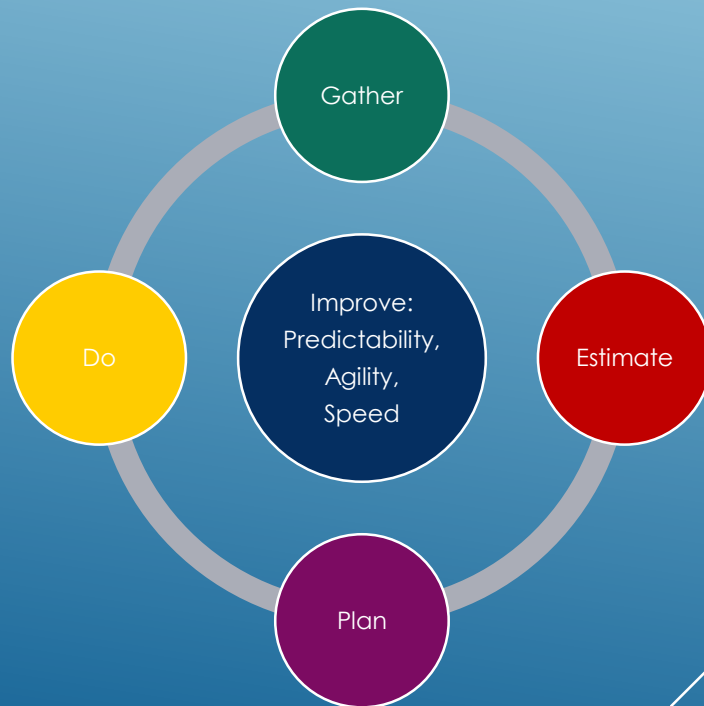


USING PROJECT HISTORY TO PRODUCE *BETTER* ESTIMATES



Those who don't know history are destined to repeat it.

~ Edmund Burke

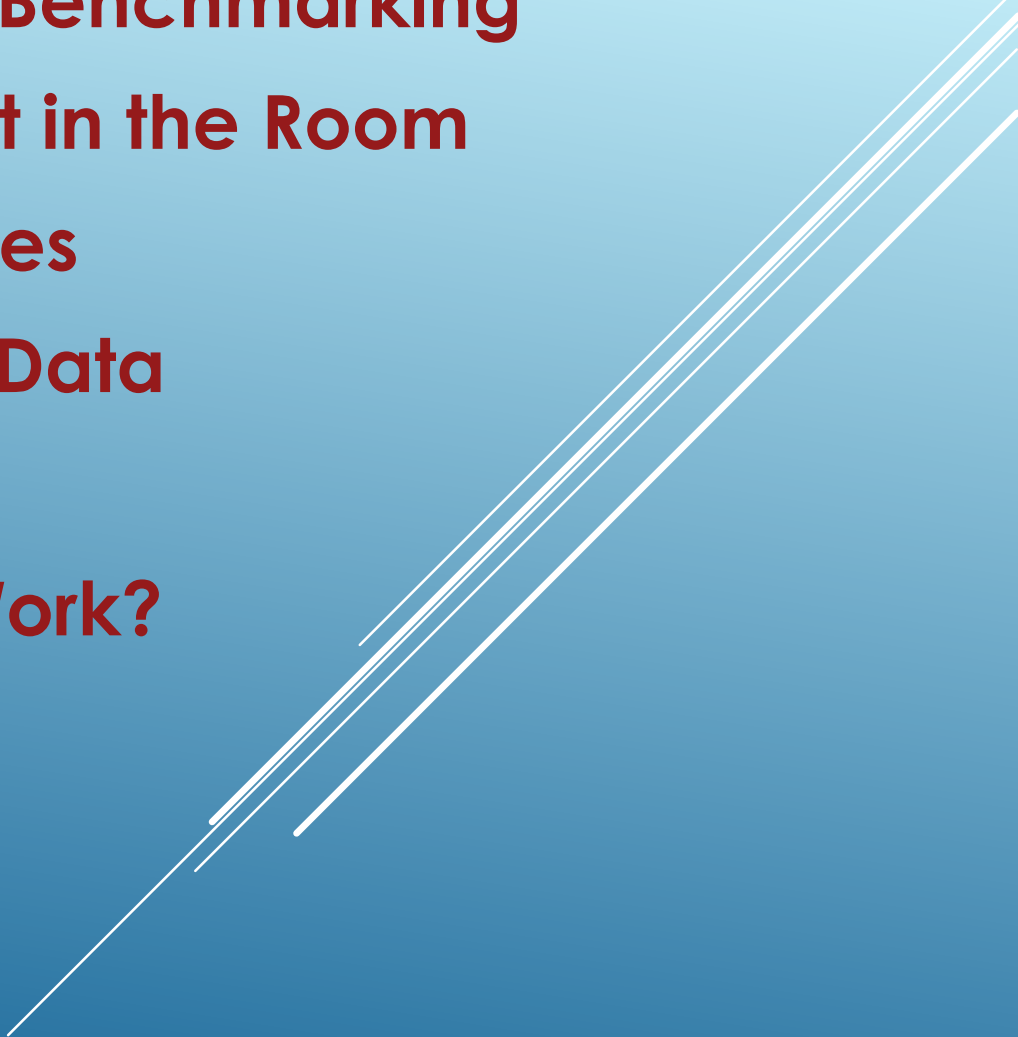
Definition of insanity: doing the same thing over and over again and expecting different results.

~ Albert Einstein

Historical data and project data are both tremendously useful and can support creation of highly accurate estimates.

~ Steve McConnell

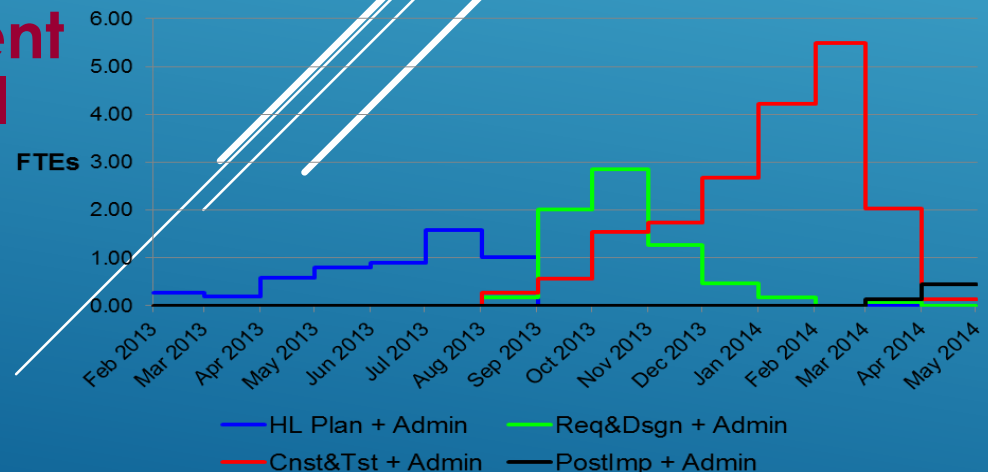
ESTIMATION BASED ON HISTORY

- ✓ Equal Opportunity Benchmarking
 - ✓ Sizing: the Elephant in the Room
 - ✓ Estimation Templates
 - ✓ Making Use of the Data
 - ✓ Is Scrum Different?
 - ✓ How Well Does it Work?
- 
- A series of several parallel white lines of varying lengths and positions, extending diagonally from the bottom right towards the top right of the slide.

EQUAL OPPORTUNITY BENCHMARKING

- Industry data is available, but specific organizational data is better
- Benchmarking: Evaluate or check (something) by comparison with a standard
- Benchmark as many projects as possible
- Gather, store, but also evaluate and compare project data with other info that's already in the historical database
- Some data is available from project management database, but additional data (including size) is necessary as well

Chart A: Sample Project Effort, Staffing and Duration by Phase



EQUAL OPPORTUNITY BENCHMARKING - TYPES OF DATA

- Size (requirements, story cards, lines of code, function points, etc.)
- Effort, in hours or person months
- Time, in calendar months
- Defects by severity
- Staffing by Phase / Full Time Equivalents by month
- Additional Detail by Software Development Methodology phase
- Number of Requirements and/or Story Points (maybe part of size)
- Qualitative Project Assessment Factors

EQUAL OPPORTUNITY BENCHMARKING – DATAMANAGER USER-DEFINED METRICS

- Use Datamanager User Defined Metrics to your advantage:
 - Custom Keywords
 - Use for categorization, searching
 - User Defined Variables
 - Use for calculations of other metrics
 - Custom Metric Definitions
 - Use for storing user-defined variables

Project ID 17: Project Example 8 (Record 8 of 8)

Basic Information | Application | Sizing | Accounting | Custom Metrics | Quality | Review

Select Custom Metric

- 📁 PGR Project Evaluation
 - N Scope
 - N Resources
 - N Dependencies
 - N PGR Experience
 - N Stakeholders
- 📁 Data Collector Information
 - T Preparer's Name
 - T Preparer Data
 - T Data Source Path
 - T Data Source File
- 📁 QA Internal
 - T QA Status
 - T QA Status Date

Scope

Numeric Value

Enter a numeric value.

Clarity/Control - The effect of scope management on the project. Score as -5 to +5.

EQUAL OPPORTUNITY BENCHMARKING – DATAMANAGER SAMPLE DATA

ID	Project Name	Business Case ...	Preparer Name	Entry Date	Effective ...	Life Effort (PHR)	Life Duratio...	PI	C&T E...	# of Requirements	Domain
1	Project Example 1	9838	Dan Horvath	8/22/2018	348	300.00	5.32	2.4	300.00	6	Billing
2	Project Example 2	9480	Dan Horvath	8/22/2018	27,932	12,940.00	12.81	11.7	1,773.00	324	Network
4	Project Example 3	9484	Dan Horvath	8/23/2018	2,991	4,786.00	9.87	5.2	4,744.00	35	Telecom
5	Project Example 4	9485	Dan Horvath	8/23/2018	67	346.00	4.12	0.1	338.00	1	Corporate
6	Project Example 5	9834	Dan Horvath	8/23/2018	40,817	22,177.00	15.82	14.0	1,531.00	500	Corporate
7	Project Example 6	9837	Dan Horvath	8/23/2018	9,664	5,414.00	8.51	9.9	5,376.00	80	Customer
16	Project Example 7	9835	Dan Horvath	8/27/2018	7,034	7,185.00	7.48	8.6	7,142.00	60	Service Management
17	Project Example 8	9494	Dan Horvath	8/27/2018	1,971	2,601.00	9.22	4.2	2,598.00	17	Telecom

SIZING: THE ELEPHANT IN THE ROOM

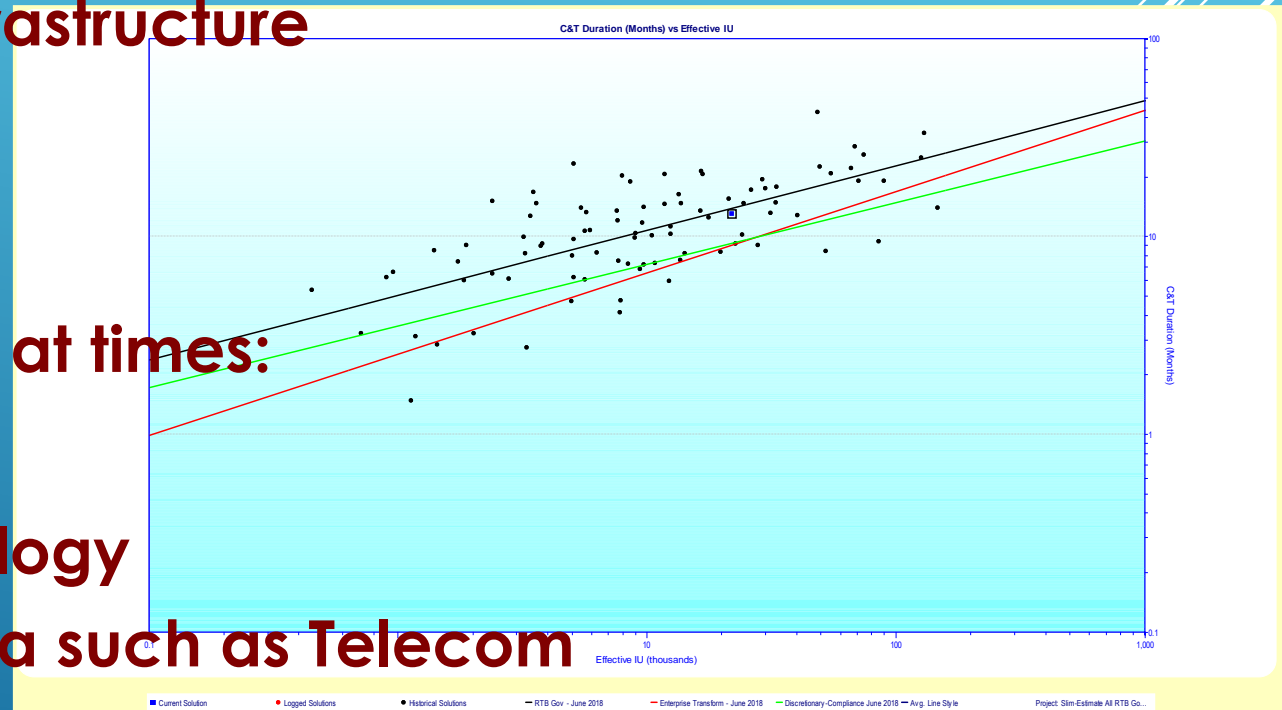
- ❑ *Sizing isn't everything, it's the only thing*
 - ~ Apologies to Vince Lombardi
- ❑ Size is the major driver of effort and duration
- ❑ Sizing Methods:
 - Source Lines of Code (SLOC)
 - Function Points
 - Story Points
 - Stories or Story Cards
 - Components (list of items created or changed, aka Modified Functional Sizing)
 - Requirements
 - Complexity Points (a home-grown measure of complexity and size)
- ❑ Sizing should be: Usable at any point, as simple as possible, robust enough for most types of projects, as consistent as possible, stored in consistent units

ESTIMATION TEMPLATES

- Provide a way to get started with a Slim estimate
- Incorporate actual, specific project history from benchmarking (*not* previous estimates) as well as trends and other tuning
- Can be based on work type, platform, development / deployment methodology, etc.
- Can be created or updated any time
- The basic ones are refreshed about twice a year
 - The most current history is included
 - Older data is discarded

ESTIMATION TEMPLATES – WHICH DO WE HAVE?

- Infrastructure Apps
- Technology Infrastructure
- Enterprise
- Discretionary
- Others created at times:
 - By Platform
 - By Methodology
 - By other area such as Telecom
- And now: Scrum

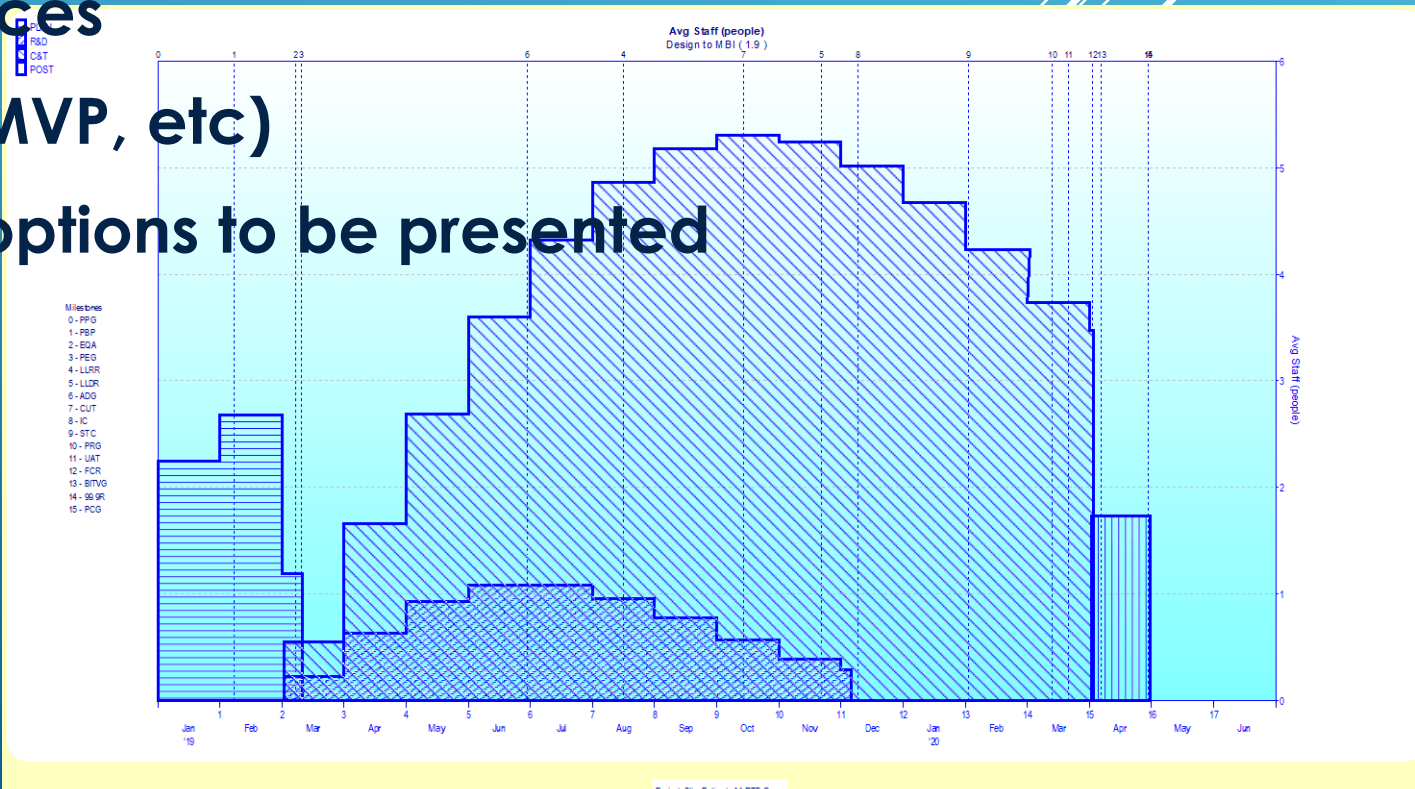


ESTIMATION TEMPLATES – HOW TO ROLL YOUR OWN

1. Create trends in Slim-Metrics using the full Slim-Datamanager file
2. Create Slim-Datamanager subsets for import into Slim-Estimate
3. Open a copy of an old Slim-Estimate template
4. Import new trend(s) from Slim-Metrics
5. Set the Primary Trend Group and update the name
6. Load historical projects from Slim-Datamanager
7. Set Historical tuning factors as appropriate
8. On the Solution Assumptions panel, set the start date, the HLP duration and effort values, the Implementation/Warranty duration. Also set the Construction/Development overlap
9. Refine and adjust Resources/Costs/Skills – Skill Allocations to values that are close to what's desired. For the overall totals, this is trial and error because of the fixed value for HLP and other phases. It needs to be done iteratively.
10. Repeat steps 3-9 for each template.

MAKING USE OF THE DATA

- ❖ Pick template based on type of project
- ❖ Determine whether more specific trend data is needed
- ❖ Determine/Analyze constraints
 - ❖ Duration
 - ❖ # Resources
 - ❖ Scope (MVP, etc)
- ❖ Determine options to be presented

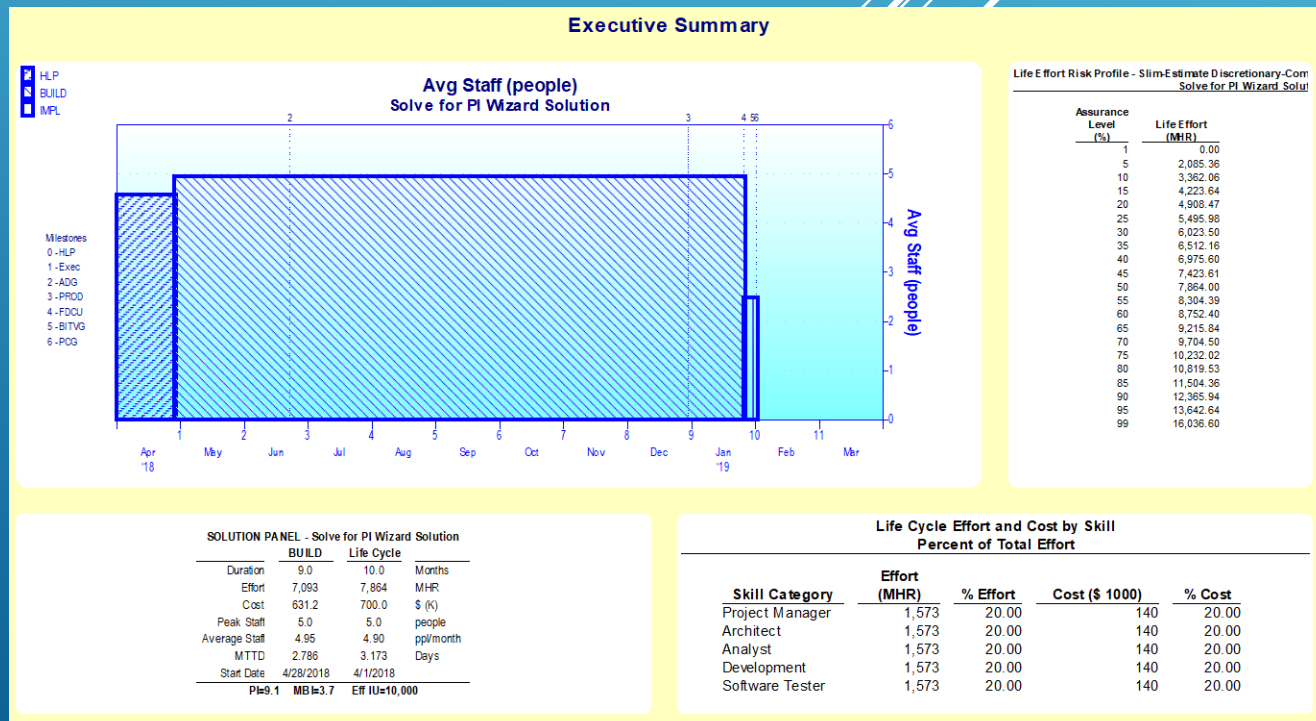


MAKING USE OF THE DATA ~ METHODOLOGY

- ❖ **Development and Unit Test starting point is only for technical resources in Construction & Test Phase**
 - ❖ **Core Four resources added**
 - ❖ **HLP, R & D, Warranty Phases are added, based on C & T Effort**
- ❖ **Average Staffing assumed, unless specified**
- ❖ **Average Productivity assumed**
- ❖ **Duration is derived based on above**
- ❖ **Make adjustments, including PM allocation**

IS SCRUM DIFFERENT?

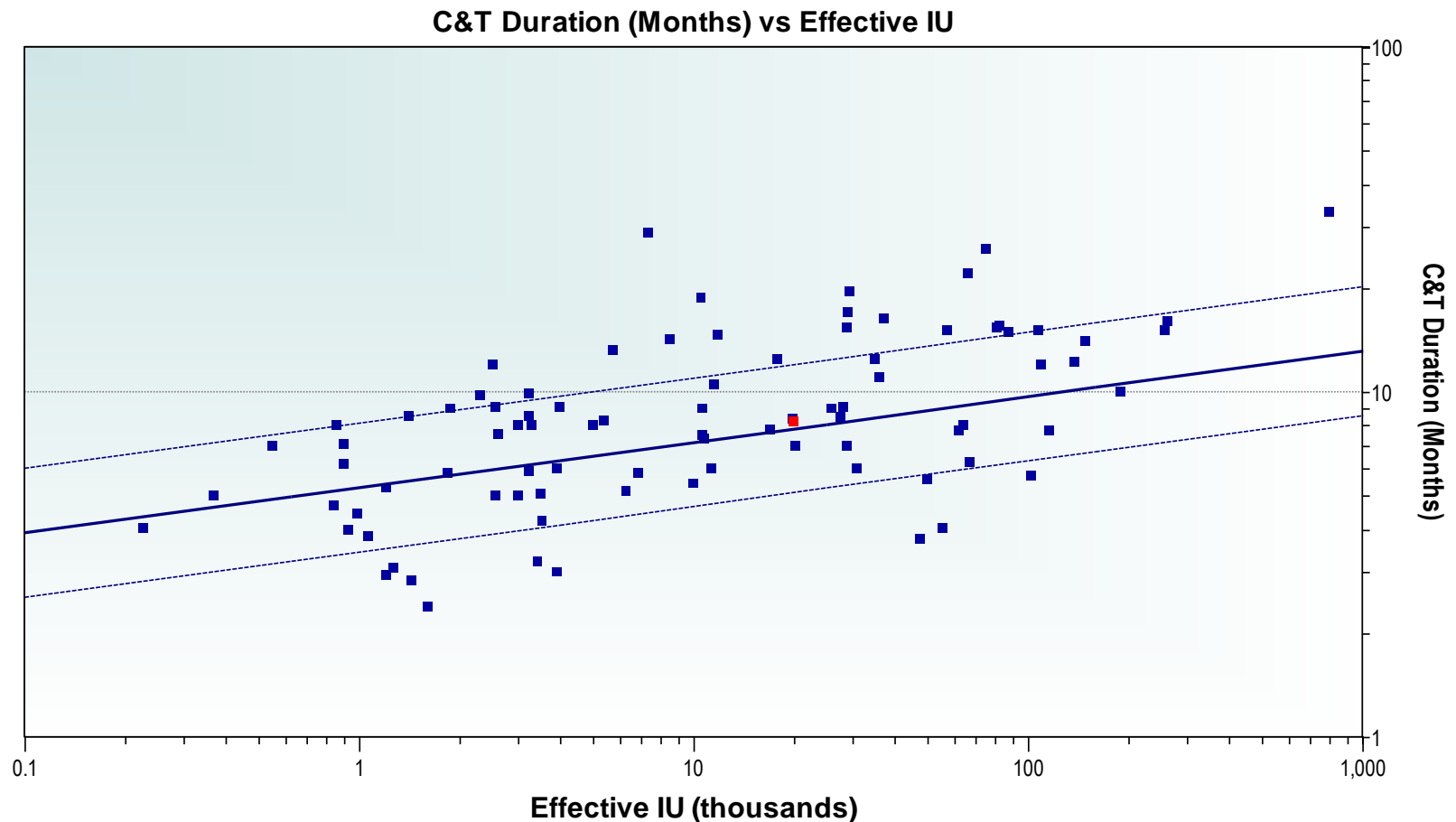
- There is insufficient data to support differences in productivity for different methodologies
 - We should therefore use existing history and trends
- But... Phases and Manpower buildup *are* different for Scrum and other agile-like projects



HOW WELL DOES IT WORK?

☐ *All our projects are above average*

- ~ Apologies to Prairie Home Companion



■ Projects being Assessed ■ Special Project — 2013 All — Avg. Line Style - - - 1 Sigma Line Style

HOW WELL DOES IT WORK?

- *There are outliers, damn outliers and statistics*
 - ~ Apologies to Mark Twain
- Project history is valuable in providing evidence for project timeline or cost estimations that are deemed risky
- The numbers speak for themselves. Projects with ROM estimates based on our history experience:
 - *Much Improved predictability for both Labor and Duration*
 - *Better scope stability (smaller change requests)*
 - *Improved accuracy for prioritization and sponsor decisions*
 - *Better planning for*
 - *Slotting*
 - *Resource utilization*

