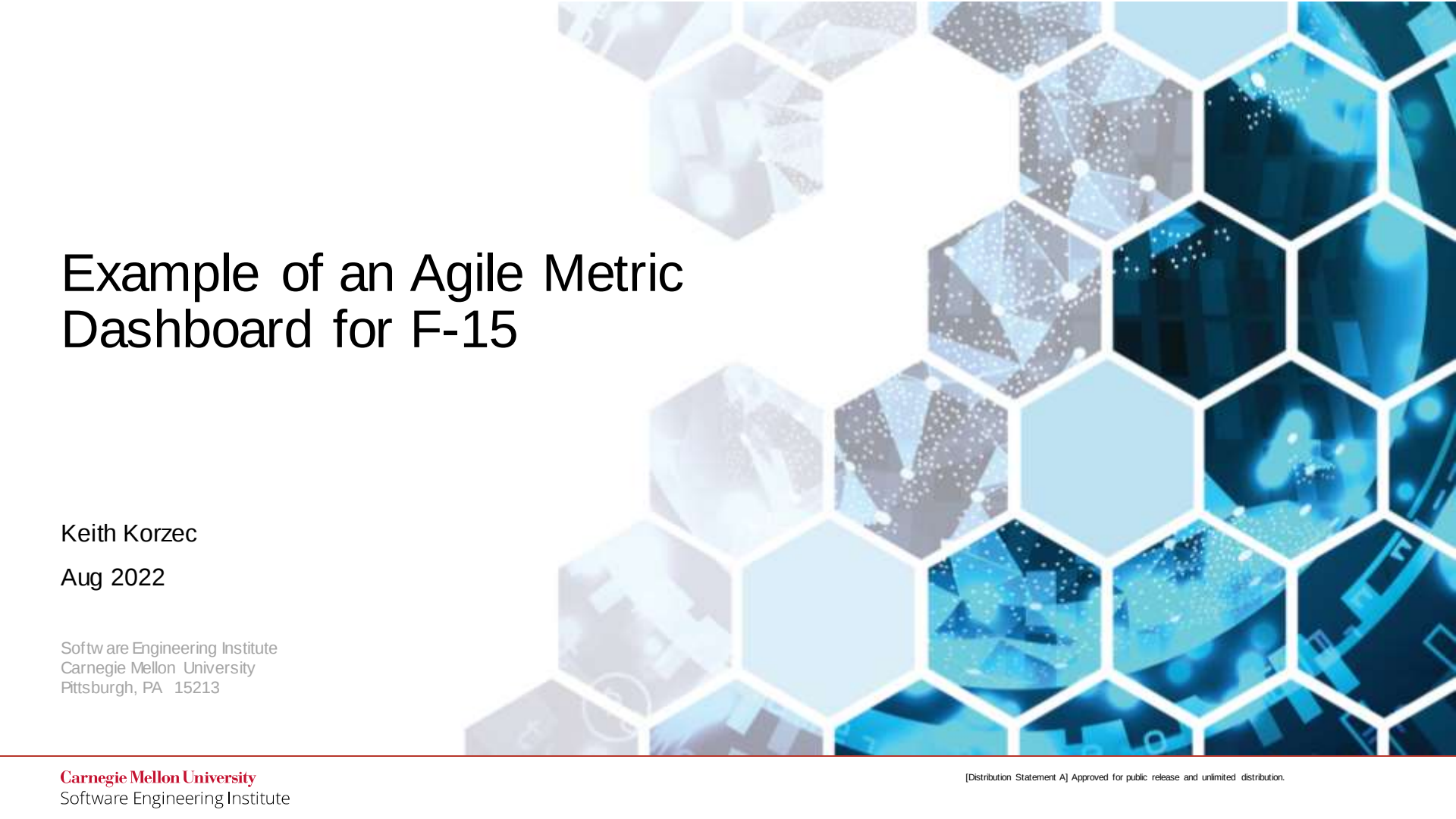




Example of an Agile Metric Dashboard for F-15

Keith Korzec

Aug 2022

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

Copyright 2022 Carnegie Mellon University.

This material is based upon work funded and supported by the Department of Defense under Contract No. FA8702-15-D-0002 with Carnegie Mellon University for the operation of the Software Engineering Institute, a federally funded research and development center .

The view, opinions, and/or findings contained in this material are those of the author(s) and should not be construed as an official Government position, policy, or decision, unless designated by other documentation.

NO WARRANTY. THIS CARNEGIE MELLON UNIVERSITY AND SOFTWARE ENGINEERING INSTITUTE MATERIAL IS FURNISHED ON AN "AS-IS" BASIS. CARNEGIE MELLON UNIVERSITY MAKES NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, AS TO ANY MATTER INCLUDING, BUT NOT LIMITED TO, WARRANTY OF FITNESS FOR PURPOSE OR MERCHANTABILITY, EXCLUSIVITY, OR RESULTS OBTAINED FROM USE OF THE MATERIAL. CARNEGIE MELLON UNIVERSITY DOES NOT MAKE ANY WARRANTY OF ANY KIND WITH RESPECT TO FREEDOM FROM PATENT, TRADEMARK, OR COPYRIGHT INFRINGEMENT.

[DISTRIBUTION STATEMENT A] This material has been approved for public release and unlimited distribution. Please see Copyright notice for non-US Government use and distribution.

This material may be reproduced in its entirety, without modification, and freely distributed in written or electronic form without requesting formal permission. Permission is required for any other use. Requests for permission should be directed to the Software Engineering Institute at permission@sei.cmu.edu.

DM22-0689

Updating the Distribution Statement

To appropriately update the distribution markings in the footer of your presentation, follow these steps:

1. From the *Home* tab, select *Replace* at the right side of the tool bar.
2. Paste “[Distribution Statement A] Approved for public release and unlimited distribution.” in the *Find what* field.
3. Paste a short version of the distribution statement provided by the Document Marking System (e.g., [DISTRIBUTION STATEMENT A] Approved for public release and unlimited distribution.]), with brackets around it, in the *Replace with* field. See the table on the next slide for the short statements you can use. (If you have questions, send email to DMARR-Team@sei.cmu.edu.)
4. Click the *Replace All* button. Voilà! You’re done!

You can use this same *Replace* command to update the title, date, and copyright of your presentation without having to access slide master pages.

Short Distribution Statements

Statement in Document Markings System	Short Statement You Can Use
[DISTRIBUTION STATEMENT A] This material has been approved for public release and unlimited distribution.	[DISTRIBUTION STATEMENT A] Approved for public release and unlimited distribution.
[DISTRIBUTION STATEMENT B] Distribution authorized to U.S. Government Agencies only (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office).	[DISTRIBUTION STATEMENT B] U.S. Government Agencies only.
[DISTRIBUTION STATEMENT C] Distribution authorized to U.S. Government Agencies and their contractors (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office).	[DISTRIBUTION STATEMENT C] U.S. Government Agencies and their contractors only.
[DISTRIBUTION STATEMENT D] Distribution authorized to the Department of Defense and U.S. DoD contractors only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).	[DISTRIBUTION STATEMENT D] Department of Defense and U.S. DoD contractors only.
[DISTRIBUTION STATEMENT E] Distribution authorized to DoD Components only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).	[DISTRIBUTION STATEMENT E] DoD Components only.
[DISTRIBUTION STATEMENT F] Further dissemination only as directed by (inserting controlling DoD office) (date of determination) or higher DoD Authority.	Keep the entire statement. There is no short statement you can use.
[INTERNAL USE ONLY] Further dissemination requires re-submittal through DM-RRO.	[INTERNAL USE ONLY] DM-RRO REQUIRED.
[FUNDAMENTAL RESEARCH] This material was created under project [FR ID]; DFARS 252.204-7000 does not apply.	[FR ID]; DFARS 252.204-7000 does not apply.

Foundational Considerations for a Good Metrics Program

Define terms between SPO and contractor

Relevant metrics constantly change, don't constrain the program by requiring specific measures in a contract

Automate the collection of metrics

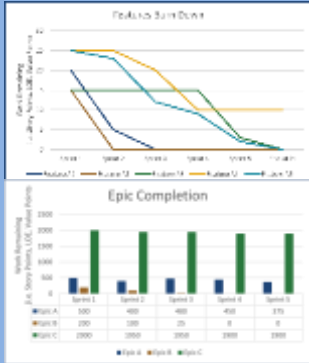
- Roll up to the highest classification, then create un-class metrics

- Must be timely to be relevant

Focus at the appropriate level, not all contractor metrics are appropriate for the SPO

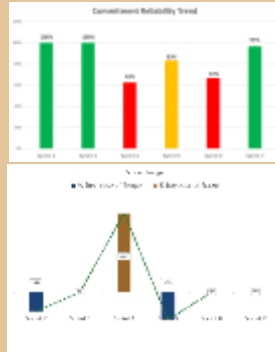
Agile Metrics Dashboard Example - 1

Program Burndown (Progress)



- Epic Completion
- Capability Completion
- Feature Burn Down / Up

Performance to PI Plan



- Features Planned vs. Completed
- Quality of Estimation
- Commitment Reliability

Quality & Tech Debt



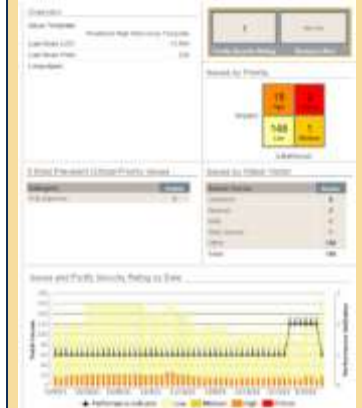
- Requirements Traceability
- Useability
- Defects
 - # & Severity of Defects
 - % Capacity Allocated to Defect Correction
 - # Escaped Defects
- Closure Rate
- Acceptance Criteria
 - % per Item
 - Sufficient for Testing
- Cyclomatic Complexity
- % Tangled
- % Fat

Test



- Testing Traceability
- Code Coverage
- Test Asset Availability
- Test Pass Rate
- Number of Defects that Slipped Through Prior Testing

Cyber



- Trends from "Fortify" Results
- Closure Rate
- Time Spent Assessing Report (False / Actual)

Agile Metrics Dashboard Example - 2

Infrastructure



- Culture, Process, and Technical Component Status
- Test Asset Availability

Automation



- Build Process
 - # Merges per Iteration
 - # Merges per PI
 - % Correct & Accurate at Merge
 - % Accepted vs. Committed
- Automated Test Measures
 - % Scripts Written
 - % Regression Tests
 - % Unit Test Automated

Productivity



- Rate of flow
- Throughput volume
- % Activity ratio
- Average lead time
- Average cycle time
- Effort Estimation Variance
- Features per PI / Team Completed
- Capability Completion
- # Escaped Defects
- Velocity

Cost & Schedule



- \$ per Team
- Features per PI / Team Completed
- Remaining Work
- Quality of Estimation
- Commitment Reliability
- Effort Estimation Variance
- EVMS

Workforce



- Hours per Functional Group
- Full Time Heads per Functional Group