

Process & Continuous Improvement

Week 2

Y. Raghu Reddy

Software Engineering Research Centre
IIIT Hyderabad, India



INTERNATIONAL INSTITUTE OF
INFORMATION TECHNOLOGY
HYDERABAD

Let's play a game ... (1/2)

- 15 people per team (8 Men + 7 Women) – 2 teams
- 4 Judges
- Each ball must be touched at least once by every team member
- Each ball must start and end with the same person to be considered as completion of one “unit”.
- Each ball must have air-time
- Balls cannot be passed to your direct neighbor to your immediate left or right
- Any ball that is dropped by any member in the team or does not follow the rules has to re-start and shall not be considered in unit count

Let's play a game... (2/2)

- There are 3 buckets with 25 balls each. Each team gets one bucket with 25 balls to start with.
- You may use the balls from the third bucket (in between iterations) and add them to your bucket
- There are a total of **three iterations** (2 minutes each)
- Before each iteration, you can discuss/strategize for 3 minutes
- Provide an estimate before every iteration

Objective: Get as many “units” completed as possible in a given time frame.

Debriefing – Planning and Estimation

- **Convergence:** Did your estimates get more accurate as the rounds progressed?
- **Upfront Planning:** Would one 10-minute planning session at the start have been better than several 1-minute sessions between rounds? Why or why not?
- **Under-estimation:** Why did you often underestimate in early rounds? How did you feel when you "failed" to meet an ambitious goal?

Debriefing – Team Dynamics & Self-organization

- **Leadership:** Did a single leader emerge, or did the team self-organize? How would an appointed "manager" have changed the dynamic?
- **Psychological Safety:** Did everyone feel comfortable suggesting a radical change to the process, or did people stick to "the way we've always done it"?

Debriefing – Lean Principles

- **Work in Progress (WIP):** Were there too many balls in the "system" at the same point of time? Did it help to increase or decrease your final score?
- **The Definition of Done (DoD):** How does "unit" (e.g., must return to the start) relate to finishing a feature in software?

Debriefing – Translate to real software

- **Real-World Parallel:** If the balls represent "lines of code" or "user stories," what do "dropped balls" represent in a real software project?
- **Sustainable Pace:** Could you have maintained that peak level of speed for 8 hours a day, or was it only possible for a 2-minute sprint?

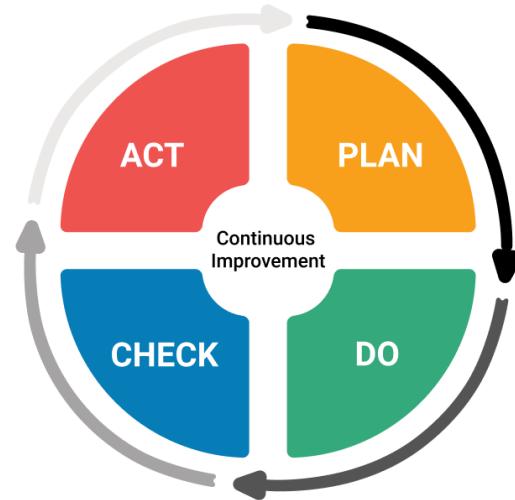
Debriefing – Process and Continuous Improvement

- **Harder vs. Smarter:** Did you achieve higher scores by moving faster (working harder) or by changing the physical layout and process (working smarter)?
- **The Retrospective:** How critical were the three-minute breaks? What would happen to a software team that never pauses to reflect?

PDCA – a continuous improvement mindset

Plan – Do – Check – Act

- **Plan:** Identify a problem or opportunity, define objectives, and plan changes
- **Do:** Implement the plan on a small scale
- **Check:** Measure results and compare against expectations
- **Act:** Standardize success or adjust and iterate



Later changed to Plan – Do – Study – Act