Scrum Metrics for Hyper-Productive Teams:
How They Fly like Fighter Aircraft
By Jeff Sutherland and Scott Downey
What’s Ahead

- Goal
- Metrics: Math and Purpose
- The RoboCoach Workbook
Jeff Sutherland

- Chairman, Scrum Training Institute

- CEO Scrum, Inc. & Sr. Advisor to OpenView Venture Partners
  - Agile Coach for OpenView Venture Partners portfolio companies
  - CEO/CTO/VPE for 11 Software Companies
  - Created first Scrum at Easel Corp. in 1993
  - Rolled out Scrum in the next 7 Companies
  - Achieved Hyper-Productive State in All Companies.

- Signatory of the Agile Manifesto

- Founder of the Agile Alliance

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Scott Downey

- **Owner, RapidScrum.com**

- **Formerly Head Agile Coach, MySpace**
  - MySpace had 68 Delivery Teams
  - Created Immersive Scrum Training System for Rapid Bootstrapping of Hyper-Productive Teams
  - Average Improvement was over 600%
  - Average Boot-Up took only 4.5 Weeks

- **Co-Teaching CSM with Jeff since 2007**

- **Shock Therapy: A Bootstrap for Hyper-Productive Scrum** at Agile ‘09 with Jeff and Björn Granvik

http://www.RapidScrum.com
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To develop and standardize a set of Minimally-Invasive Metrics that will help Scrum Masters Evaluate and Advise Teams while providing Rich Insights about Team performance and a Fully Portable Language for team comparison.
Metrics

The Math and Purpose of Each
Metrics

1. Velocity
2. Work Capacity
3. Focus Factor
4. Adopted Work
5. Found Work
6. Targeted Value Increase
7. Accuracy of Estimation
8. Accuracy of Commit
I, as a Scrum Product Owner who is trying to create an accurate Roadmap for future releases, need a reliable metric on which to base my assumptions about the rate of the team’s progress, so that I, with our Leadership, can make well-informed tradeoffs and commitments based on the reality of our company’s capabilities.

Formula: $\Sigma$ Original Estimates of All Approved Cards
I, as a Scrum Master who is trying to coach a Team toward Hyper-Productivity... need a way to measure how much work the Team can do in a given Sprint, whether it results in an Approved Card or not, so that I can quantify the Team’s entire capability, ask intelligent questions about distractions and take action to optimize the effort-to-value ratio.

Formula: \[ \sum \text{All Work Reported During the Sprint} \]
Metrics: Velocity & Work Capacity

Sample Chart from RoboScrum™, Available on RapidScrum.com

**Velocity Tracking Trend**

10-Week Sliding Window

- Original Velocity
- Hyper-Productivity Begins
- Average Velocity
- Sprint Velocity
- Healthy Capacity Target
- Actual Capacity
- Healthy Commit Target
- Actual Commitment

**Story Points**
I, as a member of Leadership who is not a member of a Scrum Delivery Team, need a way to measure how much of each Team’s bandwidth results in deployable in a cross-team comparable way, so that I can actively help sub-optimized Teams, intelligently allocate resources and reward our Teams for their hard work.

Formula: Velocity ÷ Work Capacity
Metrics: Focus Factor

\[
\frac{\text{Velocity}}{\text{Work Capacity}} = \frac{11}{17} = 64.7\%
\]
Metrics: Focus Factor

Sample Chart from RoboScrum™, Available on RapidScrum.com

Focus Factor
Showing the Last 10 Sprints
Metrics: Adopted Work

- **I, as a...** a Scrum Master, who is trying to coach a team toward more accurate Commitments during each Sprint Planning Meeting,

- **...need...** a metric that clearly shows when the Team has under-Committed in the most recent Planning Meeting and had to pull work forward from the Product Backlog before the end of the Sprint

- **...so that...** I can encourage the Team toward higher Commitments during the Sprint Planning Meetings without the risk of pushing them to failure.

- **Formula:** \[ \Sigma \text{Original Estimates for Work Pulled Forward} \] Original Commitment
Metrics: Found Work

- **I, as a...** a Scrum Master, who is trying to help my Team make more accurate and reliable Commitments in Sprint Planning,

- **...need...** a clear way to measure the likelihood of unexpected work based on the Card’s Original Estimate

- **...so that...** I can offer advice to the Team on making achievable Commitments and provide them fair warning when they start to accept a Card that will probably surprise for them.

- **Formula:** \[ \sum \text{Total Work Reported per Card} - \frac{\text{Original Estimate}}{\text{Original Commitment}} \]
Win/Loss by Sprint

Percentage of Original Commitment

Sprint Number

- Original Commitment Achievement
- Adopted
- Found

Sample Chart from RoboScrum™, Available on RapidScrum.com
I, as a Scrum Product Owner who is trying to evaluate the efficacy of the product directions I have chosen. I need a reliably way to measure the increased value contribution of the Team sprint-over-sprint. I can compare the Team’s rate of value contribution increase to the changes in revenue we are generating and adjust our direction if the value isn’t being realized.

Formula: \[ \text{Current Sprint’s Velocity} \div \text{Original Velocity} \]
Metrics: Targeted Value Increase

Targeted Value Contribution Increase by Sprint

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Metrics: Accuracy of Estimation

- **I, as a...** a Scrum Product Owner who is interested in creating reliable roadmaps, including Optimistic, Likely and Pessimistic release dates for larger initiatives,

- **...need...** a metric that tracks the margin of error on the Team’s Original Estimates, regardless of whether the actual effort was higher or lower than the Original Estimate,

- **...so that...** I can multiply their good-faith estimates by this factor and create more realistic date projections.

- **Formula:** $1 - \left( \frac{\text{Estimate Delta}}{\text{Total Commit}} \right)$
Metrics: Accuracy of Commit

- I, as a Scrum Product Owner, who is concerned about the accuracy of my Roadmaps

- ...need... a metric that informs me of the margin of error when the Team commits to a body of work

- ...so that... I can use this margin of error to predict reliable dates, and know when it is safe to lobby for a higher Commitment at each Planning Meeting.

- Formula: \[
\frac{\sum \text{Original Estimates}}{\sum \text{Original Estimates} + \sum \text{Adopted Work} + \sum \text{Found Work}}
\]
Metrics: Accuracy

Sample Chart from RoboScrum™, Available on RapidScrum.com

Trending Accuracy Values

Accuracy of Estimates
Accuracy of Commitment
Acceptable Variation
Goal

Sample Chart from RoboScrum™, Available on RapidScrum.com
RoboCoach

(a.k.a. “The Awesome Spreadsheet of Awesomeness”)
RoboCoach

- Not an Excel Expert (Google + F1)
- Offered as an Example Only
- Do Not Guarantee Perfection
- Constantly Evolving during Daily Use
- Fully Acknowledge Improvements can (and will!) be Made
- No Macros (for Ease of Portability)
- Use at Your Own Risk
- No Support Contract is either Expressed or Implied
RoboCoach gives you grounds for **QUESTIONS** but **not** for **ACCUSATIONS!!**
RoboCoach