Coaching in a data-driven world

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#ScanAgile18
TLDR;
Stop using metrics as targets. Use metrics as a coaching aid to inform, to have safe conversations, open questions and model curiosity.
Google Ngram
The growth in metric obsession
The growth in metric obsession
Which of the following best describes decision-making in your organisation?

- Rarely data-driven: 8%
- Somewhat data-driven: 53%
- Highly data-driven: 39%

PwC's Global Data and Analytics Survey: Big Decisions TM. Base: 2,106 senior executives
“When a measure becomes a target, it ceases to be a good measure”
- Charles Goodhart
Police Majors & Lieutenants
No more murders. You will reduce the felony rate by 5% or more or.... let no man come back alive
Anyone of you who can’t bring in the numbers we need will be replaced by someone who can.
How can you make a body disappear?

Major Bunny Colvin
“Hamsterdam”
We’ve had a 14% drop in felony rate over the last 4 weeks.
Ah yes, now I am happy.
You won’t mind if I check your numbers will you?
I can’t wait to show the mayor this...
F*$L$UF$!!!
The tyranny of metrics

- Penalizing hospitals based on the percentage of patients who fail to survive for thirty days after surgery. Patients sometimes kept alive for thirty-one days, so that their mortality is not reflected in the hospitals' metrics.

- The National Health Service (NHS) in the UK declared that hospitals would be evaluated based on to what extent patients were admitted within four hours. Some hospitals responded by keeping incoming patients in queues of ambulances outside the hospital doors, until staff were confident that the patient could be seen within the allotted four hours of being admitted.

- No Child Left Behind (NCLB) act measured students on certain subjects, aiming to bring all students to academic proficiency whilst having penalties and sanctions for schools when students did not progress. Teachers diverted class time to teaching the subjects tested, neglecting other subjects as well as reclassifying weaker students as disabled (thus removing from the assessment pool), altering results, reducing test difficulty or lowering the grades needed to pass them.
The tyranny of velocity?

How Success Is Measured... with Agile Projects

While business value was cited as the second most popular measure (46%) of an agile initiative's success, it ranked as the eleventh most popular measure (23%) of an agile project's success. Velocity (67%) continues to be the number one measure of an agile project's success.
Police Majors & Lieutenants

Agile Project Managers/ Scrum Masters
You asked to improve velocity and I have delivered.

We are now agile.
We are so friggin agile...
Maybe it’s time we scaled this...
So long as I have increased velocity, none of this will matter.
Two-thirds of the population are visual-spatial learners.
Agile experience in relation to hair
Our Agile roots...

Scrum

Transparency  Inspection  Adaptation

Visualize
Limit WIP
Manage flow
Make policies explicit
Feedback loops
Improve & evolve

PRACTICES
Data-based coaching uses data visualisation as a basis for safe conversations and open questions, as well as facilitating more informed, transparent decision making whilst staying true to our Agile roots...
Coaching in a data-driven world

Descriptive reporting
WIP Items Per Week

What happened?

What is happening?
Scatter Plot for Retrospectives

Let’s take anything above 10 days - what happened?
Let’s take anything above 10 days - what happened?

- Better BDD needed
- Work as a team when it’s not working
- Data not available (improve DoR check)
- Too long for PO feedback (20 days!)
- Better DoR check needed as was not met
- PO Feedback
- Data not available (improve DoR check)
- Rework due to tech debt
- Better DoR check needed
- Flowed quickly once sat with the SME
- Delayed due to lack of clarity on deployment
Scatter Plot Retrospectives

What is happening?

Continuous attention to technical excellence

Process Policies

Feedback loops

Process Policies

Process Policies

Process Policies

Process Policies

Feedback loops

Feedback loops

Feedback loops

Feedback loops

Mean

Median
Net Flow per Week

Flow
How consistent is our completion pace? Goal: Keep around zero. Stop starting, start finishing.

NET FLOW PER WEEK (ITEMS COMPLETED - ITEMS STARTED)

Stop starting, start finishing?

Flow?
Coaching in a data-driven world

Questions
- What happened?
- What is happening?

Visuals
- WIP Items per Week
- Cycle Time Scatter Plot
- Net flow per week
- Epic/Feature Progress

Descriptive reporting
Diagnostic discover & explore
Stuck Work

Where is the problem?

What are the trends?

Why is it happening?
Estimate Correlation

Correlation coefficient: 0.20

What happened?

#NoEstimates?

Why is it happening?
Coaching in a data-driven world

Questions
- What happened?
- What is happening?
- Where is the problem?
- Why is it happening?
- What are the trends?
- What happened?
- What is happening?

Visuals
- WIP Items per Week
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- Flow Efficiency
- Estimate Correlation
- Cumulative Flow Diagram
Landing Zone (Burn-up)

What is likely to happen?

What options are there?
### Potentially Deliverable Scope (PDS)

<table>
<thead>
<tr>
<th>Task ID</th>
<th>Task Description</th>
</tr>
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<tbody>
<tr>
<td>26390</td>
<td>Move Taxpayer cases to 'In Prepare'</td>
</tr>
<tr>
<td>257794</td>
<td>Edit User Profile</td>
</tr>
<tr>
<td>263697</td>
<td>Create User Profile for Preparer/Reviewer/Technical Reviewer</td>
</tr>
<tr>
<td>259218</td>
<td>Restored Client - Provide User Access</td>
</tr>
<tr>
<td>259276</td>
<td>Enhanced Screen Navigation Based on Roles (no more switching roles)</td>
</tr>
<tr>
<td>257101</td>
<td>Worklist - View Unallocated Preparer Tasks</td>
</tr>
<tr>
<td>264070</td>
<td>PCCC - View group name in worklist and work queue</td>
</tr>
<tr>
<td>257107</td>
<td>Claim Unallocated Tasks</td>
</tr>
<tr>
<td>259906</td>
<td>Prepare to manually move Taxpayer case to 'Ready for Review'</td>
</tr>
<tr>
<td>257720</td>
<td>Worklist - View Unallocated Reviewer Tasks</td>
</tr>
<tr>
<td>259498</td>
<td>Reviewers Open Tasks - Work Queue</td>
</tr>
<tr>
<td>259499</td>
<td>Review to Manually 'Start Review'</td>
</tr>
<tr>
<td>259307</td>
<td>Executive Summary - General Information (Preparer)</td>
</tr>
<tr>
<td>257290</td>
<td>Executive Summary - Links to DMS folders (PCCC and OneGM)</td>
</tr>
<tr>
<td>257632</td>
<td>Executive Summary - Links to DMS folders - Multiple Periods (CCS only)</td>
</tr>
<tr>
<td>257437</td>
<td>PCCC &amp; OneGM Executive Summary - Be able to Compare Prior/Current ...</td>
</tr>
<tr>
<td>261338</td>
<td>PCCC &amp; OneGM Executive Summary - Be able to Compare Prior/Current ...</td>
</tr>
<tr>
<td>263812</td>
<td>Updating Tiger Task to 'Technically Review Tax Return'</td>
</tr>
</tbody>
</table>

**What is likely to happen?**

- For 14/Aug/17: Probable
  - Preparer to manually move Taxpayer case to 'Ready for Review'
  - Worklist - View Unallocated Reviewer Tasks
  - Reviewers Open Tasks - Work Queue
  - Review to Manually 'Start Review'
  - Executive Summary - General Information (Preparer)
  - Executive Summary - Links to DMS folders (PCCC and OneGM)
  - Executive Summary - Links to DMS folders - Multiple Periods (CCS only)

**What options are there?**

- Pink items are In Progress and anything above the probable line we will definitely do.
- The possible line is where we think we'll get to, as you can see there is one story that is touch and go, which is mainly because those in Progress haven't flowed through to Done.

Cheers,

Nick
Throughput Forecaster

### Forecast Completion Date

| 1. Start Date | 25/05/2017 |

#### 2. How many stories are remaining to be completed?

- **Low guess**: 13
- **Highest guess**: 45

#### 3. Stories are often split before and whilst being worked on. Estimate the split rate low and high bounds.

- **Low guess**: 1.00
- **Highest guess**: 1.00

#### 4. Throughput. How many completed stories per week or sprint do you estimate low and high bounds?

- **Throughput estimate/samples are per week**: 5 days

<table>
<thead>
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<th>Likelihood</th>
<th>Duration in Week’s</th>
<th>Date</th>
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<tbody>
<tr>
<td>100%</td>
<td>28</td>
<td>12/09/2017</td>
</tr>
<tr>
<td>95%</td>
<td>24</td>
<td>22/09/2017</td>
</tr>
<tr>
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<td>24</td>
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<tr>
<td>85%</td>
<td>21</td>
<td>17/09/2017</td>
</tr>
<tr>
<td>80%</td>
<td>22</td>
<td>12/09/2017</td>
</tr>
<tr>
<td>75%</td>
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<td>19</td>
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<td>18</td>
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<td>17</td>
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<td>0%</td>
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<td>01/08/2017</td>
</tr>
</tbody>
</table>

#### Can I use velocity rather than throughput?

Yes. If you do have estimates in story points, then you can sum all of the estimates and use that for input 2 and estimate or use historical team velocity for input 4. The benefit of using throughput (count of completed stories per week/sprint) is that the individual stories don’t require estimation.

### Forecast Story Count Completion by Time Period

**5. How long?**

- **10 Weeks**

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Stories in 10 Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>95%</td>
<td>16</td>
</tr>
<tr>
<td>85%</td>
<td>17</td>
</tr>
<tr>
<td>5%</td>
<td>24</td>
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</table>

**Result: Total Pre-split Stories in 10 Weeks**

Please Remember: This forecast is only as good as the estimates you enter into it. Always look for multiple ways to forecast your project and compare the outcomes, especially if making a financially critical decision. In the end - any decision to proceed with a project is YOURS.

---

**Tip:** This is your forecasted # stories for this period at 85% confidence.
Throughput Forecaster

1 story out!
Coaching in a data-driven world

Descriptive reporting
Diagnostic discover & explore
Predictive forecast
Prescriptive anticipative

Questions
- What happened?
- What is happening?
- Where is the problem?
- Why is it happening?
- What are the trends?
- What happened?
- What is happening?

Visuals
- WIP Items per Week
- Cycle Time Scatter Plot
- Net flow per week
- Epic/Feature Progress
- Stuck Work
- Flow Efficiency
- Estimate Correlation
- Cumulative Flow Diagram
- PDS
- Landing Zone (Burn-up)
- Throughput Forecaster
- Monte Carlo: How Many?
WIP by Person

What should I do?
Stale Work

What is the next best action?
“When a measure becomes a target, it ceases to be a good measure”

- Charles Goodhart
Goodhart’s law...

“I’m working on that card but didn’t want to move it forward on the board because it would mean we go over our WIP limit”
“The ostrich problem includes situations in which people receive relevant information but intentionally fail to evaluate the implications for their goal progress - in other words, they reject the information.”

- Dr Thomas Webb
The Ostrich Problem...

“Hmm....let’s see how we get on for the next 4 weeks before we show the data of what we can deliver to the business”
Coaching in a data-driven world

Descriptive reporting
Diagnostic discover & explore
Predictive forecast
Prescriptive anticipative

Questions
What happened? What is happening?
Where is the problem? Why is it happening? What are the trends?
What is likely to happen? What options are there?
What should I do? What is the next best action?

Visuals
- WIP Items per Week
- Scatter Plot
- Net flow per week
- Throughput History Trend
- Stuck Work
- Flow Efficiency
- Estimate Correlation
- Cumulative Flow (CFD)
- PDS
- Landing Zone (Burn-up)
- Throughput Forecaster
- Monte Carlo: How Many?
- Stale Work
- WIP by Person
- Aging Work In Progress
- Requirements Readiness
Coaching in a data-driven world

Questions
- What happened?
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Visuals
- WIP Items per Week
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- Net flow per week
- Throughput History Trend

Where can you get it? - Focused Objective
Coaching in a data-driven world

Questions
What happened?
What is happening?

Visuals
- WIP Items per Week
- Scatter Plot
- Net flow per week
- Throughput History Trend

Where can you get it? - SenseAdapt
Coaching in a data-driven world

**Descriptive reporting**

**Diagnostic**
discover & explore

**Predictive**
forecast

**Prescriptive**
anticipative

**Questions**

- What happened?
- What is happening?

**Visuals**

- WIP Items per Week
- Scatter Plot
- Net flow per week
- Throughput History Trend

Where can you get it? - **Focused Objective**
Coaching in a data-driven world

Descriptive reporting
Diagnostic discover & explore
Predictive forecast
Prescriptive anticipative

Questions
What happened?
What is happening?

Visuels
- WIP Items per Week
- Scatter Plot
- Net flow per week
- Throughput History Trend

Where can you get it? - Focused Objective
Coaching in a data-driven world

Questions
- Where is the problem?
- Why is it happening?
- What are the trends?

Visuals
- Stuck Work
- Flow Efficiency
- Estimate Correlation
- Cumulative Flow (CFD)

Where can you get it? - SenseAdapt
Coaching in a data-driven world

Questions:
Where is the problem?
Why is it happening?
What are the trends?

Visuals:
- Diagnostic: discover & explore
- Predictive: forecast
- Prescriptive: anticipative
- Descriptive: reporting

- Stuck Work
- Flow Efficiency
- Estimate Correlation
- Cumulative Flow (CFD)

Where can you get it? - Actionable Agile
Coaching in a data-driven world

Questions
Where is the problem?
Why is it happening?
What are the trends?

Visuals
- Stuck Work
- Flow Efficiency
- Estimate Correlation
- Cumulative Flow (CFD)

Where can you get it? - SenseAdapt
Coaching in a data-driven world

Questions
Where is the problem?
Why is it happening?
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Visuals
- Stuck Work
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- Cumulative Flow (CFD)

Where can you get it? - Actionable Agile
Coaching in a data-driven world

Questions
- What is likely to happen?
- What options are there?

Visuals
- PDS
- Landing Zone (Burn-up)
- Throughput Forecaster
- Monte Carlo: How Many?

Where can you get it? - SenseAdapt
Coaching in a data-driven world

**Questions**
- What is likely to happen?
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**Visuals**
- PDS
- Landing Zone (Burn-up)
- Throughput Forecaster
- Monte Carlo: How Many?

Where can you get it? - SenseAdapt
Coaching in a data-driven world

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1. Start Date
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Descriptive reporting

Diagnostic discover & explore

Prescriptive anticipative

Predictive forecast
Coaching in a data-driven world

Predictive forecast
Prescriptive anticipative
Descriptive reporting
Diagnostic discover & explore

Questions
What is likely to happen?
What options are there?

Visuals
- PDS
- Landing Zone (Burn-up)
- Throughput Forecaster
- Monte Carlo: How Many?

Throughput Baseline
Monte Carlo (10K Trials)

Where can you get it? - Actionable Agile
Coaching in a data-driven world

Prescriptive
anticipative

Diagnostic
discover & explore

Predictive
forecast

Descriptive
reporting

Questions

What should I do?
What is the next best action?

Visuals

- Stale Work
- WIP by Person
- Aging Work In Progress
- Requirements Readiness

Where can you get it? - SenseAdapt
Coaching in a data-driven world

Prescriptive
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What should I do?
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Where can you get it? - SenseAdapt
Coaching in a data-driven world

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- What should I do?
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Visuals
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Where can you get it? - Actionable Agile
Coaching in a data-driven world

Prescriptive: anticipative
Diagnostic: discover & explore
Predictive: forecast
Descriptive: reporting

Questions
What should I do?
What is the next best action?

Visuals
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Where can you get it? - SenseAdapt
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<tr>
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<td>Throughput History Trend</td>
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</table>
Further reading

- Troy Magennis - Focused Objective - bit.ly/SimResources
- Dan Vacanti - Actionable Agile Metrics for Predictability - tiny.cc/danvac
- Bazil Arden - Try data-based coaching to counteract cognitive biases - tiny.cc/bazil1
- Bazil Arden - How data-based coaching enhances psychological safety - tiny.cc/bazil2
- Jerry Z. Muller - The Tyranny of Metrics - tiny.cc/tyranny
Thank you!