td>44 hrs</td>
<td>44 hrs</td>
<td>98%</td>
<td>Williams</td>
<td>Mon 7/6/15</td>
<td>Mon 7/13/15</td>
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<td>169.8 hrs</td>
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<tr>
<td>OFM_1.5.2.19.2.5</td>
<td>Run tests and verify accurate data loading</td>
<td>17.6 hrs</td>
<td>17.6 hrs</td>
<td>95%</td>
<td>Williams</td>
<td>Mon 7/13/15</td>
<td>Mon 7/13/15</td>
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<td>156 hrs</td>
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<td>OFM_1.5.2.20</td>
<td>Admin Section</td>
<td>120 hrs</td>
<td>120 hrs</td>
<td>90%</td>
<td>Mike</td>
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<td>Thu 7/30/15</td>
<td>60 hrs</td>
<td>120 hrs</td>
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<td>OFM_1.6.1</td>
<td>Functional Qualification Test database conversion (FQT)</td>
<td>240.6 hrs</td>
<td>44.5 days</td>
<td>76%</td>
<td>Wed 6/10/15</td>
<td>Fri 6/11/15</td>
<td>0 days</td>
<td>240.6 hrs</td>
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<tr>
<td>OFM_1.6.1.1</td>
<td>Create Test scripts</td>
<td>150 hrs</td>
<td>150 hrs</td>
<td>90%</td>
<td>Alex</td>
<td>Wed 6/10/15</td>
<td>Thu 6/11/15</td>
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<td>0 hrs</td>
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<tr>
<td>OFM_1.6.1.1.2</td>
<td>Update RTM with FQT information</td>
<td>12 hrs</td>
<td>12 hrs</td>
<td>45%</td>
<td>Alex</td>
<td>Sun 6/2/15</td>
<td>Tue 6/8/15</td>
<td>556</td>
<td>0 hrs</td>
</tr>
<tr>
<td>OFM_1.6.1.1.3</td>
<td>Custom Indexed List Feature - Build 1</td>
<td>78.5 hrs</td>
<td>7 days</td>
<td>0%</td>
<td>Alex</td>
<td>Fri 7/31/15</td>
<td>Mon 8/3/15</td>
<td>538,556</td>
<td>3 hrs</td>
</tr>
<tr>
<td>OFM_1.6.1.3.1</td>
<td>Create Build Package</td>
<td>5 hrs</td>
<td>10 hrs</td>
<td>0%</td>
<td>Alex</td>
<td>Fri 7/31/15</td>
<td>Mon 8/3/15</td>
<td>538,556</td>
<td>3 hrs</td>
</tr>
<tr>
<td>OFM_1.6.1.3.2</td>
<td>Deploy Build Package</td>
<td>1.5 hrs</td>
<td>3 hrs</td>
<td>0%</td>
<td>Alex</td>
<td>Mon 8/5/15</td>
<td>Tue 8/4/15</td>
<td>559</td>
<td>3 hrs</td>
</tr>
</tbody>
</table>
Let’s Look… Fully Resourced Project Schedule

What did they tell us?
- When, how long, and who is assigned... for all work
- If we are over or under allocated
- Our current progress on all items
- Which contract item or CLIN the task maps back to
- What precedes each item and/or is dependent upon it

Who created them?
- Project Manager

Why were these so loved???
Let’s Look... Fully Resourced Project Schedule

Why were they so loved?
• Tells us every step to take and who has been assigned to each
• Tells us “when” each will happen, no matter how far into the future
• Tell us our “accurate progress” and “true remaining” time to complete
• Gives us the path we must take to get all work done
• All items are estimated by an “experienced expert”

What are the problems we Agilists have with them?
### Earned Value Report

<table>
<thead>
<tr>
<th>Code &amp; Description</th>
<th>Original Budget</th>
<th>Budget at Completion</th>
<th>Planned Value</th>
<th>Earned Value</th>
<th>Actual Cost</th>
<th>CPI</th>
<th>SPI</th>
<th>Cost Variance</th>
<th>Schedule Variance</th>
<th>EAC</th>
<th>ETC</th>
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<tbody>
<tr>
<td><strong>Project X</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>A - Offshore</td>
<td>30,000.00</td>
<td>41,975.00</td>
<td>18,803.81</td>
<td>16,100.00</td>
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<td>10,555.10</td>
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<td><strong>Project Y</strong></td>
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<td>49,641.67</td>
<td>20,370.80</td>
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<td>0.86</td>
<td>(2,088.33)</td>
<td>(2,929.13)</td>
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<tr>
<td>B - Onshore</td>
<td>93,166.67</td>
<td>99,283.33</td>
<td>19,154.61</td>
<td>33,518.33</td>
<td>54,000.00</td>
<td>0.62</td>
<td>1.75</td>
<td>(20,481.67)</td>
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<td>1.29</td>
<td>(23,290.00)</td>
<td>11,434.69</td>
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<tr>
<td><strong>Project Z</strong></td>
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<td>A - Offshore</td>
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<td>20,370.80</td>
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<td>(2,929.13)</td>
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<td>B - Onshore</td>
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<td>1,341.67</td>
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<td>(225.52)</td>
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<td>16,510.00</td>
<td>0.24</td>
<td>1.29</td>
<td>(12,590.00)</td>
<td>879.59</td>
<td>47,171.43</td>
<td>30,661.43</td>
</tr>
<tr>
<td><strong>GRAND TOTAL:</strong></td>
<td>377,000.00</td>
<td>446,775.00</td>
<td>118,575.92</td>
<td>152,880.00</td>
<td>222,760.00</td>
<td>0.69</td>
<td>1.29</td>
<td>(68,880.00)</td>
<td>34,304.08</td>
<td>636,457.14</td>
<td>412,691.14</td>
</tr>
</tbody>
</table>
Let’s Look... Earned Value

What did they tell us?

• A valuation of planned work (based on original scope)
  - Planned Value (PV) or Budgeted Cost of Work Scheduled (BCWS)
• A valuation of accomplished work
  - Earned Value (EV) or Budgeted Cost of Work Performed (BCWP)
• A valuation of what the work actually cost
  - Actual Cost (AC) or Actual Cost of Work Performed (ACWP)
• Indicators and forecasts of cost performance
  - i.e. over or under budget
• Indicators and forecasts of schedule performance
  - i.e. behind schedule or ahead of schedule
• Forecasts to complete, variance, and project performance problems
Let’s Look... Earned Value

Who created the EV reports?
  • Project Manager

Why were these so loved???
Let’s Look… Earned Value

Why were they so loved?
• You knew if you were getting your money’s worth
• You knew if you were on track to succeed with your plan

What are the problems we Agilists have with them?
Agile Equivalents to Status Reports and Project Schedules

• Backlog/ALM Tool
  - What was worked on this past month
  - What will be worked on over the next month
  - Which contract item or CLIN the task maps back to
  ***All items are estimated by experts, the team, rather than the PM

• Estimate the backlog and couple it with Velocity and Team capacity
  - When, how long, for all work
  - If we are over or under allocated

• Backlogs, especially when combined with Story Maps
  - What precedes each item and/or is dependent upon it
Agile Equivalents to Status Reports and Project Schedules

• Portfolio, Program, and Sprint Burn charts
  - Show delivered value over the period
  - Could justify month’s expense in a single report
  - Can send them up the chain to update our executive leadership
  - Makes contract people happy
  - Shows current progress

• Roadmap, Roadmap grooming, Daily Standup, Scrum of Scrums
  - Milestones, Action Items, Risks, Etc.
Agile Equivalents  What about those EV Comforts?

- Budgets & Invoices, Sized Roadmap/Estimated Backlog/ALM Tool, Program/Team Velocity/Capacity
  - A valuation of planned work (PV or BCWS)
  - A valuation of accomplished work (EV or BCWP)
  - A valuation of what the work actually cost (AC or ACWP)
  - Forecast to complete

- Portfolio, Program, and/or Project Burn charts, coupled with financials
  - Indicators and forecasts of cost performance (i.e. over/under budget)
  - Indicators and forecasts of schedule performance (i.e. ahead/behind schedule)
  - Forecasted variance
  - Forecasts of project performance problems
Agile Equivalents  What about those EV Comforts?

IN FACT...
The line of a burn chart is equivalent to EVM’s Budgeted Cost of Work Performed (BCWP) also known as the Earned Value (EV)

EVM Chart

Agile Burnup Chart with Actual Costs

EVM and Burn Chart images from John Rusk, Optimination Ltd
Agile Equivalents What about those EV Comforts?

Chart three lines
The grey line shows the progress that we expect to make
The green line shows how much of the product we have built
The orange line shows the cost we have incurred so far

Burn Chart image from John Rusk, Optimation Ltd
Agile Equivalents What about those EV Comforts?

If the orange line is above the green line, that means we’re spending the budget faster than we’re building the software. Conversely, if the green line is above the orange line, that means we’re building the software faster than we’re spending the money.

Burn Chart image from John Rusk, Optimation Ltd.
We can see this Agile project is likely to overrun its budget by about 30%.

In classic EVM terms, the Estimate at Completion (EAC) is approximately 1.3 times the project budget.
Are We Tracking to Long Term Commitment?

The Situation:

- 5 year initiative still 3 years away from reported completion date
- 6 out of 8 major initiatives remaining, each with many sites, pages, forms, interfaces and features

The question:
How can I tell if I am tracking to my Sept 2018 completion deadline?
Waterfall Comfort

In Waterfall, we would have...

• Had an up-to-date, fully resourced Integrated Master Schedule
  - With WBS items down to level 6 or 7
  - With all tasks estimated by a project manager
  - With resource names to know exactly who was performing which tasks
  - With exact dates so we know just when each task will start and finish over the next several years

• “Rebaselined” the schedules quarterly

• Been 90%+ complete for 2 years beyond the deadline

• Felt like we knew our actual true progress the whole time
In Agile, we do not rely on project schedules, but how can we answer the question using our Agile toolbox?

One way is to use the following:

• Portfolio/Program Roadmap
• Relatively sized Business Epics
• Journey Lines
• Metrics for work to date
• Program-level Burnup Chart
Tools

- Use Journey Lines to understand the impact of events and changes on the current data set

Roadmap

- Relatively size business epics
- Ordered roadmap

Journey Line
• Apply the data we have to-date against the upcoming/future business epics

• Plot optimistic and pessimistic lines on Burnup to begin assessing probability of completion by planned date

• For really large efforts it is beneficial to use broader measures like Team Months
Table exercise

Brainstorm what Agile tools, metrics, and practices can be used to address one or more of the issues listed in your mindmap.

Add another ring to the mindmap for solution ideas and discuss.
Questions