



The Intelligence behind Successful Software Projects

Taking Software Estimation & Planning to a Higher Level

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Vice President

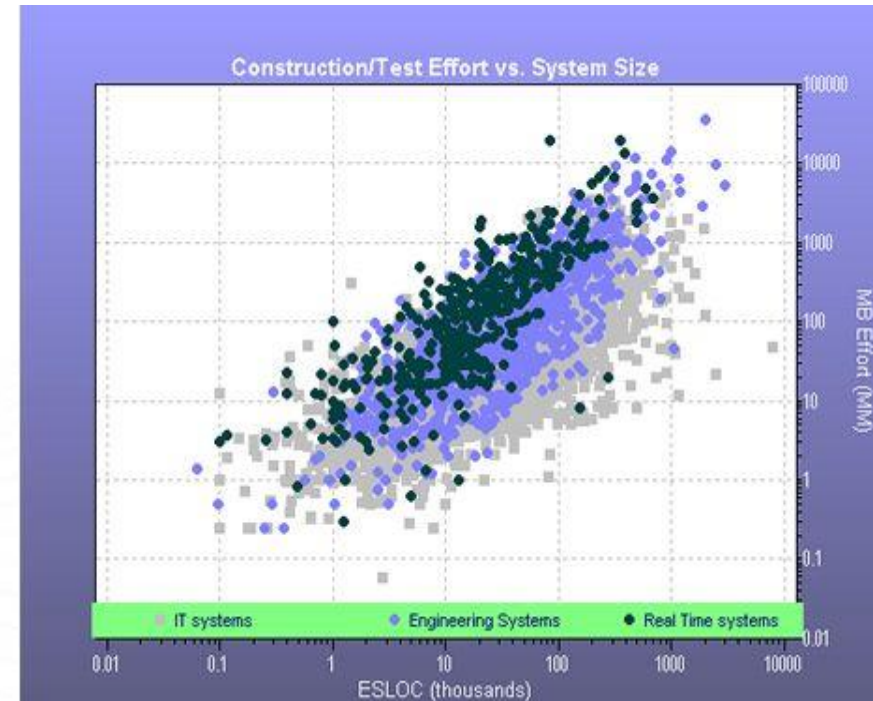
Quantitative Software Management, Inc.

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- Experts in the Field of Project & Portfolio Estimation & Metrics
 - Pioneers in the software industry with a 42 year track record of innovation and success
 - Developers of the SLIM-Suite of estimation and metrics products
 - Leading product & services company, thought leader, and research provider
 - We help our clients plan and negotiate their project cost, duration, & quality targets more effectively, saving big money and time
 - We focus on top-down estimation, leveraging empirically based models, industry analytics & historical data to figure out the “big picture” first, before detailed planning takes place

- Industry-leading research that validates the SLIM estimation model, over 13,000 completed projects
- Gives us a good understanding of the fundamental relationships
- Provides the latest information on software cost, duration, effort, reliability, team size, and scope, which we leverage to help our clients
- The data comes from our client partnerships, people that we are working with and supporting
- Strict validation process, only information that is consistent and complete is included in the research



- Short time frame to make decisions
- Minimal information available
- Unrealistic cost & schedule targets
- Demand goals are not balanced with capacity
- Political sensitivities
- No “big picture” analysis available

Step 1. Analyze data if available and leverage industry analytics

Step 2. Develop early release estimates based on the data, use models to manage uncertainty

Step 3. Portfolio Assessment - aggregate estimates into a portfolio view and analyze:

- Initial planned portfolio
- The portfolio adjusted for risky projects
- And finally the portfolio adjusted for resource capacity or financial constraints

Step 1: Data Analysis



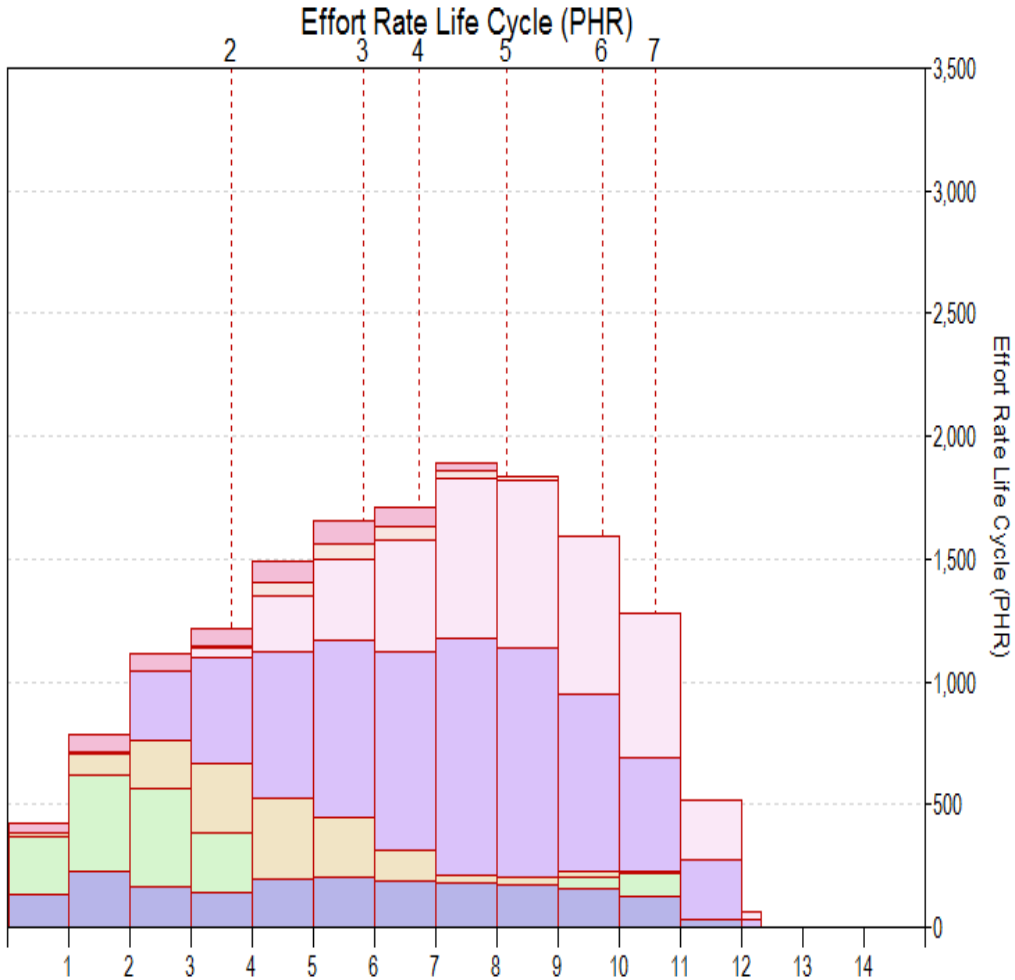
- Collect data from recently completed projects, target 8 – 15
- Make the estimation & planning process as objective as possible

The screenshot displays the QSM SLIM-Collaborate web application interface. The browser address bar shows the URL: keith30.qsm-online.com/qsmweb/Views/MyProject/MyProject_Default.aspx?ProjectId=70&ProjectView=3. The page header includes the QSM logo and the text "SLIM-Collaborate The Intelligence Behind Successful Software Projects". A navigation bar contains links for Home, My Preferences, Contact Us, and Help. The main content area is titled "Customer Service CRM R1" and includes a star rating (4 stars) and a "Back to Project List" link. A "Project Summary" sidebar on the left provides details: Description: Template for estimating Agile projects. Sizing technique ca...; Primary Responsibility: Development; Completion Year: 2014; Effective STPts: 821 STPts; Productivity: 20.4. Below the summary is an "Actions" menu with options: Edit Project Settings, Edit Closeout Assumptions (highlighted), View Closeout Solution, and View/Add Notes... A "Save Project" button is visible with the text "Last saved on: 7/26/2017 2:24:48 PM UTC". The main data table is divided into "Sizing (STPts)" and "Phases" sections. The "Sizing (STPts)" section has input fields for New (821), Modified (0), and Unmodified (0). The "Phases" section is a table with columns for Start Date, End Date, and Phrs. The "Quality" section has input fields for Test Defects (181) and Mean Time to Defect. A "Calculate" button is located at the bottom of the main data area.

Sizing (STPts)		Phases		
		Start Date	End Date	Phrs
New	821			
Modified	0			
Unmodified	0			
Requirements				
		4/1/2013	12/22/2013	4,750
		5/11/2013	2/10/2014	19,791
		2/10/2014	4/3/2014	2,776

Need to understand how the resources will be allocated for any given development methodology

- Project Manager/Lead
- Business Analyst
- Data Architect
- Developer
- QA and Test
- Database Administrator
- Architect



Collect size artifacts early in the planning process

- User Stories
- Features
- Business Requirements
- Epics
- Technical Requirements
- Use Cases
- Function Points
- SLOC / Implementation Units

Step 2: The Release Estimates



Project Environment

Project Description | Environment | Reliability | Phases | Milestones | Agile Increments

Summary

Project Name:

Organization:

Description:

Product Construction

Function Unit:

Gearing Factor:

Code is counted after:

Trend Group

SLIM-Estimate uses a trend group for comparison in scatter plots and bar charts. Unless you choose to specify alternate trend groups below, Estimate will also use this trend to calculate default project parameters such as PI.

Primary Trend Group:

Trend Group:

Use this mix of trend statistics to calculate default project parameters such as PI.

<input type="text" value="<none>"/>	@	<input type="text" value="0"/>	%
<input type="text" value="<none>"/>	@	<input type="text" value="0"/>	%
<input type="text" value="<none>"/>	@	<input type="text" value="0"/>	%

Solution Assumptions

Basic Info | Phase Tuning | Accounting

Phases

Project Start Date:

<input type="checkbox"/> REL	Rayleigh Front Load
<input type="checkbox"/> STORY	Rayleigh Front Load
<input checked="" type="checkbox"/> BUILD	Level load
<input type="checkbox"/> IMPL	Exponential

Expected Total Size

Total Story	<input type="text" value="231"/>	New %	<input type="text" value="100"/>
Gearing Factor	<input type="text" value="75"/>	Mod %	<input type="text" value="0"/>
		Reused %	<input type="text" value="0"/>

Eff Story

Size Calculator...

Size Uncertainty Range

Low High 99% Eff Range

Defect Tuning Factor

Total defect tuning factor %

Defect History...

PI

Expected PI PI Calculator...

PI History...

PI Uncertainty Range

Low High 99% Range

Solution Method

Trend Based
Use this method to have SLIM-Estimate calculate time and effort based on projects of the same size as represented in QSM Business AGILE. Note that PI is not a factor in this calculation.

Design to Input
Use this method to set a single metric constraint (like time or cost).

Select parameter	Value
<input type="text" value="MBI"/>	<input type="text" value="6.44"/>

Edit Constraints...

Constrained Solution
Use this method to set multiple constraints, and SLIM-Estimate will find a solution that best balances these constraints.

OK Cancel Help

Rough Order of Magnitude (ROM) ×

ROM Estimate (Quick Estimate Wizard)

What you know:

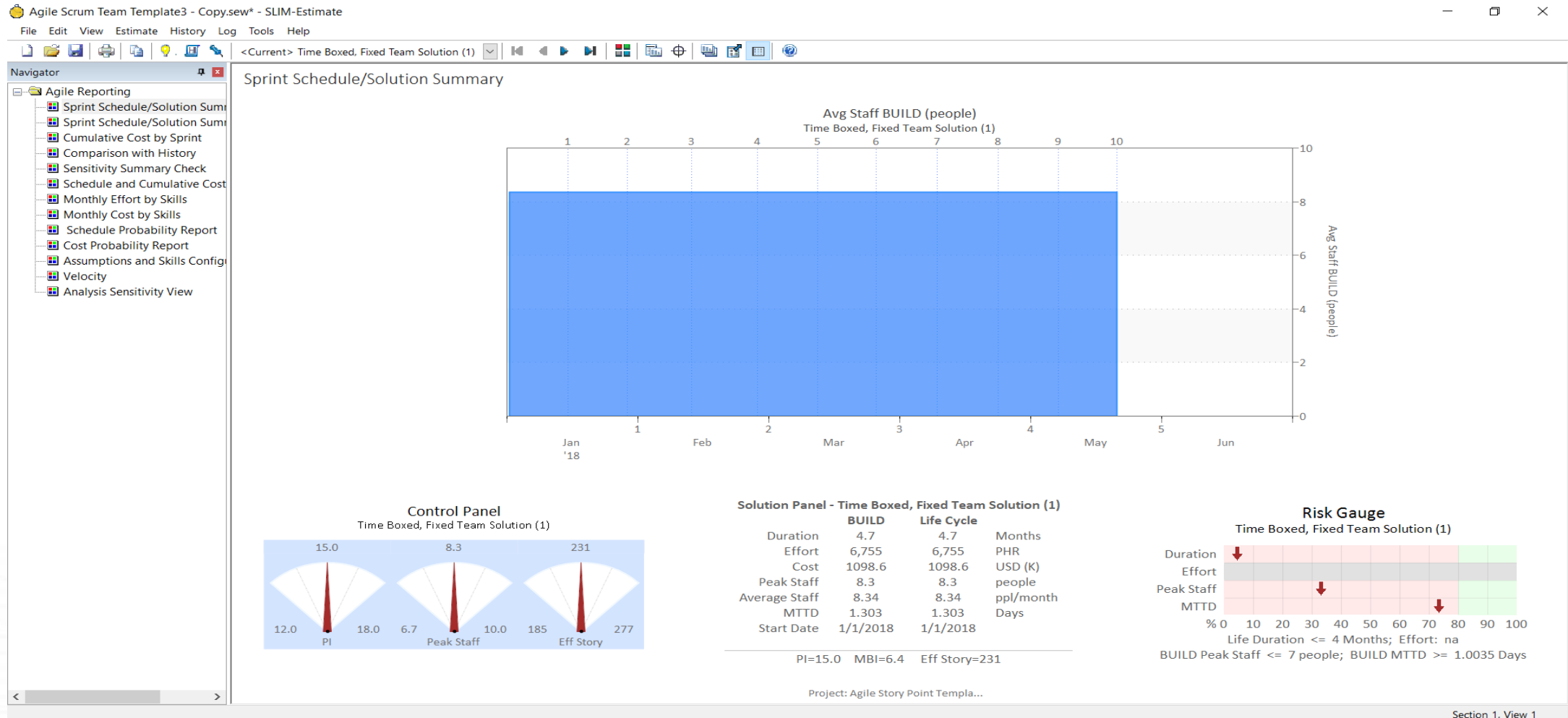
- Project scope, specified as System Size, using relative size bins or unit count
- Anticipated Productivity (PI) from your history or your specified trend group

What is determined:

- Time, in calendar months
- Effort, in your specified units

This option generates an unconstrained solution that optimizes what is most important to you: time, effort, or people.

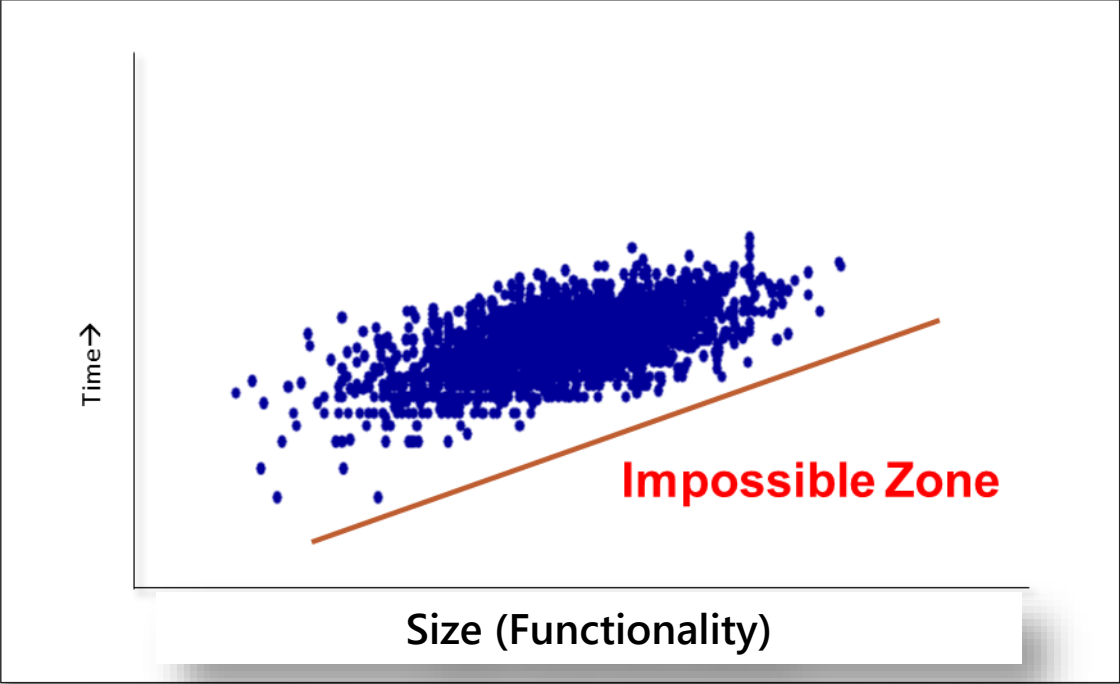
< Back **Next >** Cancel Help



- Management & stakeholders come together to discuss and negotiate project targets
- Analyze multiple estimation scenarios
- Sanity check with historical data & industry trends



Avoid signing up to the “Impossible Zone” when negotiating



Step 3: The Portfolio Assessment

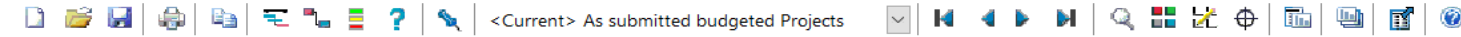


- Analyze the initial portfolio that is submitted; look for release estimates that are risky
- Make adjustments for the risk and waste and re-plan releases that are outside of the “Target Zone”
- Make changes again if necessary to optimize the portfolio and to adjust for the enterprise capacity and financial constraints

Initial Portfolio Shows Risky Releases

IT Portfolio - Copy.sea* - SLIM-MasterPlan

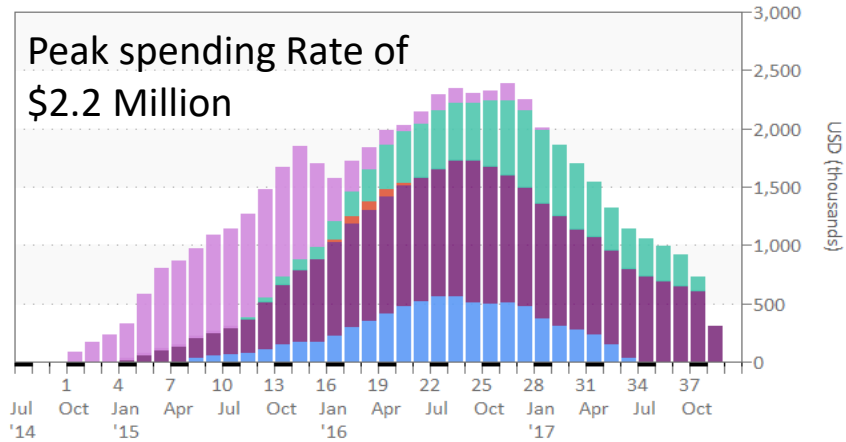
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Portfolio Cost and Risk Profile by Product Line

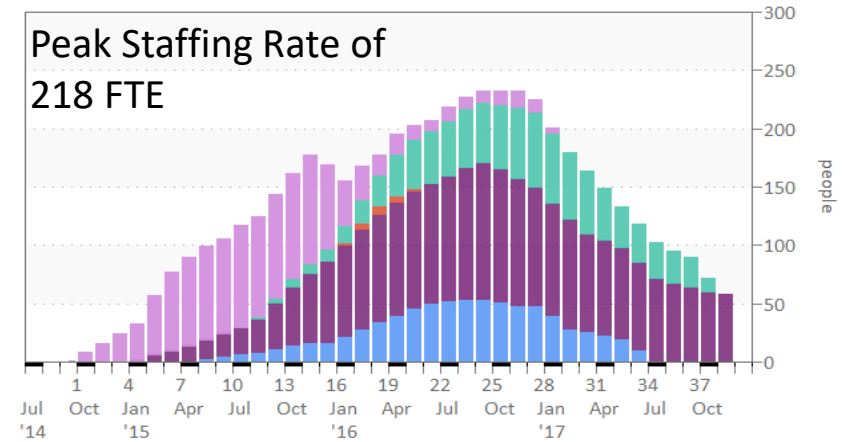
- IT Transformation Program
- Back Office
- MISC
- Package Implementations
- Work Flow Automation

Monthly Spend Rate (L1)



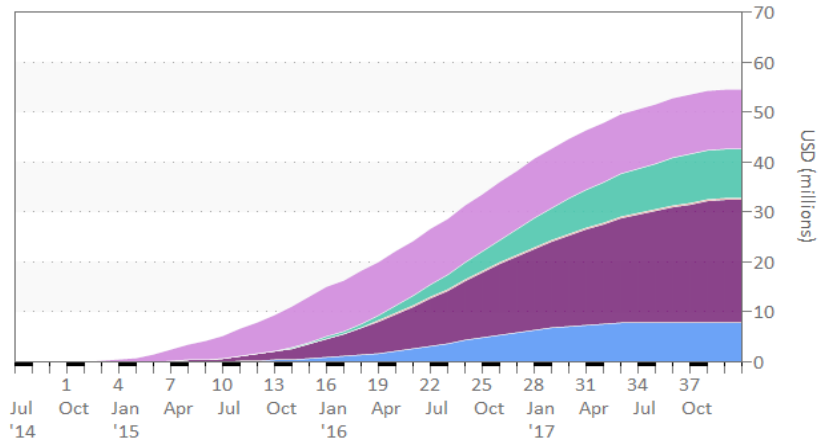
- IT Transformation Program
- Back Office
- MISC
- Package Implementations
- Work Flow Automation

Monthly Staffing (L1)



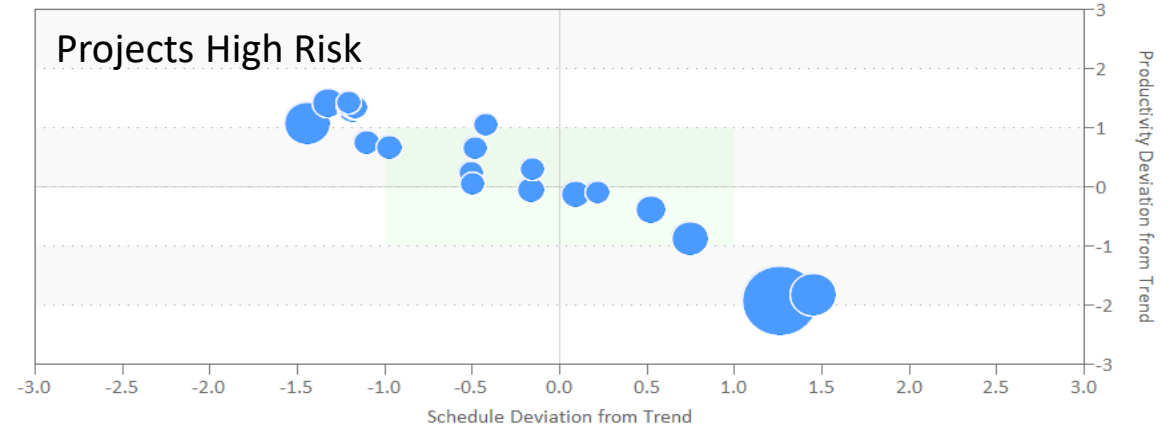
- IT Transformation Program
- Back Office
- MISC
- Package Implementations
- Work Flow Automation

Cumulative Cost (USD) (L1)



IT Projects Productivity Assumption versus Schedule Months

Deviations from Average Customer Trend



What If ✕

Task	Solution Method	IU	PI	Peak Staff
FPL CSS IT Portfolio 2016-2-29				
1 Work Flow Automation				
1.1 1265 Field Support	Current Staff Buildup R...	55000	12.2	26.8
1.2 1843 System Reliability St...	Current Staff Buildup R...	9480	11.7	14.4
1.3 1869 Network Access Sup...	Current Staff Buildup R...	4106	13.5	5.3
1.4 1902 BP Process Upgrade	Current Staff Buildup R...	40000	13.1	14.3
1.5 1941 Dynamic Fleet Sche...	Current Staff Buildup R...	25000	13.1	15.2
2 Package Implementations				
2.1 2001 Help Desk Automation	Current Staff Buildup R...	13920	16.6	7.3
2.2 2202 SAP HR Upgrade	Current Staff Buildup R...	25000	16.6	4.0
2.3 1993 CRM Upgrade	Current Staff Buildup R...	5280	15.1	6.4
2.4 2052 SAP Financials	Current Staff Buildup R...	180000	11.0	90.1
3 MISC				
3.1 2232 Dynamic Processing	Current Staff Buildup R...	11760	16.3	7.3
4 Back Office				
4.1 2782 Diaster Planning	Current Staff Buildup R...	9900	15.9	7.3
4.2 2945 Digital Conversion	Current Staff Buildup R...	35000	18.0	15.4
4.3 2862 EPA compliance for ...	Current Staff Buildup R...	85000	19.4	21.5
4.4 2841 Electronic Payment ...	Current Staff Buildup R...	45000	9.0	39.9
5 IT Tranformation Program				
5.1 3524 IPP Replacement	Current Staff Buildup R...	354750	21.0	73.3

Global Adjustments

Global adjustments will be applied to the currently selected subsystem or to all subsystems in the currently selected summary task.

Solution Method

Current Staff Buildup Rate ▾

* PI and Peak Staff are not used as inputs when the Solution Method is Trend-Based.

Solution Parameters

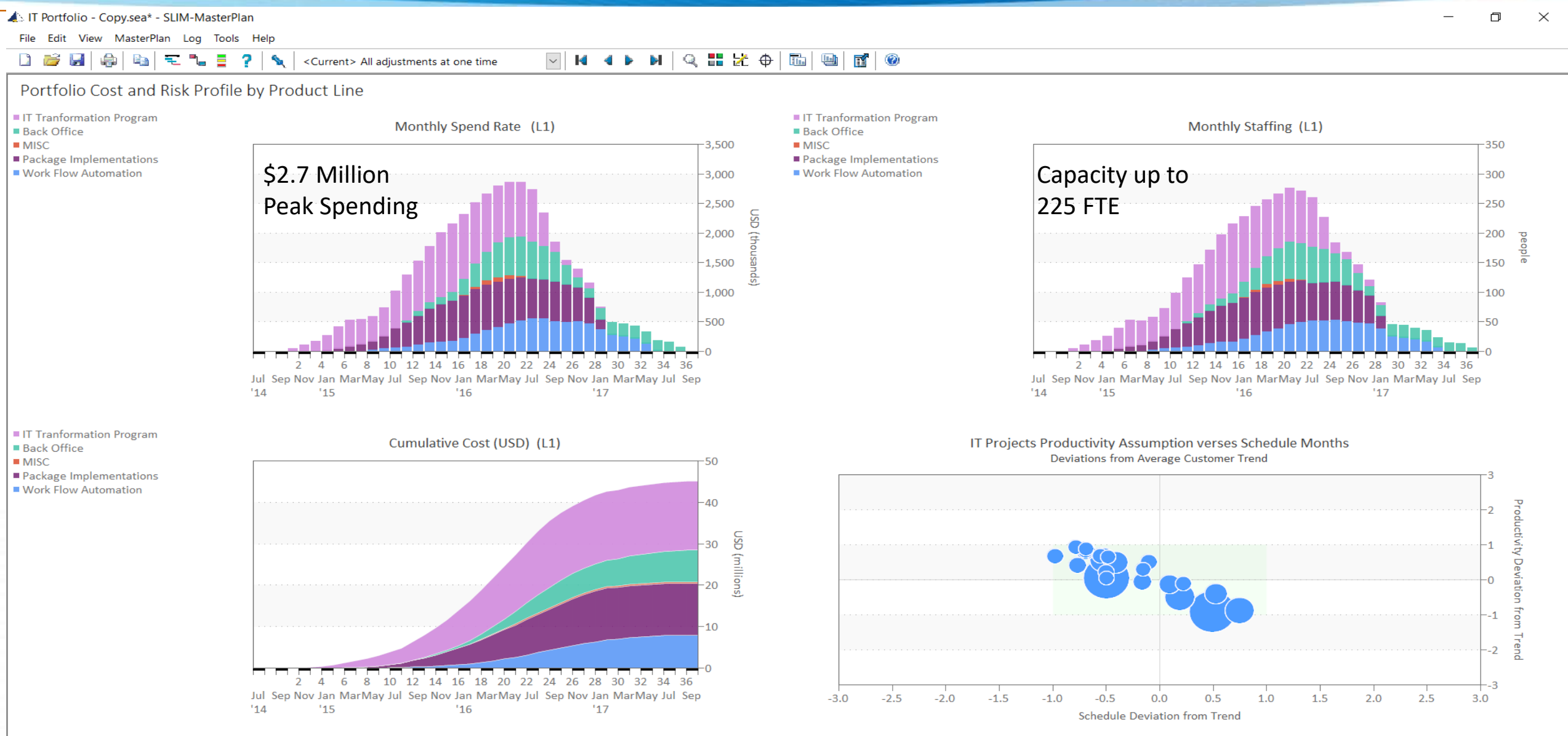
Adjust PI * ...

Adjust Size...

Adjust Peak Staff * ...

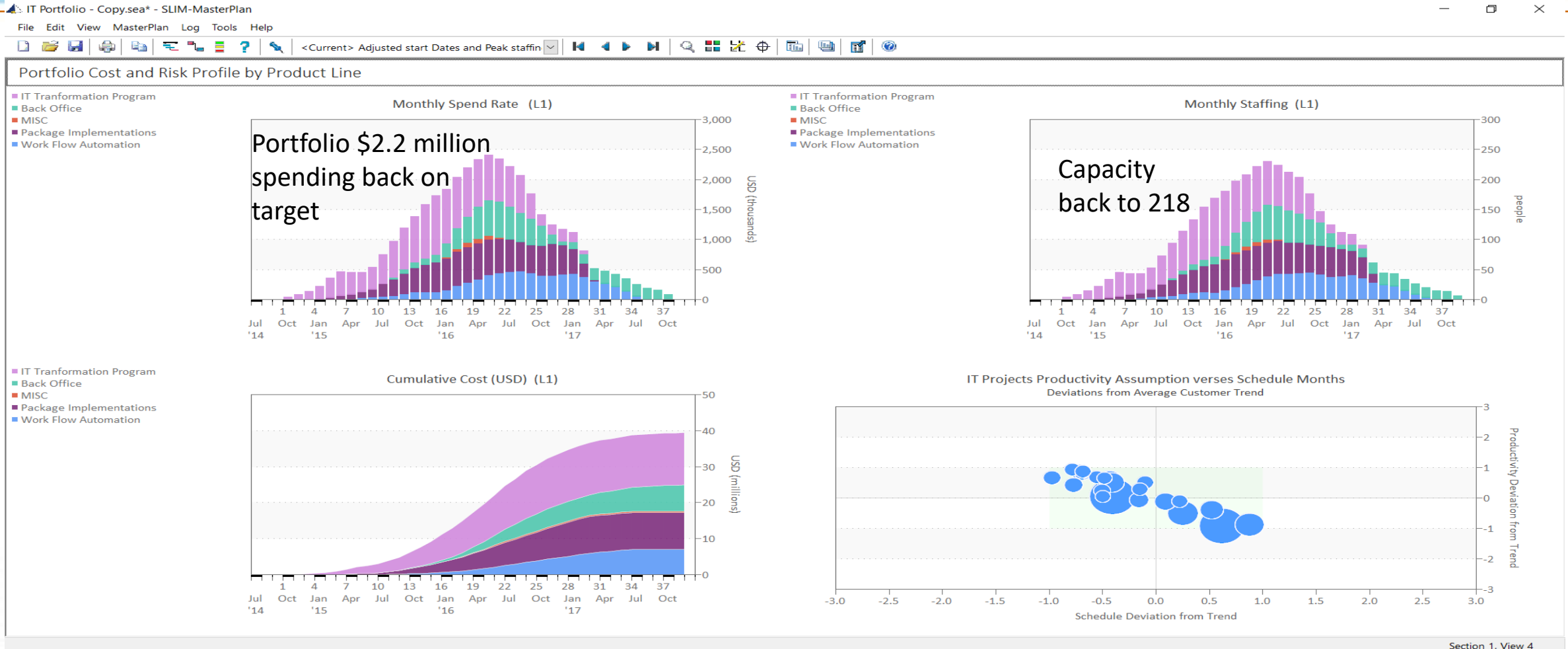
Note: Only SLIM-Estimate subsystems may be adjusted.

Unfortunately Initial Adjustments Drive Spending & Resources Past Portfolio Capacity



- Eliminate Projects
- Slip start date
- Adjust staffing up or down
- Negotiate scope & cost
- Lean on the data to make your decisions and to communicate your decisions effectively

Confirm Adjustments that Enable Us to Meet Capacity



Release targets corrected & capacity limit met
- 5 projects were delayed by 3 months
- 3 projects required modest staff reductions

IT Portfolio - Copy.sea* - SLIM-MasterPlan

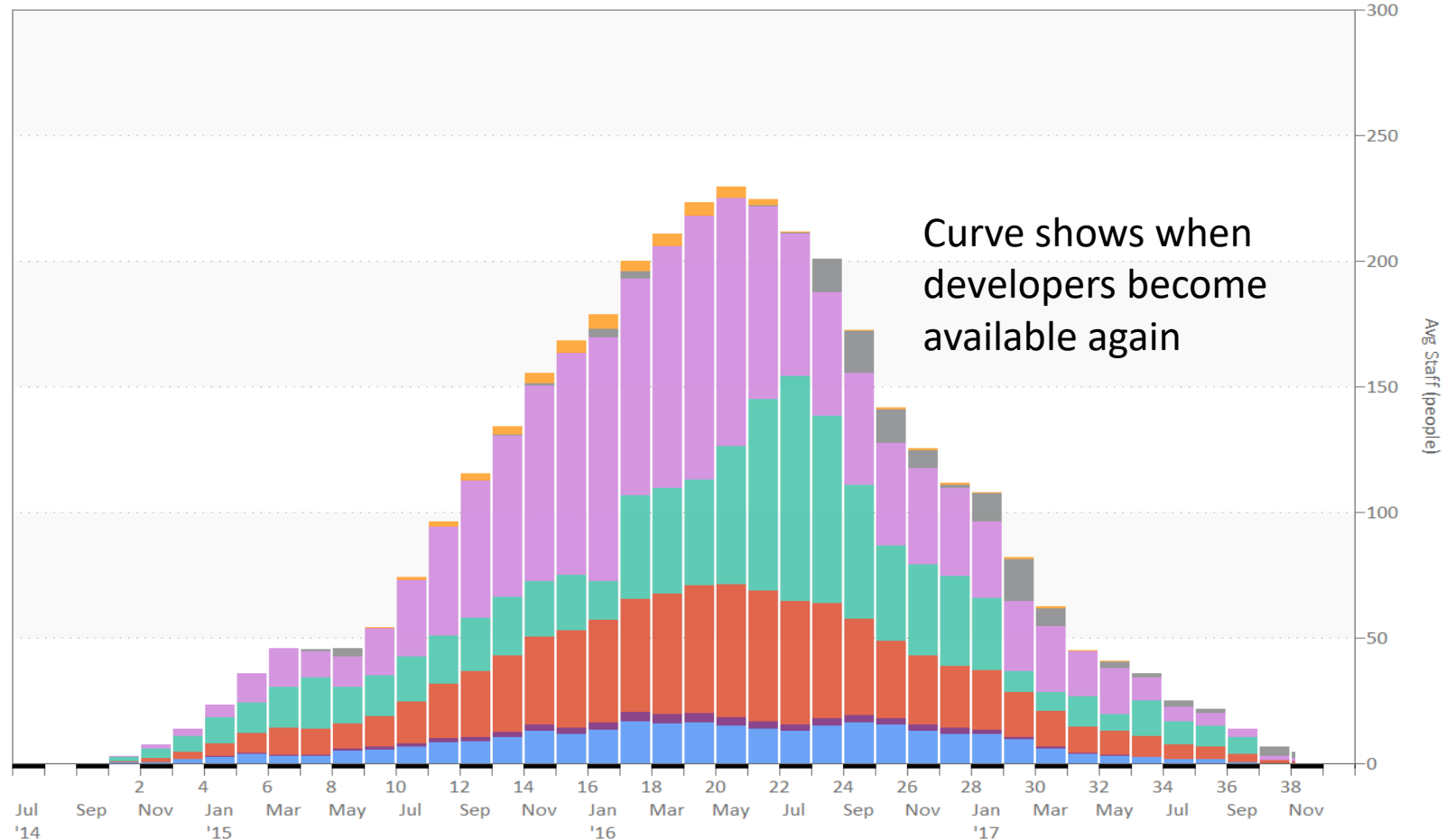
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<Current> Adjusted start Dates and Peak staffing

- Enterprise Services
- Application Support
- Developer
- Business Analyst
- Technical Lead
- Architect
- Project Management

Monthly Staffing by Skills

Aggregated Skills



- Helps balance demand with capacity
- Provides the right cost, duration, effort, reliability & scope targets
- Saves time and accuracy
- Allows for early decision making, when only minimal information is available, to avoid going down the wrong path
- Provides major risk mitigation capabilities
- Takes into account integration, overhead & non-linear relationships that aren't modeled well with bottom-up spreadsheets
- Objective data driven process with complete transparency
- Allows for rapid trade-off analysis & negotiation

Please feel free to contact me with any questions. Thank you!

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