

V1.2 High Maturity: What Should I Expect to see in a V1.2 High Maturity Appraisal?

November 20, 2008

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Historically Speaking

- We tend to have a HiMat renaissance every 5-6 years.
 - 90s- do earned value and overlay $\pm 10\%$ lines, take action when outside of lines
 - Turn of the century- usage of SPC and it's application to "subprocess" level
 - Now- Modeling well beyond estimating. Hypothesis testing. Subprocesses statistically managed.



Class slide- Relevant Terminology

- Statistical management

- Management involving statistical thinking and the correct use of a variety of statistical techniques, such as run charts, control charts, and confidence intervals

- Quantitative management

- The process of using data from statistical management to help the project
 - Predict whether it will be able to achieve its quality and process-performance objectives, and
 - Identify what corrective action (if any) should be taken



... and in conclusion...

“Build a Model”

- A-priori
- **Quantitatively** determine the impacts of
 - Proposed improvements
 - Process changes or a new combination of subprocess used



Caveat Emptor

- This discussion is NOT about
 - Mandates or lack thereof for subpractice usage
 - Full coverage of all the HiMat practices
 - Everything you must do to be HiMat



Preface


- This discussion is attempting to move our dialog from the theoretical towards the concrete. Not the requirements, not the code, but the design level of **some** HiMat expectations.



Preface

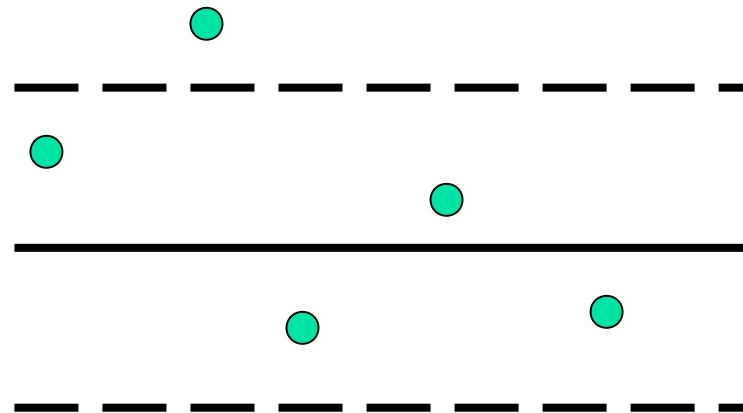
- This discussion IS about some of the activities necessary for an organization to claim HiMat... in other words...

This would indeed be curious if an organization that claimed to be HiMat and was unable to demonstrate each of the following...



Thesis item 1- Special Cause

- The removal of special causes of variation (QPM)





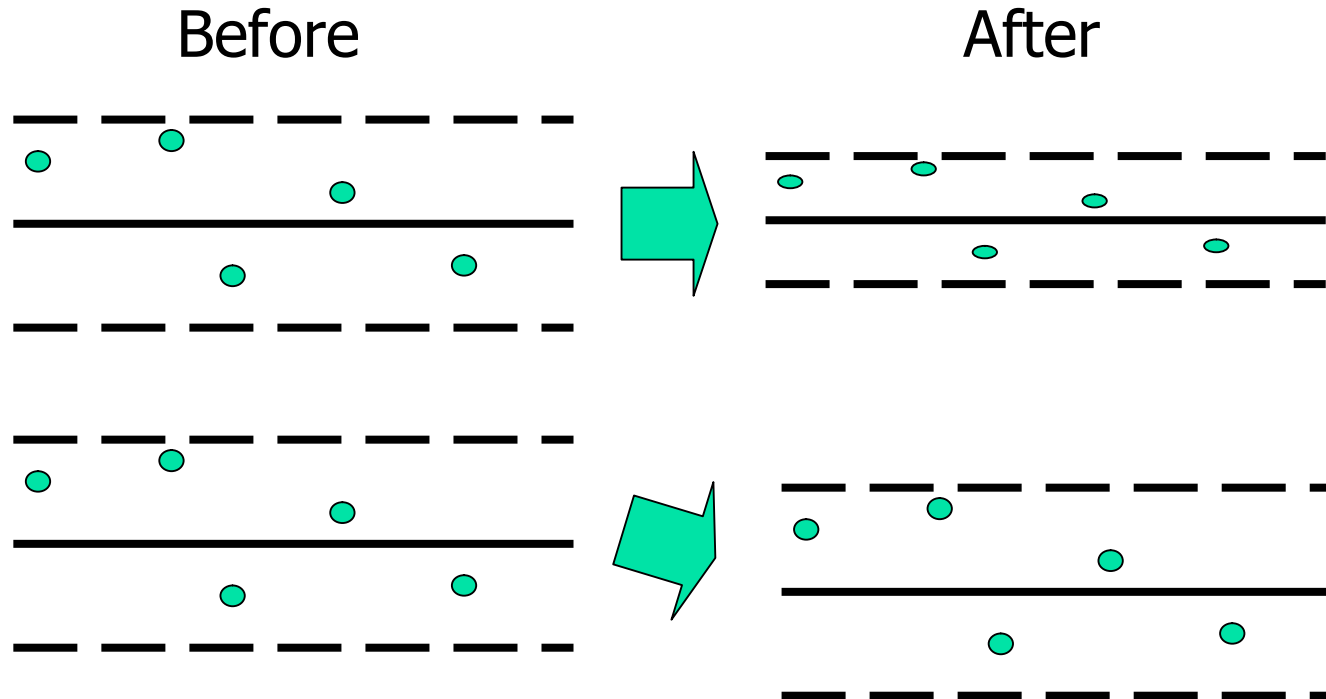
Thesis item 2- Common Cause

- The removal of common causes of variation utilizing:
 - OID processes and/or CAR processes



Thesis item 2- Common Cause

- Examples





Thesis item 3- Org. PPMs

- Organization wide Process-Performance Models (PPMs) used for predicting:
 - Estimates **AND** Product quality



Thesis item 3- Org. PPMs

- Org-wide means the organization tunes the model based on past project actuals, and current projects use the model to predict outcomes by feeding in their current data
- Estimating examples: SEER, COCOMO, COSYSMO

Thesis item 3- Org. PPMs

- Product quality examples:

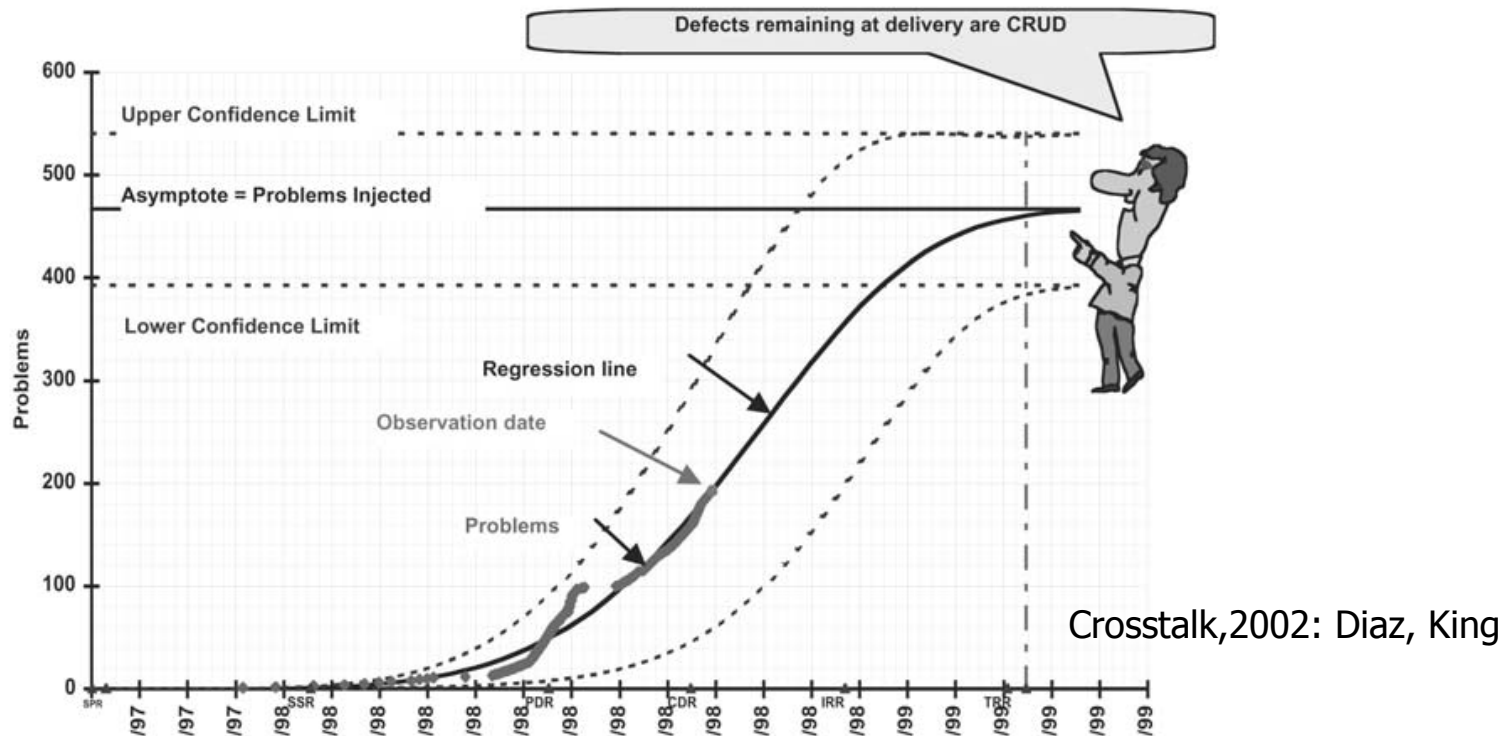


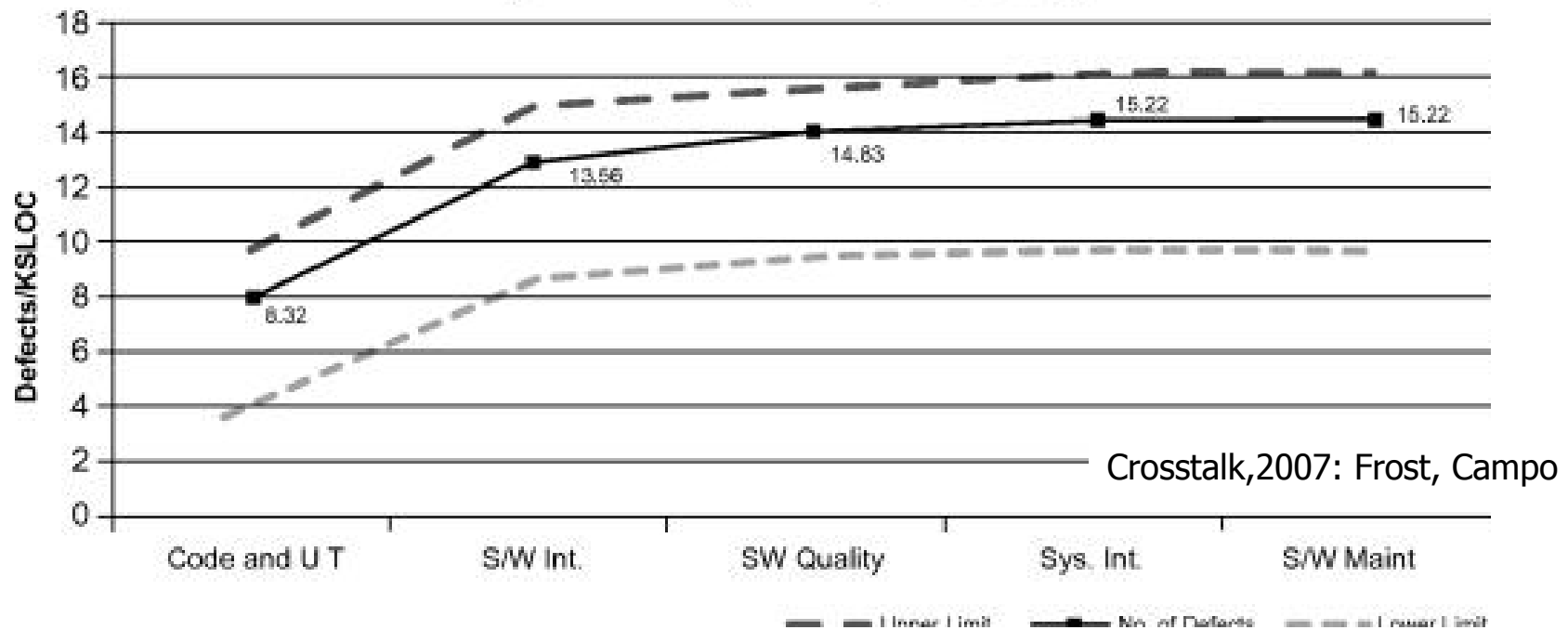
Figure 1: *Customer Reported Unique Defects (CRUD) Prediction Chart*

Thesis item 3- Org. PPMs

- Product quality examples:

Project Code Defects

Defects Originated in Code and Unit Test Detected by Stage
(Normalized by Developed KSLOC)





Thesis item 4- PPM for ROI

- Process-Performance Models and/or simulations pertaining to:
 - OID SP 1.1 “Collect and analyze improvement proposals”, sub-practice 2 “Analyze the cost and benefits of process-and technology- improvement proposals as appropriate” *in other words- modeling the results of the proposal or the ROI of the proposal, **OR***
 - OID SP 1.2 “Identify and analyze innovations”, sub-practice 3 “Analyze potential innovative improvements to understand their effects on process elements and predict their influence on the process” *in other words- modeling the results of the innovation or the ROI of the innovation.*



Thesis item 4- PPM for ROI

- Perhaps one may not model the results (or ROI) for the relocation of the peer template for greater accessibility
- Perhaps one may model the results (ROI) for the use of agile methods
- It would indeed be curious if a HiMat organization had no instance of modeling activity for a proposed change or innovation



Thesis item 5- Project PPM

- Process-Performance Models and/or simulations pertaining to:
 - QPM SP 1.1 “Establish the project’s objectives”, sub-practice 5 “Derive interim objectives for each lifecycle phase, as appropriate, to monitor progress toward achieving the project’s objectives”, **OR**
 - QPM SP 1.2 “Compose the defined process”, sub-practice 4 “Identify the risk when no subprocess is available that is known to be capable of satisfying the quality and process-performance objectives (i.e., no capable subprocess is available or the capability of the subprocess is not known)”, **OR**
 - QPM SP 1.4 “Manage process performance”, sub-practice 4 “Use process-performance models calibrated with obtained measures of critical attributes to estimate progress toward achieving the project’s quality and process-performance objectives”



Thesis item 5- Project PPM

- This is pertaining to a model that a project would build when subjected to uncommon circumstances:
 - Customer mandated use of a code generator
 - Current process cannot achieve customer goals
 - The project will be using a combination of subprocesses that has yet to be tried
- Whatever the circumstance, it would indeed be curious if a HiMat organization had no instance of any project ever utilizing any modeling techniques



Thesis item 6- Testing for Statistical Significance

- Some opportunities:
 - OPP SP 1.4, sub 5 "compare the org's PPB to the associated objectives", **OR**
 - OID SP 1.3 "Pilot Improvements", **OR**
 - QPM SP 1.3 "Select the subprocesses that will be statistically managed" *to determine the degree to which the subprocess can impact the project's objectives"*



Thesis item 6- Testing for Statistical Significance

- In other words, it would be curious indeed if a HiMat organization had never run any sort of test for statistical significance anywhere at any time.

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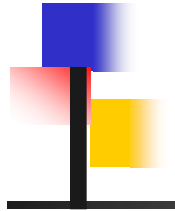
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- **John Ryskowski- President**
- **Appraising process capabilities since 1989 both in the US and abroad. Process experience spans military, commercial, “small” , and service organization applications. Responsible for “hands-on” process improvement efforts at the organization and corporate levels. Led level 2, level 3, level 4 and level 5 appraisals. Sites include US, India, Finland, and China.**
- **SCAMPI High Maturity lead appraiser, SEI partner.**
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Panel

- Will Hayes SEI
- Bob Stoddard SEI
- Rusty Young SEI



Thank You
