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Big Rock Estimation with SLIM Estimate

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Agenda

Introduction

Why “Big Rocks”?

Performing “Big Rock” Estimation

Tying results with SLIM Estimate

Closing

- Many projects start with high level and unclear requirements
- Prior to initiating these projects, teams need to develop estimates for an overall schedule to support the initial funding and final funding milestones of projects.
- Teams within product development organizations are held accountable to these estimates
- Examples of methods used to develop estimates include:
 - Top-Down
 - Bottom-up
 - Decomposition
 - Expert Judgment
 - Many more...

Why “Big Rocks”

- The goal is not to estimate a mountain, or a whole bunch of pebbles... only the “Big Rocks”
- The term “Big Rocks” came from a set of initial planning sessions completed for several projects
- Some groups at Rockwell Automation use a “Big Rock” estimation technique to derive a Rough Order of Magnitude (ROM) estimate for initial funding requests
- This method can be used to determine labor cost estimates for major funding milestones

Why “Big Rocks”

- The estimates start with the same basic Agile premises:
 - The estimate of a group of people is usually better than that of a single person
 - The estimates won't be perfect. Some estimates will be high and others will be low.
 - This method leverages statistical property called the “Law of Large Numbers” for balancing out the estimate in the end.
 - Force “choice points” of estimate values. If something is definitely “bigger” than a reference, it gets forced to the next size.
 - Align the activity to a common estimate schedule and ground the schedule with previous project results.
 - Describe the Epics based upon expected scope, complexity and risk, not effort days.

Why “Big Rocks”

- This approach leverages the advantages of well-known methods:
 - Decomposition
 - Expert Judgment
- The results of the Big Rock Estimation approach can directly be fed into the SLIM Estimate tool for additional refinement based on:
 - Your organization’s historical projects
 - Industry project results
 - Project life cycle

Performing “Big Rock” Estimation

- The basic agenda for Big Rock sizing activities consists of:
 - Introductions
 - Ground rules for the workshop
 - Agenda walk-through
 - Pre-work review
 - Sizing grounding
 - Estimation
 - Review and wrap-up

Performing “Big Rock” Estimation

- Pre-Work
 - Complete this activity at least a week prior to the sizing event
 - Preparation an outline and/or hierarchy of a preliminary architecture concept with clear definitions of the architectural elements
 - A small group of knowledgeable people (two to three) may the initial structure if an existing structure is unavailable
 - The key is to capture the information for future reference

Performing “Big Rock” Estimation

- Pre-Work (continued)
 - Keep to three levels of Epic / Portfolio Item descriptions:
 - First Level – Executive / High-Level description
 - Second Level – Key Stakeholder, Manager-level description
 - Third Level – Development Team / Engineer-level descriptions
 - The number of First Level Epics should be kept to about ten items or less
 - More detail / complexity can be added to the Second and Third levels

Performing “Big Rock” Estimation

- Logistics and rules are an important aspect for this method to be successful:
 - Time limited - Keep the sizing activities to a one or two day estimation session
 - Key participants involved with the sizing must be the on the team implementing the final product
 - Stakeholders outside of the team may participate, only to help clarify expected scope throughout the sizing activity
 - Non-technical participants may attend as observers

Performing “Big Rock” Estimation

- Sizing Grounding
 - Establish a common understanding of the values used when sizing the Epics
 - Focus on the complexity and risk in terms of Epic size
 - A less complex time-consuming activity may end up having the same size as a highly complex, short duration activity
 - Use “T-Shirt” sizing to focus the team on comparative sizing

Performing “Big Rock” Estimation

- Sizing Grounding (continued)
 - Establish T-Shirt sizes during the “Big Rock” sizing meeting:
 - As a minimum, have the team determine baseline Epics considered as “Extra Small” (largest Story) and “Medium” in terms of complexity, effort and risk
 - The estimation team should agree the baseline Epics are understood. If not, look for other candidates until consensus is obtained.
 - Create a chart with “brackets” for the team to use as reference during estimation
 - The remaining baseline Epics can be identified during the sizing session

T-Shirt	Baseline Epic
XS	Tiny Widget
S	
M	Widget Assembly
L	
XL	
XXL	

Performing “Big Rock” Estimation

- Estimation logistics and flow
 - The facilitator leads the team through the steps detailed on the next slide
 - The facilitator should capture any “parking lot” items for discussion at the end of estimation session
 - The steps are performed for every Epic identified during the Pre-Work phase
 - If a consensus is not obtained, it is okay to skip to another Epic and go back later
- Reminders:
 - This activity is Rough Order of Magnitude sizing, not detailed estimation.
 - The goal is to get through the Epics with a reasonable, but not perfect, estimate of Epic points with consideration of complexity and risk

Performing “Big Rock” Estimation

- Estimation basic steps
 1. Look at the Epic. Is it small enough to size within 5 minutes? If so, skip to step 3.
 2. If it's too big, or too complex, break it down into sub-Epics.
 - Some of the sub-Epic work may already be captured via sub-requirements in the product requirements, the functional requirements or some other document.
 3. Discuss the Epic, preferably in five minutes or less, to the point where the estimators understand the Epic.
 4. The estimators state the size of the Epic.
 - If there are a few very vocal people who are influencing other people's sizing, then you may want to use planning poker cards or another silent method.
 - If necessary, the primary facilitator asks “Is this more or less complex than the Medium sized Epic?”
 5. The high and low estimates are discussed. Uncertainty should be reflected in higher Epic sizing.
 6. The estimators come to consensus on the final sizing.
 7. The primary facilitator records the result, and the team moves on to the next Epic.

Performing “Big Rock” Estimation

- Estimation Review and Wrap-up
 - The primary facilitator reviews the parking lot for anything that still needs to be discussed
 - The team is asked if there are any concerns or outstanding issues associated with the sizing
 - Everyone will want to know “what the answer is”
 - The primary facilitator may or may not be able to provide that information during the review session
 - A separate readout session is recommended for providing “the answer”

Tying results with SLIM Estimate

- The table to the right is an example result of a “Big Rock” sizing session
- Four “Level 1” Epics and thirteen “Level 2” Epics were identified during the Pre-Work effort
- Sizes were selected by technical leads for the teams targeted for implementing the software

"Big Rock" Sizing Template		
Portfolio Item (Parent)	Portfolio Item (Child)	T-Shirt Size (Pick list)
Communications	Ethernet Stack Integration	XS
Communications	REST Library Integration	S
Communications	Application Specific Features	L
Communications	Communications Testing	M
Business Logic	Database Services	M
Business Logic	Algorithm Updates	M
Business Logic	Business Logic Testing	S
User Interface	PC Interface Development	S
User Interface	Web Interface	S
User Interface	UI Testing	M
Infrastructure	DevOps Updates	S
Infrastructure	Build System Configuration	S
Infrastructure	Life Cycle Support	M

Tying results with SLIM Estimate

- The T-Shirt sizes are mapped to Epic Points using a lookup table with sizing based on past history and/or expert judgment
- The Epic Points are normally considered the “Most Likely” case when using tools like SLIM Estimate

Portfolio Item (Parent)	Portfolio Item (Child)	T-Shirt Size	Epic Points
Communications	Ethernet Stack Integration	XS	40
Communications	REST Library Integration	S	100
Communications	Application Specific Features	L	300
Communications	Communications Testing	M	200
Business Logic	Database Services	M	200
Business Logic	Algorithm Updates	M	200
Business Logic	Business Logic Testing	S	100
User Interface	PC Interface Development	S	100
User Interface	Web Interface	S	100
User Interface	UI Testing	M	200
Infrastructure	DevOps Updates	S	100
Infrastructure	Build System Configuration	S	100
Infrastructure	Life Cycle Support	M	200

Tying results with SLIM Estimate

- The T-Shirt to Epic Point results require additional information to support the content and structure in the “Sizing_PrioritizedFeatures” template provided with SLIM Estimate
- The Low and High are determined as steps above and below the lookup developed for the estimate sizes

ID	Feature	Priority	Low	Most Likely	High
1	Ethernet Stack Integration	2	20	40	100
2	REST Library Integration	2	40	100	200
3	Application Specific Features	1	200	300	500
4	Communications Testing	2	100	200	300
5	Database Services	2	100	200	300
6	Algorithm Updates	1	100	200	300
7	Business Logic Testing	2	40	100	200
8	PC Interface Development	1	40	100	200
9	Web Interface	3	40	100	200
10	UI Testing	2	100	200	300
11	DevOps Updates	2	40	100	200
12	Build System Configuration	1	40	100	200
13	Life Cycle Support	3	100	200	300

Most Likely Points	Low Points	High Points
40	20	100
100	40	200
200	100	300
300	200	500
500	300	800
800	500	1300
1300	800	2000

Tying results with SLIM Estimate

- The data can be copied into the SLIM import template as shown here
- The Sizing Units used for this example are set to:
 - Input – Story Points
 - Output – IU
 - Conversion Factor:
 - Low – 8
 - Most Likely – 10
 - High – 12

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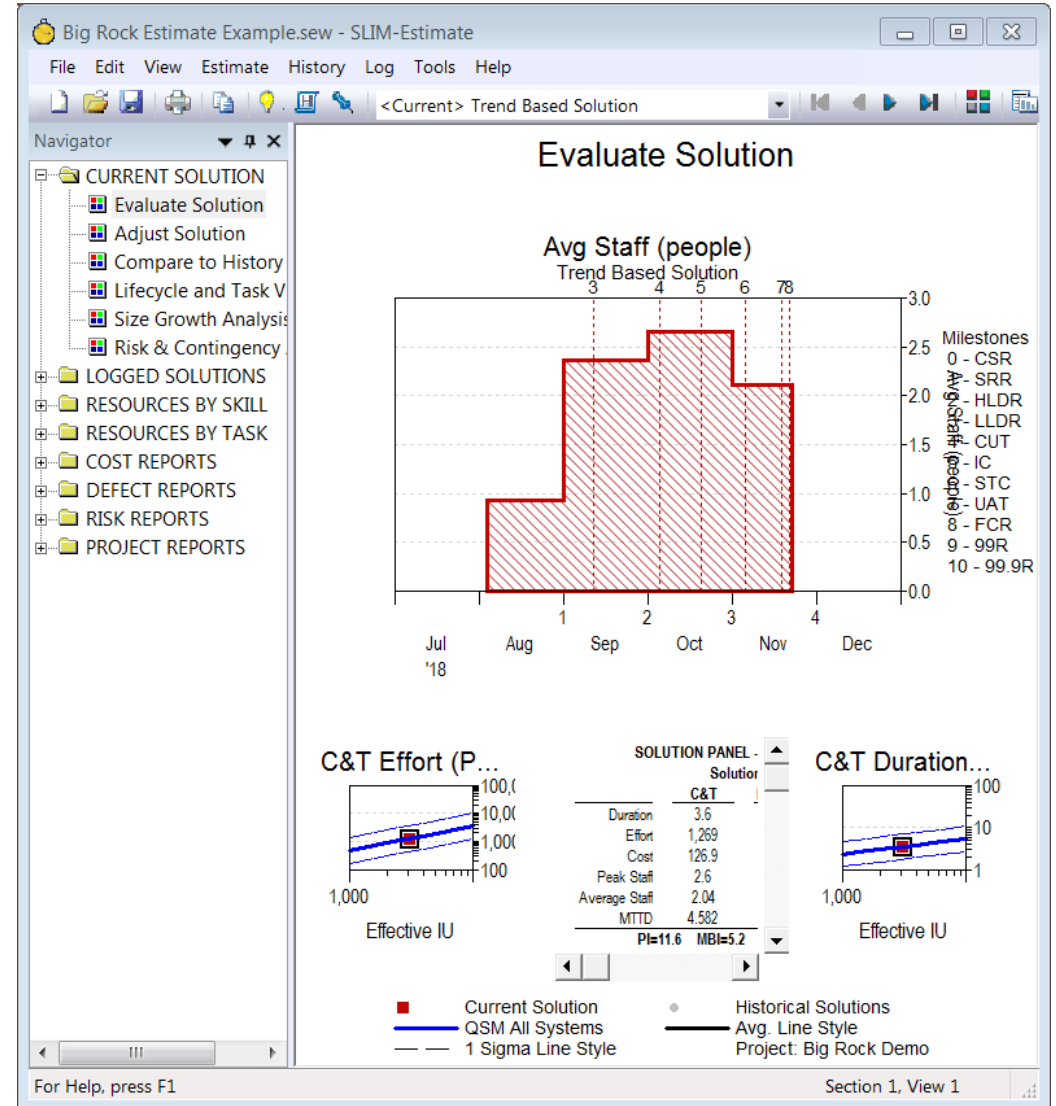
Optional	ID	Feature	Priority	Story Points			IU	
				Low	Most Likely	High	Expected	Sigma
	1	Ethernet Stack Integration	2	20	40	100	467	137
	2	REST Library Integration	2	40	100	200	1067	277
	3	Application Specific Features	1	200	300	500	3167	544
	4	Communications Testing	2	100	200	300	2000	360
	5	Database Services	2	100	200	300	2000	360
	6	Algorithm Updates	1	100	200	300	2000	360
	7	Business Logic Testing	2	40	100	200	1067	277
	8	PC Interface Development	1	40	100	200	1067	277
	9	Web Interface	3	40	100	200	1067	277
	10	UI Testing	2	100	200	300	2000	360
	11	DevOps Updates	2	40	100	200	1067	277
	12	Build System Configuration	1	40	100	200	1067	277
	13	Life Cycle Support	3	100	200	300	2000	360

Include Features at/above Priority Level:

Expected Total: **3,067**
Sigma: **454**

Tying results with SLIM Estimate

- After importing, SLIM Estimate can be used to refine the results, perform “what if” analyses, etc.



- This method enables the teams and stakeholders to have discussions regarding the scope, complexity and risk for key functionality in the software product, avoiding confusion with schedule
- It can be adapted to different business needs (pure Scrum, SAFe, etc.)
- Performing iterations of estimation with this method is encouraged as project scope is refined over time

- Coming out of the first sizing session, the results will likely be unacceptable to key stakeholders
 - The project definition should be decomposed, redefined or refined to address the Epics that are considered too large
 - A subsequent sizing session should be performed after the project definition has been updated



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Questions?



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