Estimation |
Best Practices

Your Guides: Josh Childers and Wes McCoubrie

regoUniversity 2018

Introductions

- Take 5 Minutes

- Turn to a Person Near You

- Introduce Yourself

- Business Cards

Agenda

- Laying out the Issues
- Methods
  - Waterfall/Agile
- Estimating tools

Laying out the Issues

Sound Familiar?

- Estimates don't matter:
  - We are told when the work will be done
  - We are told which resources we can use
  - We are told what our budgets are
- We have Subject Matter Experts who create the estimates
- We look at previous project histories to come up with estimates
- We throw darts at a board

Open Mic

- How are estimates created in your organization?

- Why is accurate estimation important?

- What tools do you use if any?

- How frequently are estimates updated on your project plan?

- Do you use Agile or Waterfall?
 - Is estimating done the same or different?

Why Are Estimates Important?

- Project and Task Estimates drive the fundamental lifecycle of the work
- Estimates of Task Duration determine when Resources are needed and not needed
- Estimates of Task Effort determine the quantity of Resources needed to succeed
- Estimates of Project Duration set expectation on deliverables to our customers
- Estimates of Resource Roles determine who the organization needs to provide for the work to be done
- Estimates of Project Cost and Project Benefit help determine project approvals

Estimates Get Better as a Project Progresses

Barry Boehm's Cone of Uncertainty
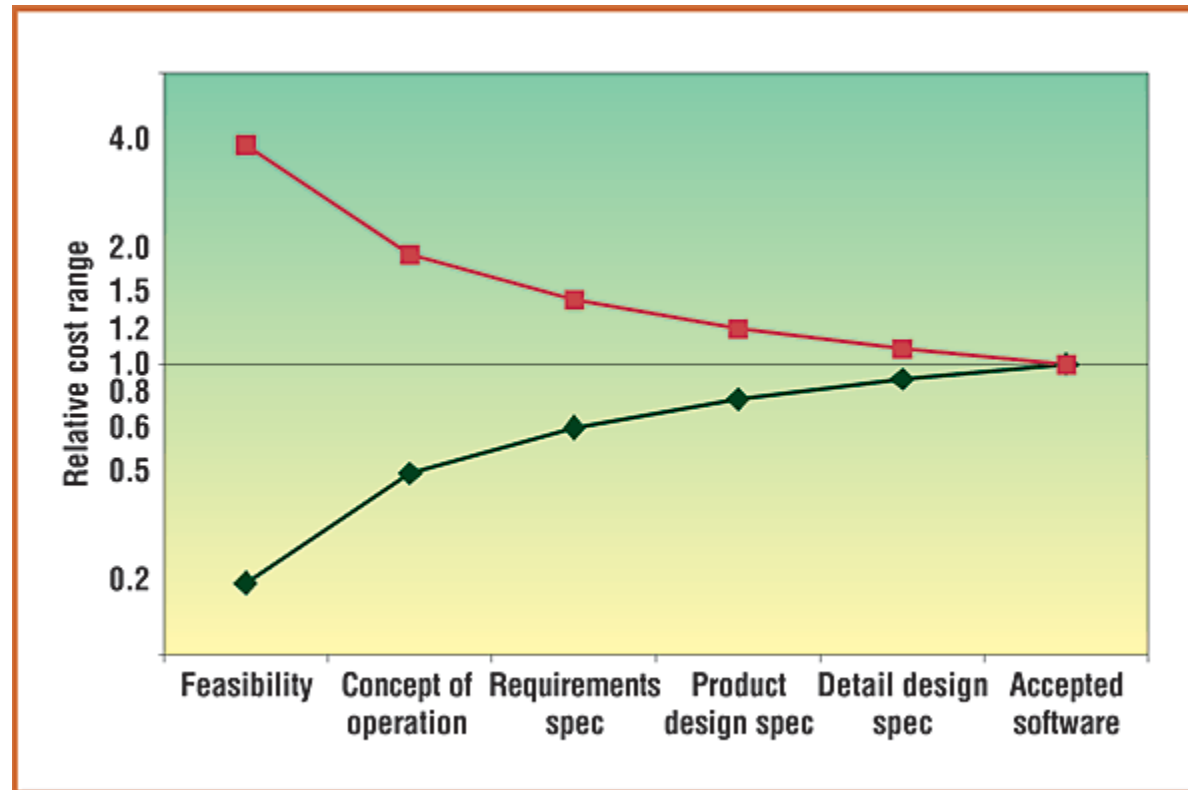
Methods

Bottoms Up – SMEs

In most organizations, estimates are created by Subject Matter Experts, who may have done similar work before.

Pros:

- If the SME is actually going to perform or oversee the work, he will be accountable for the estimate
- If the SME is familiar with the requirements of the new project, his estimates will be more accurate
- If the SME is aware of the team that will be assigned, his estimates will be more accurate

Cons:

- SMEs seldom take project constraints into account (schedules, resources, budgets), focusing only on the specific work to be performed
- SMEs will tend to inflate estimates to the degree that establishes a "comfort zone"
- SMEs will tend to insist on greater detailed requirements documents than is normally available early in the project lifecycle

Top Down

In some organizations, estimates are driven "top down" meaning that Project Manager, Portfolio Manager or others will create the estimates for the team.

Pros:

- Project Managers usually have a clear view of the constraints placed on the project
- Project Managers have a better overview and thus can create staffing plans and schedules based on those constraints and estimates in combination
- Project and Portfolio Managers can better understand interdependencies between projects which might impact estimates

Cons:

- Project Managers may tend to manipulate estimates up or down based on external pressures
- Project Managers may not have sufficient expertise in the work being performed to create detailed estimates
- Project teams generally do not like having estimates imposed on them
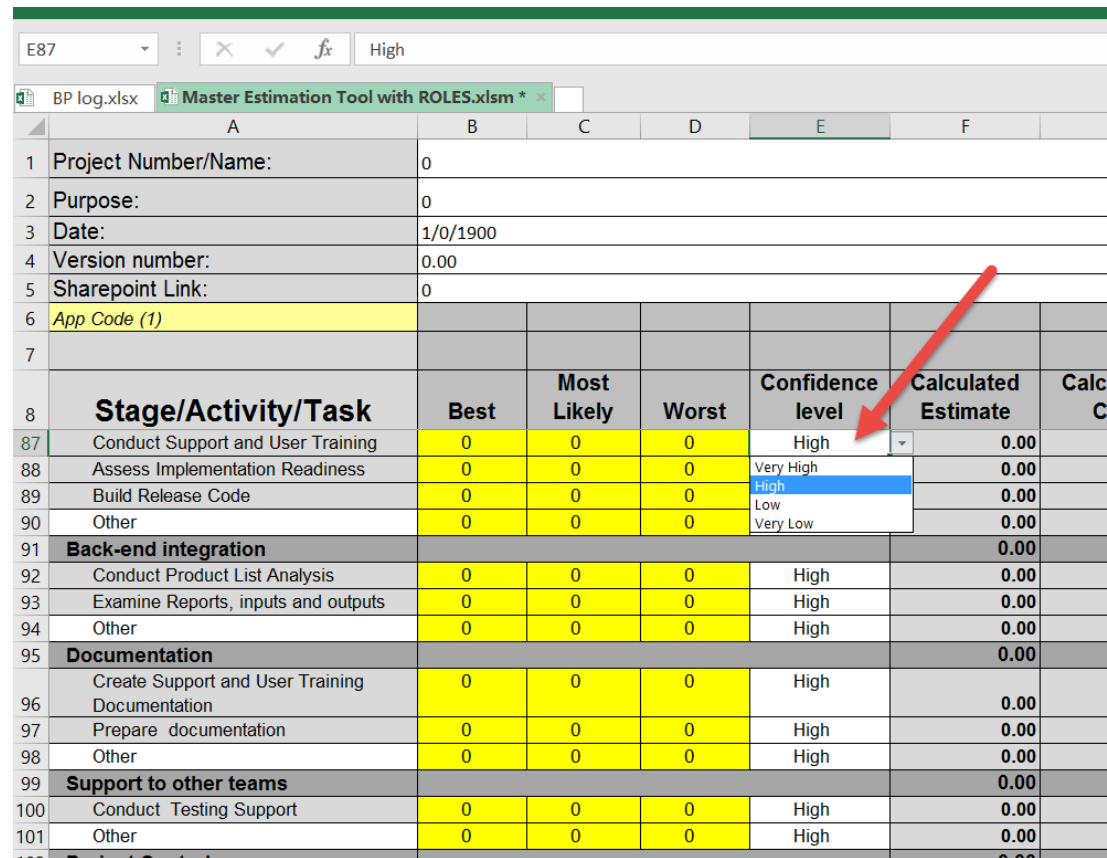
Use Project History

- The recent history of comparable projects can be a goldmine for accurate estimates. As long as we can identify projects which share factors in common with the new project, we can mine those projects for accurate information to use going forward.

- Best practices in use of Project History include:
  - Using Project templates which keep WBS's in a well documented and disciplined manner
  - Using Baselines to be able to compare historical estimates vs. actuals
  - Using identifiable work types so that better matches between older projects and future ones can be made
  - Identifying resources by both name and role, so that better staffing estimates can be made for future projects

PERT Estimation – Simple

- The Program Evaluation and Review Technique (PERT) was developed to simplify the planning and scheduling of large and complex projects. It was developed by Booz Allen Hamilton and the U.S. Navy in 1957 (around the same time as the critical path method) to support the U.S. Navy's Polaris nuclear submarine project (a direct response to the Sputnik crisis).
  - More thoughtful and accurate estimates
  - Leads to better understanding of specific risks
  - Results in more uniform and predictable estimating across the larger organization
  - Leads to faster project completion times by eliminating systemic padding/inflating project activity estimates
  - Enables statistical analysis techniques such as Monte Carlo Simulation

PERT Estimation – Simple

- In a more advanced situation, where projects are larger, more complex and are being performed in a High Risk and Changing environment, PERT can be added to to include Standard Deviation.

- Expressed in PERT as "Confidence Level", this technique allows PMOs and Project Managers to temper the simple PERT estimate with a calculation of Risk.

Agile Estimation

- With Agile, estimating is more about making comparisons than getting to an exact number
  - Studies have shown that humans are much better at comparisons – i.e. "this bag is heavier than that bag" vs "this bag weighs 4 lbs and that one weighs 7 lbs"
  - This is why a variant of the Fibonacci sequence is used
- With Agile, estimating is a continuous process
  - In traditional project management, the plan is "usually" based on an original set of estimates
- With Agile, estimating is usually a "team sport"
  - Methods such as planning poker take advantage of
    - "Wisdom of the crowd"
    - Avoiding reluctance of sharing an estimate that might be an outlier (but might be better)

Agile Estimation – What do you estimate

- Features vs tasks

- Story points vs hours
  - We've found that teams new to Agile can start with 1 story point = 1 hour
  - Evolve from there

- You can use T-shirt sizing as well

T-shirt	Story point
XS	½
S	2
M	5
L	13
XL	40

Agile Estimation – Bring it all together

- How many points can an agile team deliver in a sprint (team capacity)?

- How many total points is the project?

- Different teams look at points different
    - Need to estimate with proper team to get accurate points for them to deliver
    - Can't switch to another team and expect same estimate

- Maybe just count stories
    - Teams tend to build stories around the same size
    - Fluctuations even out over time
    - Number of stories * cost per story

Open Mic

- Are the methods provided used in your organization?

- Which method seems more valid for you?

- Would you recommend using a method?

Estimating Tools

Specific Estimation Tools

- Estimation Tools We Have Seen
  - QSM SLIM
  - Galorath SEER

- Our Experience in Estimation Tools
  - Most are very useful for creating estimates for large, complex, long term projects
  - The leading products not only have estimation formulas baked in, but also include large databases of actual project experiences which can be used if you do not have a large enough project history of your own

Use CA PPM – OOTB - Waterfall

- Leverage the Project Team for Allocations before you have a plan

- Roles are used and collected from the various participating teams

- As the project progresses, leverage ETCs

Use Agile Central – OOTB - Agile
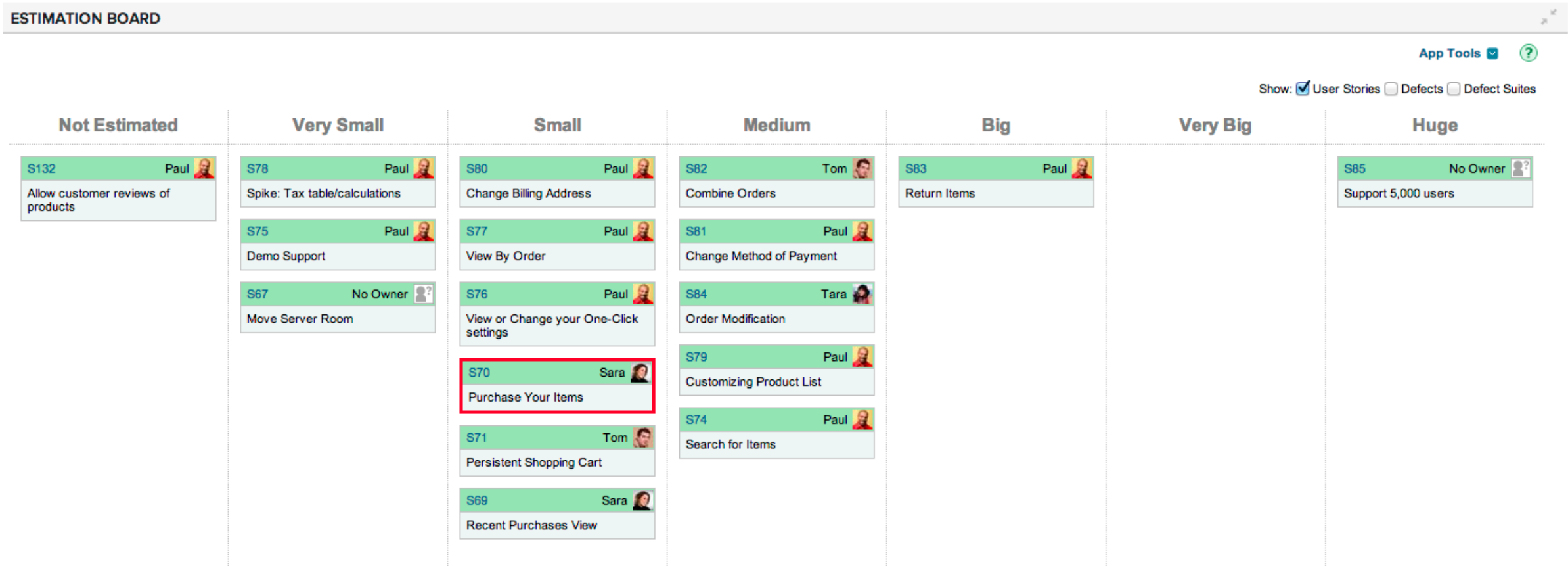
Use Agile Central – OOTB - Agile

From the Track page

From the My Tasks app

Story Point Estimate

Task Estimate (Do not edit after iteration begins)

Task To Do (Double-click to edit)

Rego Estimation Package

At a glance

PM determines estimate drivers → Estimate records are automatically created → SMEs notified to provide estimates → SMEs populate estimates → PM reviews and adjusts if necessary → OOTB functionality is populated → New portlets used to monitor estimating processes
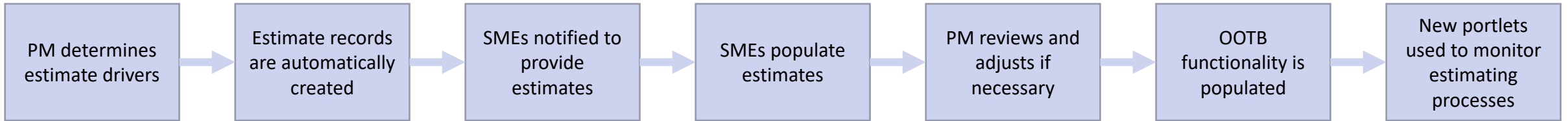
Detailed information of this package

- The project manager (PM) determines the estimate drivers that are impacted by the project
    - An estimate driver can be an application, service or some other component that has been previously defined
- When the estimate drivers are added and the project saved, estimate records are automatically created
- The PM runs a process by the Action menu that sends a notification to the group or subject matter expert (SME) that is responsible for estimating the effort for each driver
- The SME estimates and enters the effort hours
- The SME runs a process to populate hours for the other applicable roles
    - For example for every 1 hour for role developer, there is .1 hours for role architect and .4 hours for role project manager. These ratios can be set as a default or be overridden
- Once these hours are populated for each role they can be manually adjusted by the SME or PM
- Once all estimates are completed, the PM can review and adjust and then covert the estimate records into project allocations – putting the data where CA PPM needs it to be for OOTB functions
    - If there are multiple drivers on a project the conversion will convert to a role for each driver once an estimate is converted to the team, it is locked and can no longer be adjusted
- The PM/RM can then use OOTB functions like replacing roles, assignments, cost plans, etc.
- Portlets exist to: see a list of outstanding estimates, see estimates vs EAC and Actuals on the project, etc.

Rego Estimation Package (screenshots)

Summary

- Estimation is a critical process in every organization

- Most organizations do not do a great job at estimation

- There are several methods that can be used to estimate

- Discovering what works best for your Organization will result in better project success rates and more efficient use of resources

Questions?

regoUniversity 2018

Let Rego be your guide.

Thank You For Attending regoUniversity

Instructions for PMI credits

- Access your account at pmi.org
- Click on **Certifications**
- Click on **Maintain My Certification**
- Click on **Visit CCR's** button under the **Report PDU's**
- Click on **Report PDU's**
- Click on **Course or Training**
- Class Name = **regoUniversity**
- Course Number = **Session Number**
- Date Started = **Today's Date**
- Date Completed = **Today's Date**
- Hours Completed = **1 PDU per hour of class time**
- Training classes = **Technical**
- Click on **I agree** and **Submit**

Let us know how we can improve!
Don't forget to fill out the class survey.

Phone
888.813.0444

Email
info@regouniversity.com

Website
www.regouniversity.com