More EVMS, Risk & Intro to Software Quality

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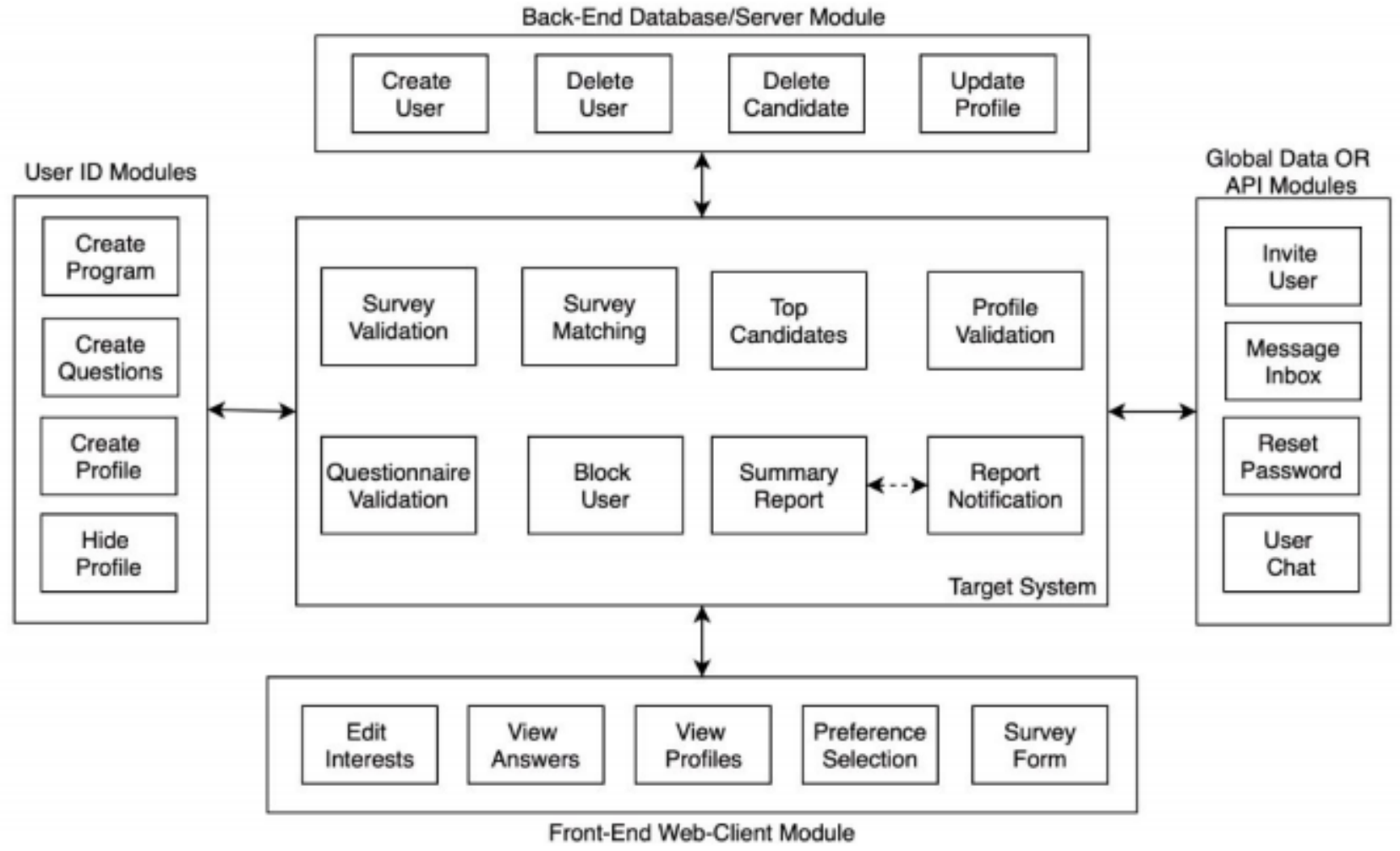
CECS 445

Lecture 9: March 4th, 2021

Congratulations! Well Done Team BANG!



Congratulations! Well Done Tuesday Demo Teams!

Earned Value Reviewed

- BCWP = Requirement Length * Budgeted Proportion of Time for Lead on Requirement * (Lead Hours Per Month)

- ACWP = Actual Hours Spent on Requirement

- Calculate BCWP & ACWP of **each requirement** attempted/completed to present

- Ex: Budgeted R1 for 0.2 time for 2 weeks at 40 Hours Per Month; Really Spent 22 Hours
- Ex: Budgeted R2 for 0.25 time for 1 week at 20 Hours Per Month; Really Spent 5 Hours

- R1_BCWP = 0.2 * (2/4) * 40 = 4 R1_ACWP = 22
- R2_BCWP = 0.25 * (1/4) * 20 = 1.25 R2_ACWP = 5

- CPI = (R1_BCWP + R2_BCWP + …. + RN_BCWP) / (R1_ACWP + R2_ACWP + … + RN_ACWP)

Earned Value Reviewed

- CPI = (R1_BCWP / R1_ACWP) + (R2_BCWP / R2_ACWP) + ….
- Why not this?
- What does this equation mean?
- How should I interpret this?

Earned Value Reviewed

- BCWP = Requirement Length * Budgeted Proportion of Time for Lead on Requirement * (Lead Hours Per Month)

- If two developers are working on a requirement together?
  - Weighted average of proportion of time
  - Sum lead hours per month

  - Ex: Developer 1 is working on requirement 1 at 0.2 time at 40 Hours Per Month
  - Ex: Developer 2 is working on requirement 1 at 0.1 time at 30 Hours Per Month

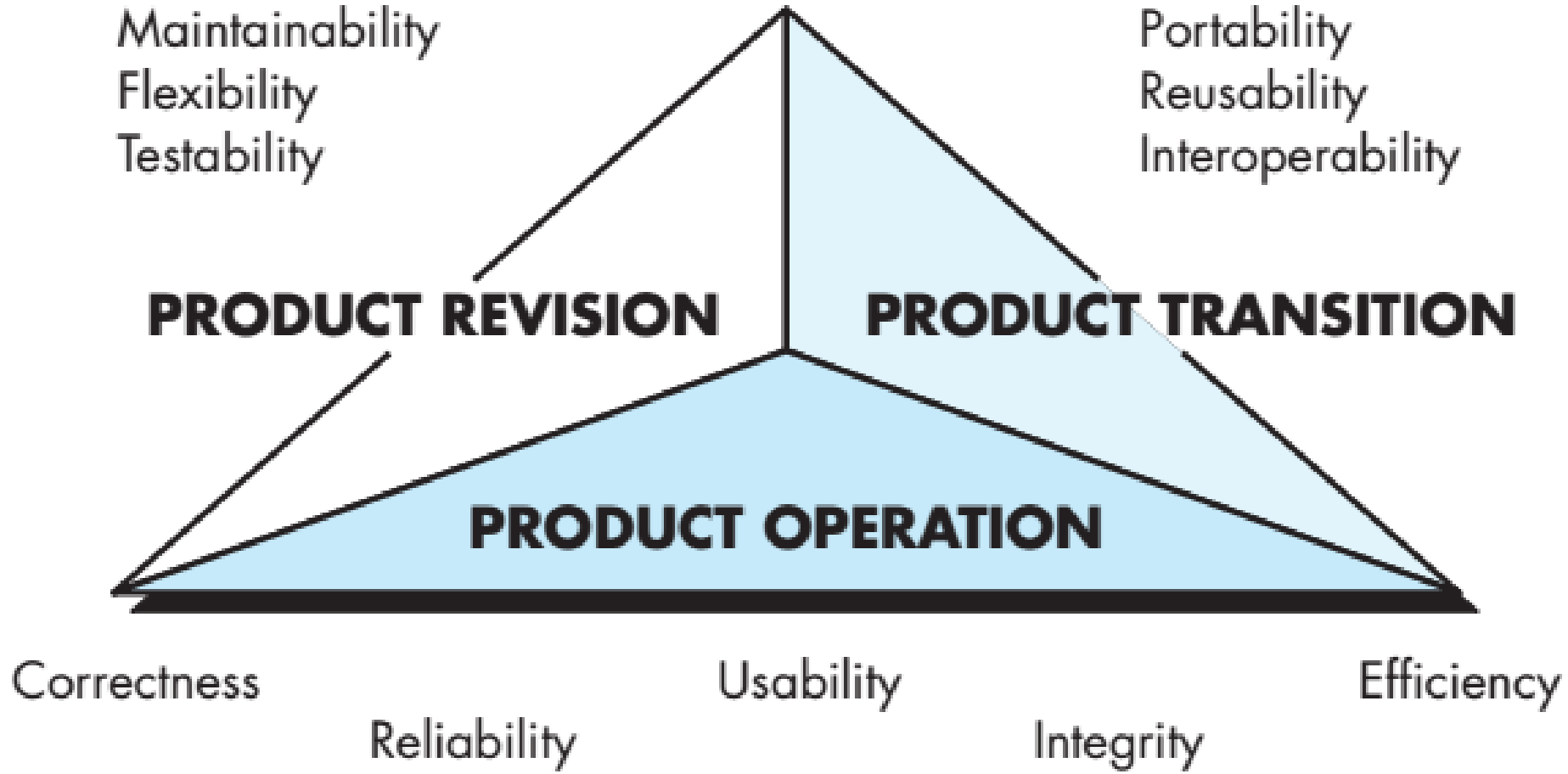
  - Budgeted Proportion of Time for Lead(s) = (0.2*(40/70)) + (0.1*(30/70)) = 0.16
  - Lead Hours Per Month = 70

Risk Matrix Reviewed

Category \ Components		Performance	Support	Cost	Schedule
Catastrophic	1	Failure to meet the requirement would result in mission failure		Failure results in increased costs and schedule delays with expected values in excess of $500K	
	2	Significant degradation to nonachievement of technical performance	Nonresponsive or unsupportable software	Significant financial shortages, budget overrun likely	Unachievable IOC
Critical	1	Failure to meet the requirement would degrade system performance to a point where mission success is questionable		Failure results in operational delays and/or increased costs with expected value of $100K to $500K	
	2	Some reduction in technical performance	Minor delays in software modifications	Some shortage of financial resources, possible overruns	Possible slippage in IOC
Marginal	1	Failure to meet the requirement would result in degradation of secondary mission		Costs, impacts, and/or recoverable schedule slips with expected value of $1K to $100K	
	2	Minimal to small reduction in technical performance	Responsive software support	Sufficient financial resources	Realistic, achievable schedule
Negligible	1	Failure to meet the requirement would create inconvenience or nonoperational impact		Error results in minor cost and/or schedule impact with expected value of less than $1K	
	2	No reduction in technical performance	Easily supportable software	Possible budget underrun	Early achievable IOC

- Each entry is requirement or phenomena (collection of requirements)
- Ignore “Negligible”
- Not meant to be have entries everywhere
- Begin each week with analysis of risk & CPI
- Actual monitoring tool (not projection, busy work, hypothesis)

Software Quality



Software Quality Example: Good or Bad?