# The Emphasis on Team

Robert Musson

Microsoft

# Overview

- Background Research
  - Job Satisfaction
  - Organizational Behaviors
- Trust
  - Modeling Trust
  - Measurements
- Non-Traditional Tools
  - Productivity Games
  - Social Networks
- Results

# Job Satisfaction

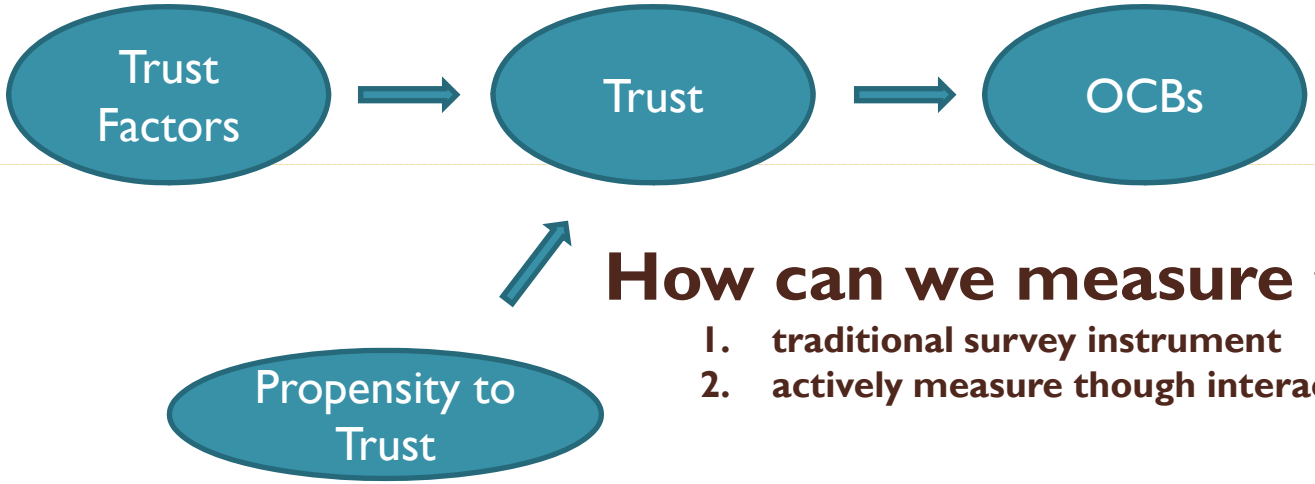
- Helliwell and Huang
  - University of British Columbia
  - Social Capital, a.k.a. Trust
- Equivalence Classes
  - Increase in trust 10%
  - Increase in salary 56%
  - Enough time to finish one's work 11% raise
  - Job tasks requiring a high level of skill 19% raise
  - A large variety of work 21% raise

# Organizational Behaviors

- Organizational Citizenship Behaviors (OCB)
  - Discretionary
  - Not part of performance appraisals
- In-Role Behaviors (IRB)
  - Required job duties
- Examples of OCBs
  - Reporting that a door is broken
  - Cleaning up in the kitchen
- Difficulties in software development
  - Is quality an OCB or IRB?
  - Are timely data available for performance reviews?

# Trust Models

- Simple Model of Trust and OCBs




**How can we measure trust?**

1. **traditional survey instrument**
2. **actively measure though interactions**

- *Hypothesis I: High trust teams will exhibit more OCBs than typical teams.*
- *Hypothesis II: Trust factors exhibited by managers lead to higher trust teams moderated by individuals' propensity to trust*

# Games

- Gamification as a means to measure soft attributes
- Use games to both measure and drive behaviors
- Termed *"Productivity Games"*

# The Trust Game

- Experimental economics
  - player 1 gets a monetary award (e.g. $100)
  - player 1 can "invest" with player 2
    - if invested, amount is multiplied by N (e.g. 4)
    - otherwise bank the award
  - player 2 can choose to return some money
    - players bank their respective shares
- Game theory would suggest
  - player 2 has no reason to return anything
  - investing is a strictly stupid strategy

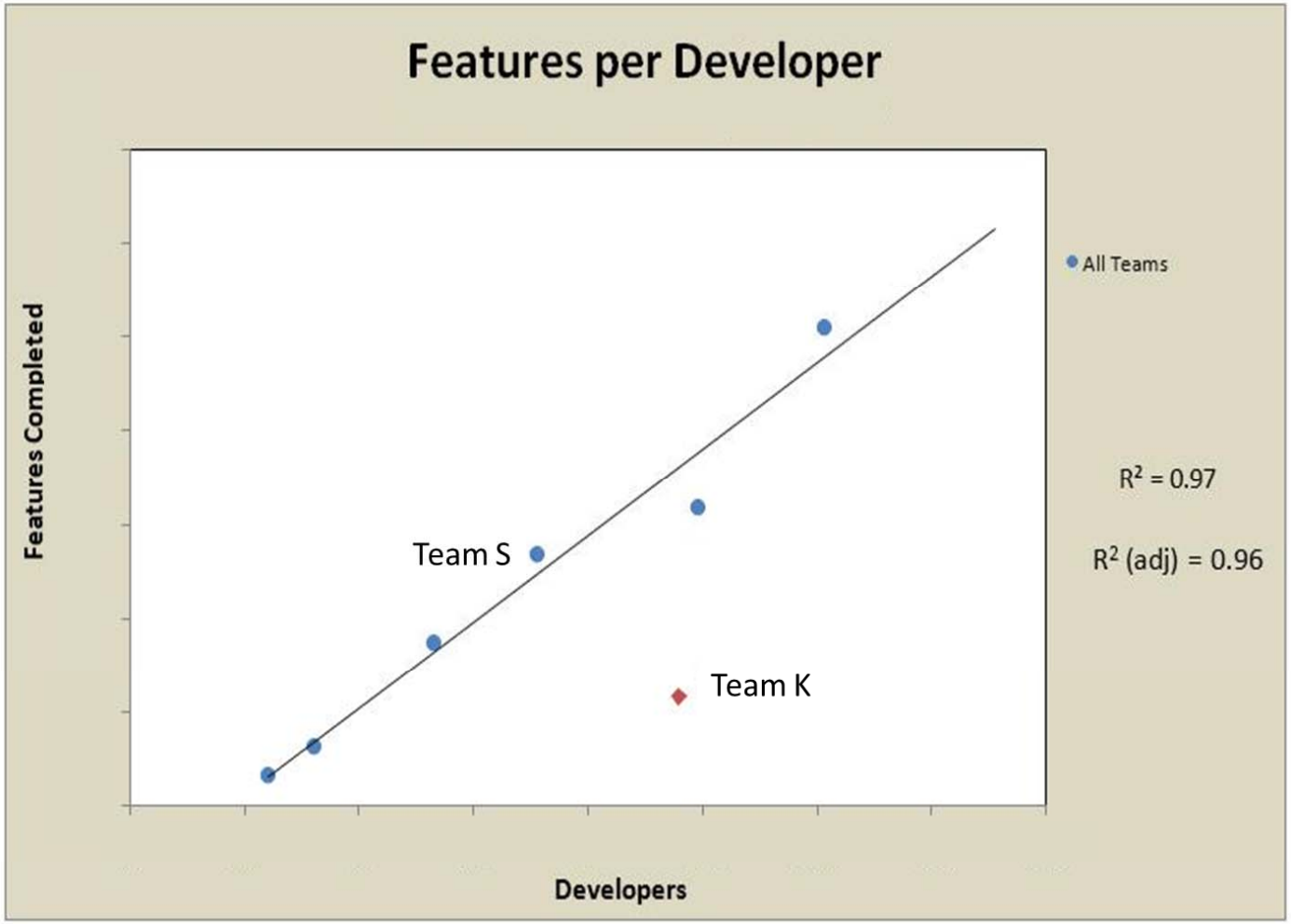
# Social Network Games

- Trust Game is one of a larger group
- Humans v. Zombies
- Productivity Game
  - tests the product
  - provides some fun
  - gets team members to interact

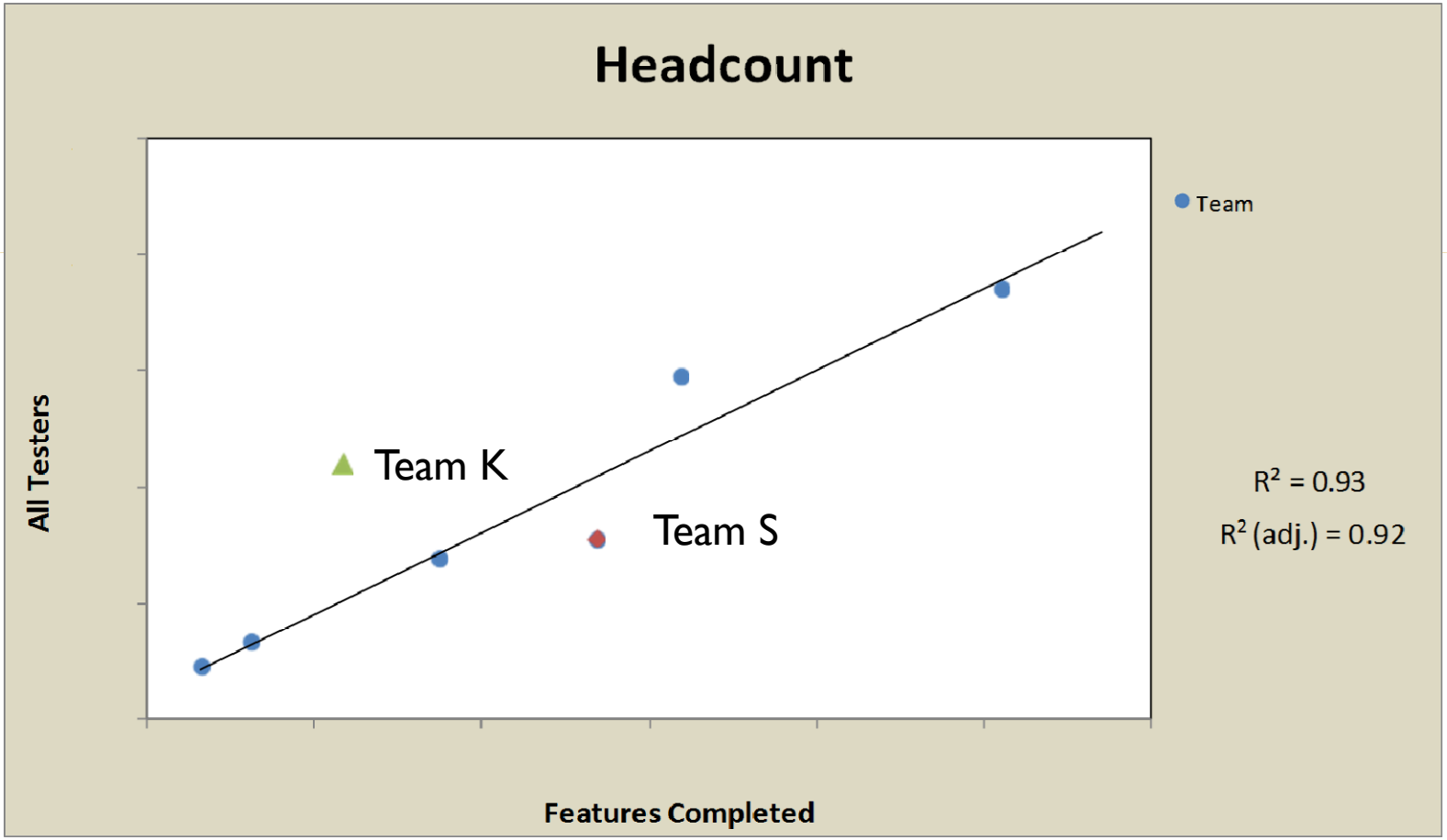
# Results

- Disclaimer: *Names have been changed to protect the innocent.*
- The following charts gauge workload and productivity for the <u>test</u> teams on a major project.
- A tale of two projects
  - It was the best of teams, it was the worst of teams …
  - Team S was a high trust team
  - Team K was overworked and stressed out

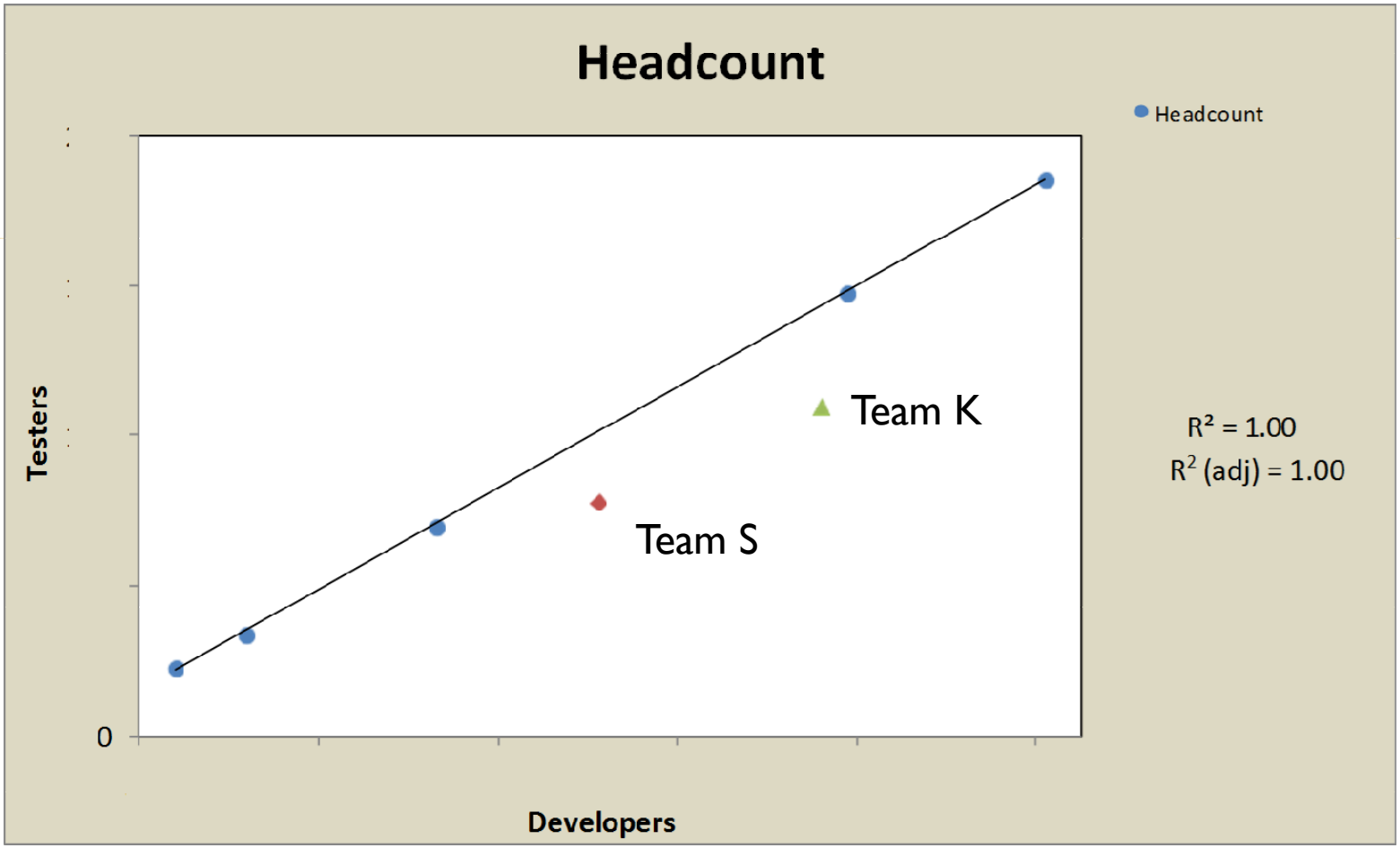
# Development Workload



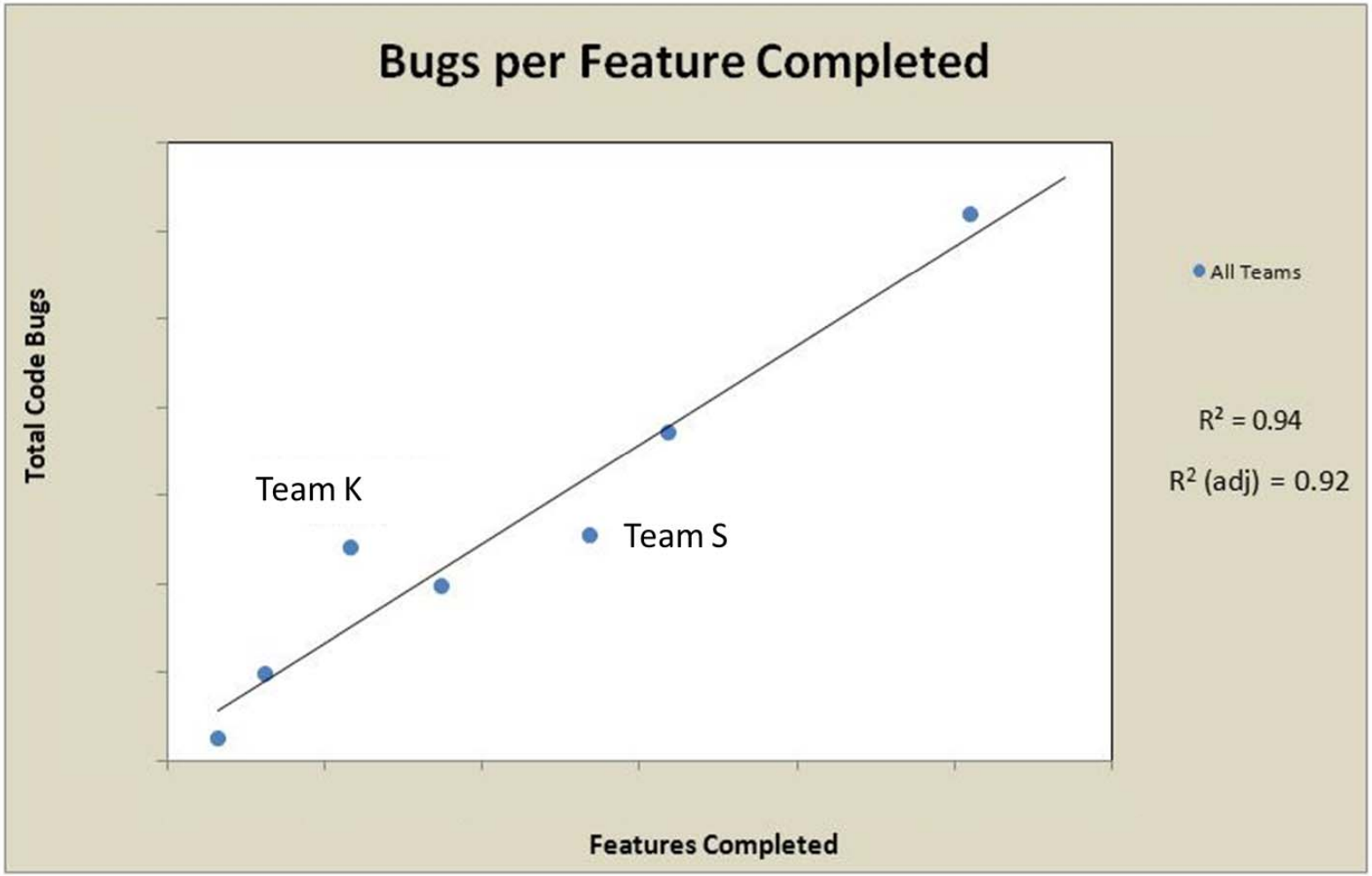
# Test Workload



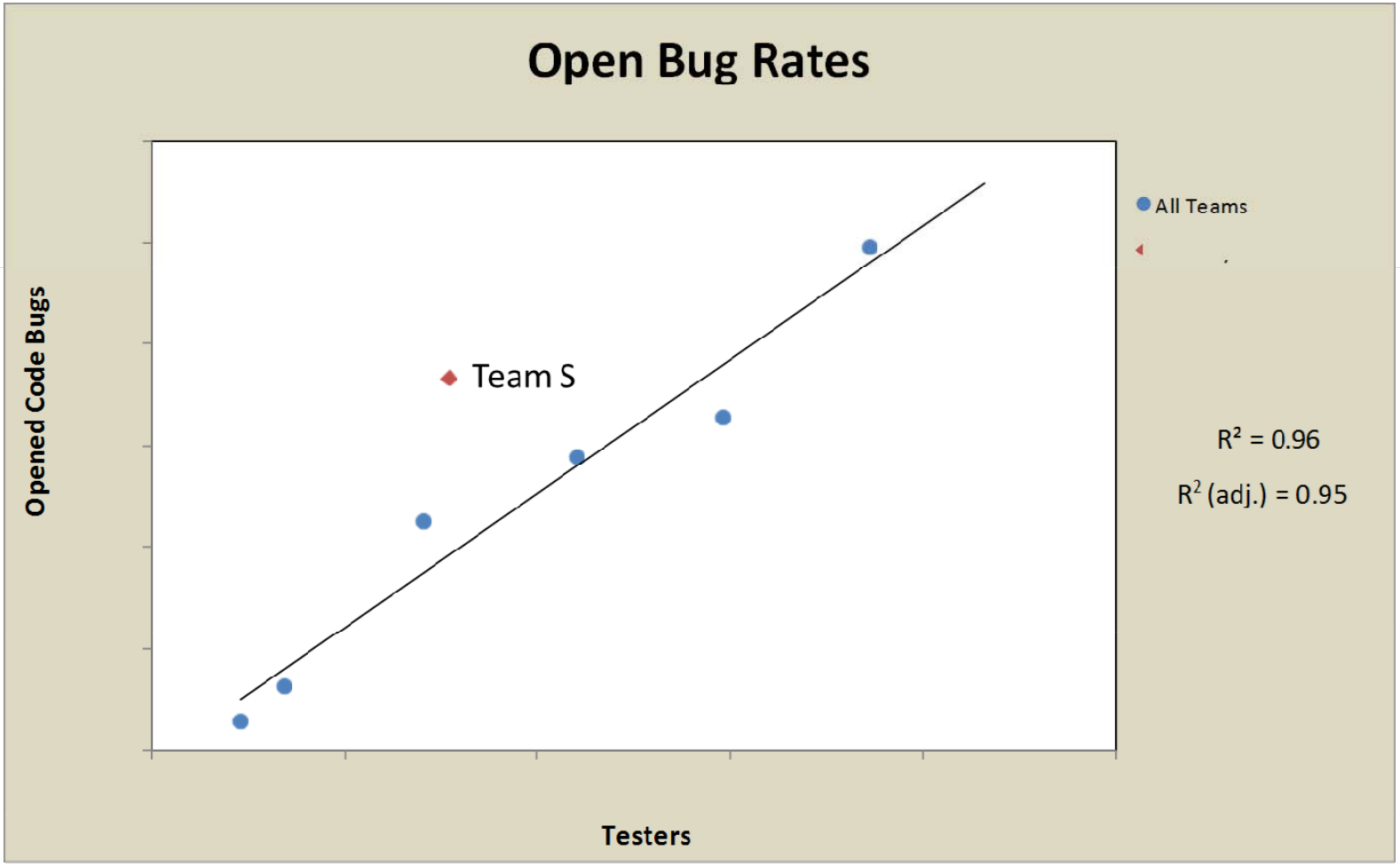
# Development v. Test



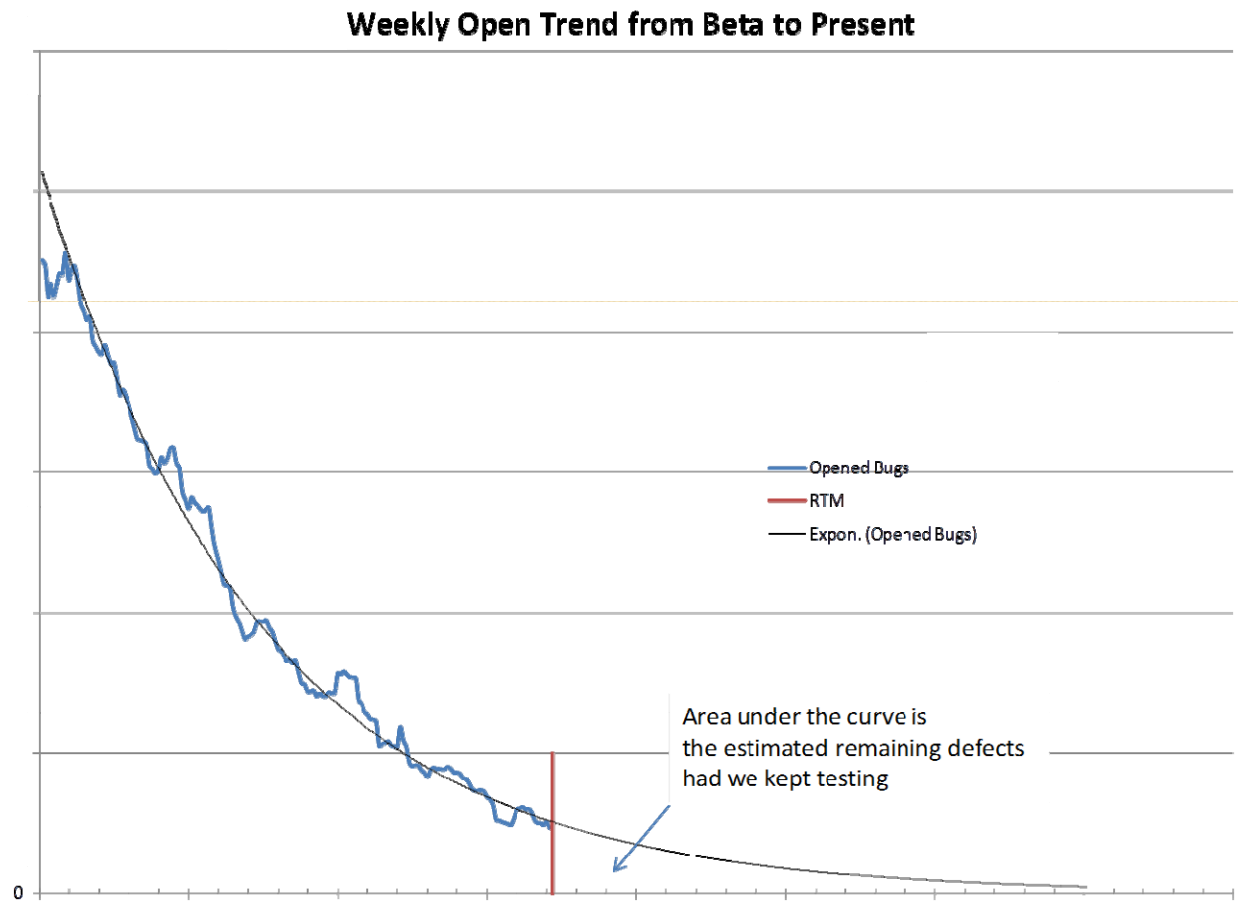
# Quality


Bugs per Feature Completed
Total Code Bugs
Features Completed
Team K
Team S
All Teams
$R^2 = 0.94$
$R^2$ (adj) = 0.92

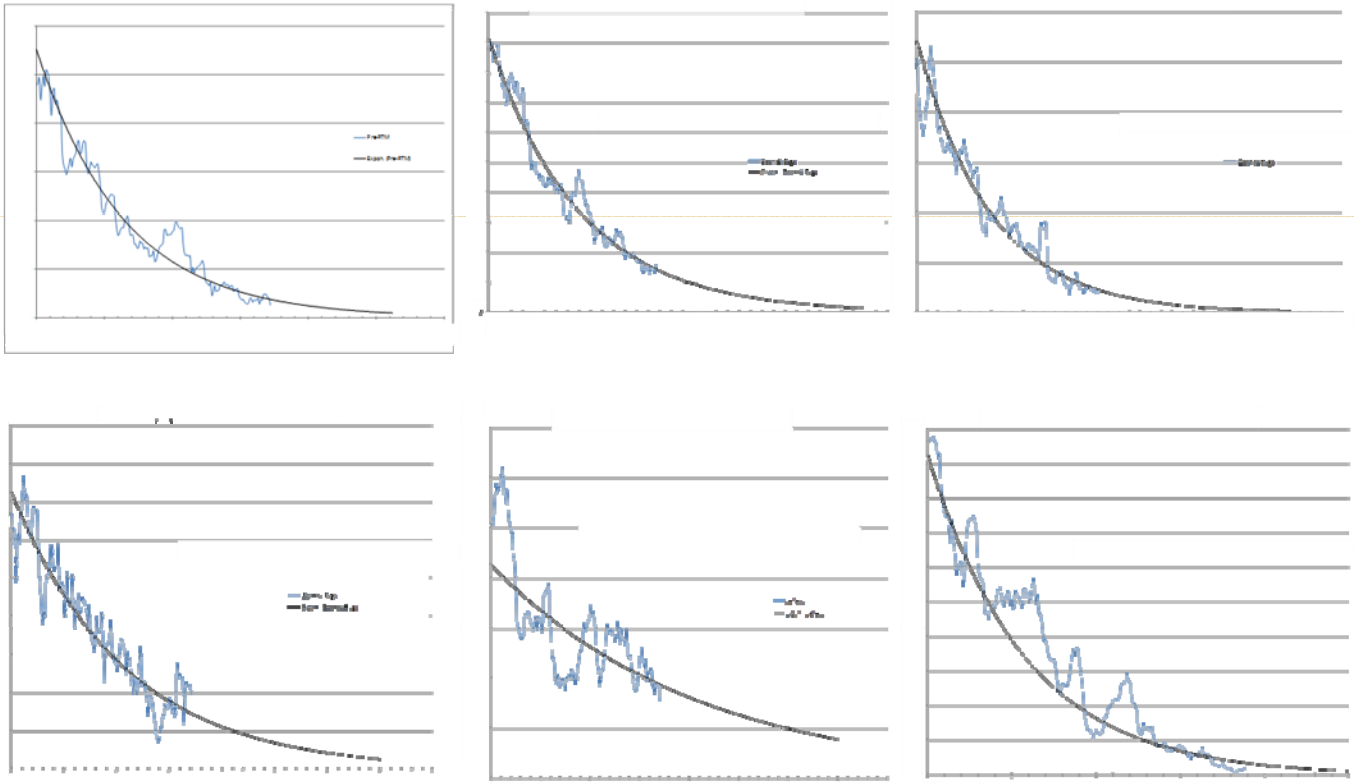
# Productivity



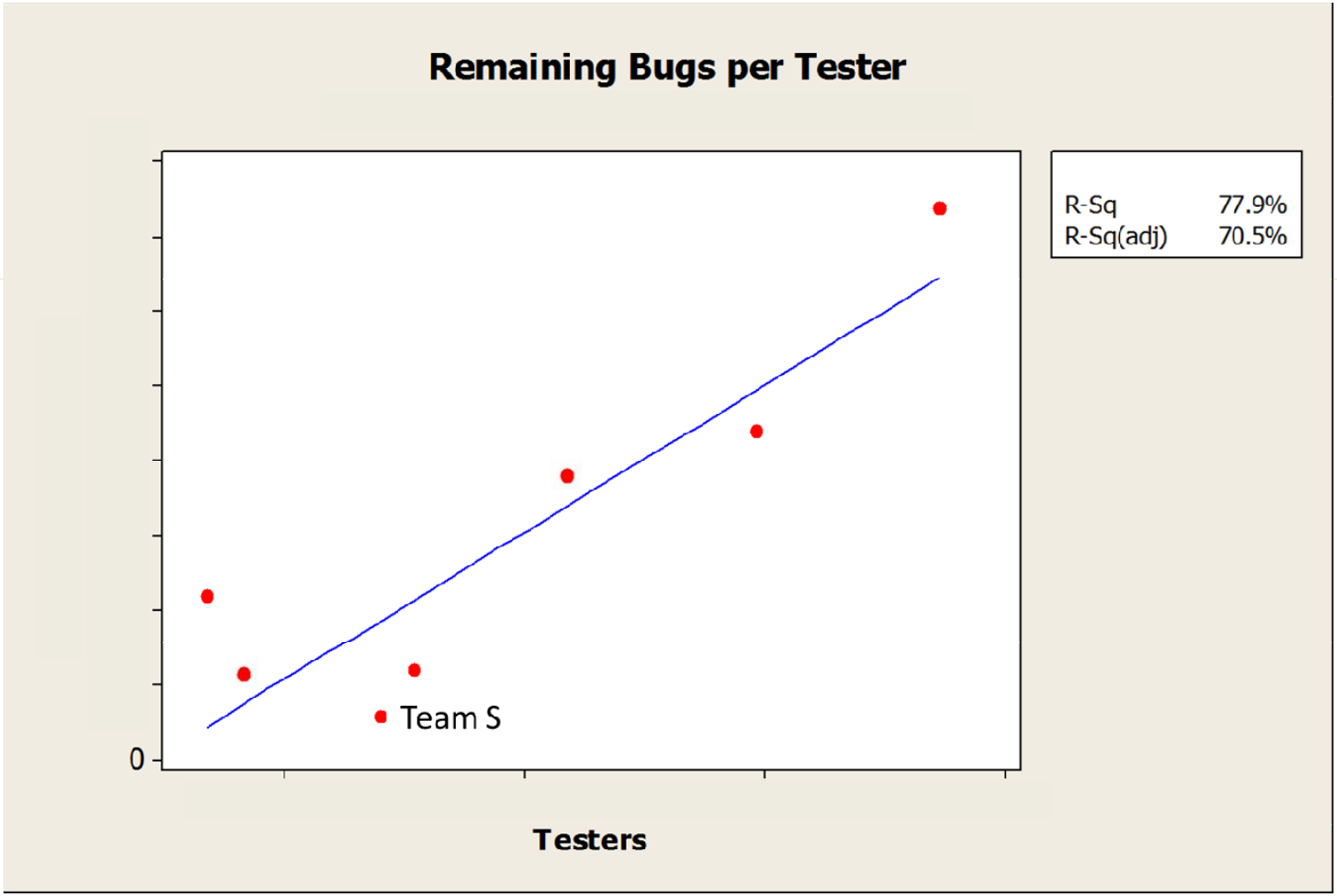
# Defects Trending



# Remaining Defects for All Teams



# Remaining Defects



# Bottom Line Cost-Benefits

- Using features and development effort to predict test effort and comparing to actual headcount
- Team S is understaffed by about 50%

| Team | Head Count Delta |
|---|---|
| A | 2.8% |
| K | 4.8% |
| C | -0.2% |
| D | -2.0% |
| E | -1.8% |
| F | 4.0% |
| S | -35.9% |

# Confounding Factors

- Work variety increases
  - RCA process
  - Team Inspections
- Increased skill levels
  - Utilized people more fully
- Given time to finish their work
  - Planning model meant we overestimated feature work by less than 10%
  - Improved efficiency resulted in better work-life balance
- *Beware…correlations are not transitive*
  - *behaviors correlates to trust correlates to OCBs*

# Implications to TSP

- Job satisfaction as an outcome of team building
- Trust as a driver of satisfaction
- OCBs v. IRBs
- Are satisfaction factors what makes TSP so good?

# Final Thoughts

- Behaviors are the important element not process
- Trust is a prime motivator… foster it
- TSP as a team building exercise in trust
- Future research
  - measure soft attributes of teamwork on TSP projects
  - measure distributed teams & ability to foster trust

# Questions?

- Answers?
- Musings?
- Random Thoughts?
- Rants?
- Raves?
- Insane Mutterings?

# Contact Information


- Robert Musson
- Microsoft
- rmusson@microsoft.com