Quick Start Guide *for* ***Statistical PERT® Normal Edition Version 5.0***

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Learn about free monthly webinars, new releases, plus get tips & tricks for using a Statistical PERT® spreadsheet.

Quick Start for using a *Statistical PERT® Normal Edition* Excel spreadsheet

Using a Statistical PERT® spreadsheet is easy! First, download the ***Statistical PERT® Normal Edition*** example workbook for Microsoft Excel , and then use this ***Quick Start*** to understand the basics behind using and modifying your SPERT® spreadsheet.

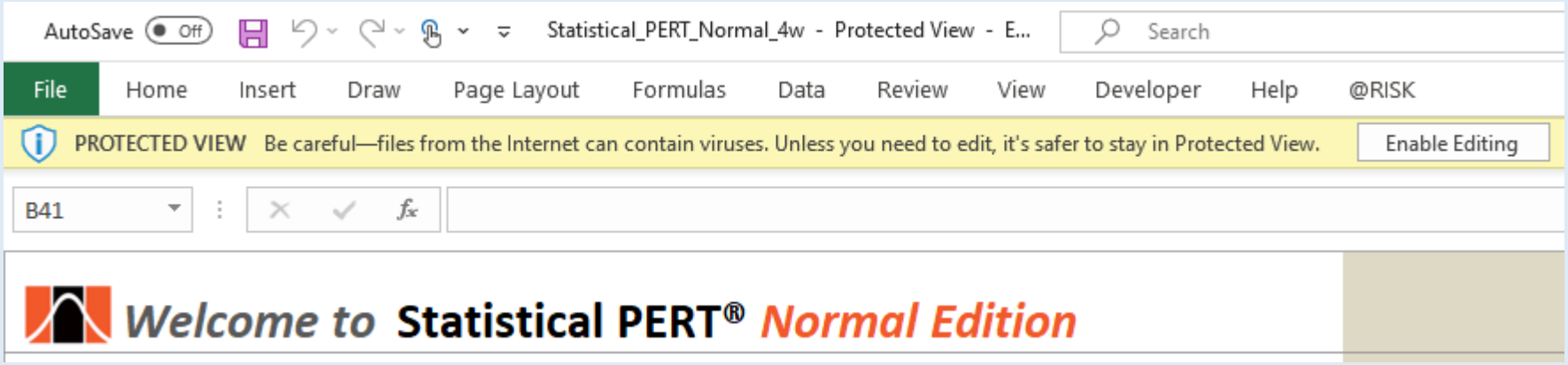
This Quick Start was created from the **Versions 4.3 and 5.0 Statistical PERT® Normal Edition** example workbook. Statistical PERT spreadsheets follow the same, basic structure and 3-step estimation process:

1) Create a 3-point estimate (minimum, most likely, maximum) for any uncertainty that has bell-shaped (normally distributed) risk properties
2) Render a subjective judgment about *how likely* is the uncertainty's most likely outcome
3) Select any probabilistic planning estimate, or make a risk-based forecast using SPERT-created estimates

Before you download the ***Statistical PERT® Normal Edition*** example workbook or template from https://www.statisticalpert.com, be sure you have Microsoft Excel installed on your computer. You must be running Microsoft Excel 2010, Excel 2013, Excel 2016, Excel 2019 or Office 365. **Statistical PERT is not compatible with Excel Online, Google Sheets, or other spreadsheet software programs**.

Statistical PERT also works on smartphones like the Apple iPhone or any Android-based smartphone – just download the free Microsoft Excel phone app for your iPhone or Android device. Then, either use a full-featured SPERT download on your mobile device, or download SPERT® Mobile to use a special, simplified version of Statistical PERT® Normal Edition made especially for the small screen size of mobile devices.

When you first open a downloaded SPERT file from the Internet, the spreadsheet opens to the **Welcome!** tab. Excel may prompt you with a Protected View notice. To use Statistical PERT, you must press the **Enable Editing** button. (You can run your computer's virus-scanner, firstly, if you wish).



Important Note for using Statistical PERT® Normal Edition Versions 4 & 5 (and later)

Version 4 of Statistical PERT® Normal Edition introduced a new worksheet (**SPERT® Normal MC Simulation** tab) that uses Monte Carlo simulation to perform 10,000 trials of a single, random variable (this worksheet is also in Version 5). Depending on an application-level setting in your version of Excel, Excel may re-simulate 10,000 trials every time any cell is altered on any worksheet. This action may noticeably slow down the performance of all Statistical PERT worksheets, even those worksheets that do not use Monte Carlo simulation.

To improve the performance of all Statistical PERT® Normal Edition Versions 4 & 5 (and later) worksheets, change Excel's formula calculation option to **Automatic Except for Data Tables.** This is an application-level setting—not a file setting—and so you may have to change this setting again if you or another user changes this setting back to **Automatic**.

To make this setting change, do the following:

1) On the Excel Ribbon, identify for the "Calculation" group under the "Formulas" menu selection
2) Click the "Calculation Options" button
3) Select "**Automatic Except for Data Tables**" to increase the speed and calculation performance of all Version 4 SPERT worksheets

Alternatively, if you do not want or need the Monte Carlo simulation worksheet (**SPERT® Normal MC Simulation** tab), you can simply delete this entire worksheet. Deleting the SPERT® Normal MC Simulation worksheet will have no impact to the rest of the worksheets in the Statistical PERT Normal Edition spreadsheet file.

TL;DR

On the Excel Ribbon, look for the "Calculation" group under the "Formulas" menu selection. Then, click the "Calculation Options" button and select "**Automatic Except for Data Tables**" to increase the speed and calculation performance of all Version 4 or 5 Statistical PERT® Normal Edition worksheets.

Or, simply delete the **SPERT® Normal MC Simulation** worksheet from this Excel workbook.

Using the Super Simple SPERT® worksheet

The **Super Simple SPERT®** worksheet is the fastest way to learn how Statistical PERT works. To begin, think of an uncertainty that has bell-shaped risk properties. That is, think of an uncertainty that has an improbable minimum value, an improbable maximum value, and a most likely value that lies close to the middle between the minimum and maximum values you chose. Enter your *minimum*, *most likely* and *maximum* values in cells C3:C5, respectively.

In cell C6, see if there is a green checkmark. If so, you've correctly entered a 3-point estimate in the right order.

In cell C7, see if the light indicator is green or yellow. If so, your 3-point estimate is indicative of an uncertainty with bell-shaped risk properties.

In cell C9, choose a subjective judgment from the dropdown list that best represents *HOW LIKELY* is the most likely outcome you specified in cell C4. If this is an uncertainty you are very familiar with, you might select "High Confidence" (or something similar), but if this is an uncertainty you are not familiar with, you might choose "Low Confidence" (or something similar). Your choice will influence the implied, bell-shaped probability curve shown in cell C10, and the SPERT probabilistic estimate in cell C16.

Choose a *planning estimate* in cell C12. A *planning estimate* is any value of interest between your minimum and maximum point-estimates. Once you enter a planning estimate, SPERT will calculate (in cells B14, C14 and D14) the probability of the uncertainty's true value being **equal to** or **less than** your planning estimate, and the probability of the uncertainty's true value being **greater than** your planning estimate.

Choose any probability between 1% and 99% and enter it in cell C15. SPERT will calculate an estimate in cell C16 that will be **equal to** or **greater than** the uncertainty's true value with the probability of occurrence you specified in cell C15 *(when "Show Left-Side Area" is chosen in cell C13; if "Show Right-Side Area" is selected in cell C13, then the uncertainty's true value will exceed the SPERT estimate with the probability of occurrence you specified in cell C15).*

	A	B	C	D	E	F	G	H	I	J	K
1		**Statistical PERT® (SPERT®)** ***Normal Edition*** ***Super Simple SPERT®***		Click for help							
2		**Think about an uncertain outcome. Then, fill-in the yellow cells, below:**									
3		*Enter your uncertainty's* **minimum** *value →*	50	*What's the minimum possible value or outcome for your uncertainty?*							
4		*Enter your uncertainty's* **most likely** *value →*	100	*What's the most-likely-to-occur value or outcome for your uncertainty?*							
5		*Enter your uncertainty's* **maximum** *value →*	150	*What's the maximum possible value or outcome for your uncertainty?*							
6		*Validate your values →*	✔	*See a green checkmark? Keep going! See a yellow exclamation mark? Check your 3-point entry to see if it's correct.*							
7		*Check if this is a bell-shaped uncertainty →*	●	*See a green or yellow light? Keep going! See a red light? SPERT won't work well for this estimate scenario.*							
9		*How confident are you in the* ***most likely*** *outcome? →*	Medium confidence	*Render a subjective judgment (your opinion) about HOW LIKELY the Most Likely outcome really is*							
10		*Here's your implied, bell-shaped curve →*		*Based upon your entries, this is how SPERT models your uncertainty using the normal distribution*							
12		*Enter a* **planning** *estimate →*	75	*Your planning estimate is any interesting number between your minimum and maximum estimates*							
13		*Choose either the left- or right-side area →*	Show Left-Side Area	*You can obtain SPERT estimates from either the left- or right-side area of the bell-curve*							
14		Your planning estimate of 75 is greater than 11% of all possible outcomes →	11%	89% of all possible outcomes exceed your planning estimate of 75							
15		*Enter any percentage* between 1% and 99% →	50%	*Below, SPERT will calculate an estimate for you*							
16		The SPERT estimate of 100 is greater than 50% of all possible outcomes →	100	50% of all possible outcomes exceed the SPERT estimate of 100							

Using the SPERT® Normal Edition Example Workbook ***to estimate task duration, expenses, revenue, agile development & more.***

To create probabilistic estimates for bell-shaped uncertainties like task duration, expenses, revenue, agile sprints, event attendance, and more, select:

- **SPERT® Normal for Beginners** to learn how to use Statistical PERT
- **SPERT® Normal (1-Point entry)** to auto-generate three-point estimates using just a **single, one-point estimate** for each uncertainty
- **SPERT® Normal (3-Point entry)** to manually enter **three-point estimates** (minimum, most likely, maximum) for each uncertainty
- **SPERT® Normal (Mixed entry)** to use a mixed approach for creating three-point estimates for each uncertainty
- **SPERT® Normal Scheduler** to create a probabilistic schedule for a project's critical path at the task or activity level
- **SPERT® Normal (Agile Forecast)** to create a release date forecast for agile software development
- **SPERT® Normal (Burn-up Chart)** to create an agile burn-up chart for agile software development
- **SPERT® Normal (CFD Chart)** to create a cumulative flow diagram for any team using a workflow process *(Version 5 only)*

Statistical PERT example workbooks and templates are occasionally updated, so you may see differences between this Quick Start and the SPERT file you are using. However, all Statistical PERT spreadsheets operate similarly, so this Quick Start generally applies to any Statistical PERT® Normal Edition download, Version 2 and higher (not all features are available on older versions of SPERT).

*If you have downloaded the **Statistical PERT® Beta Edition**, you can find the Quick Start for the Beta Edition here.*

What's the Difference between the Normal Edition and the Beta Edition of Statistical PERT®?

Normal Edition:

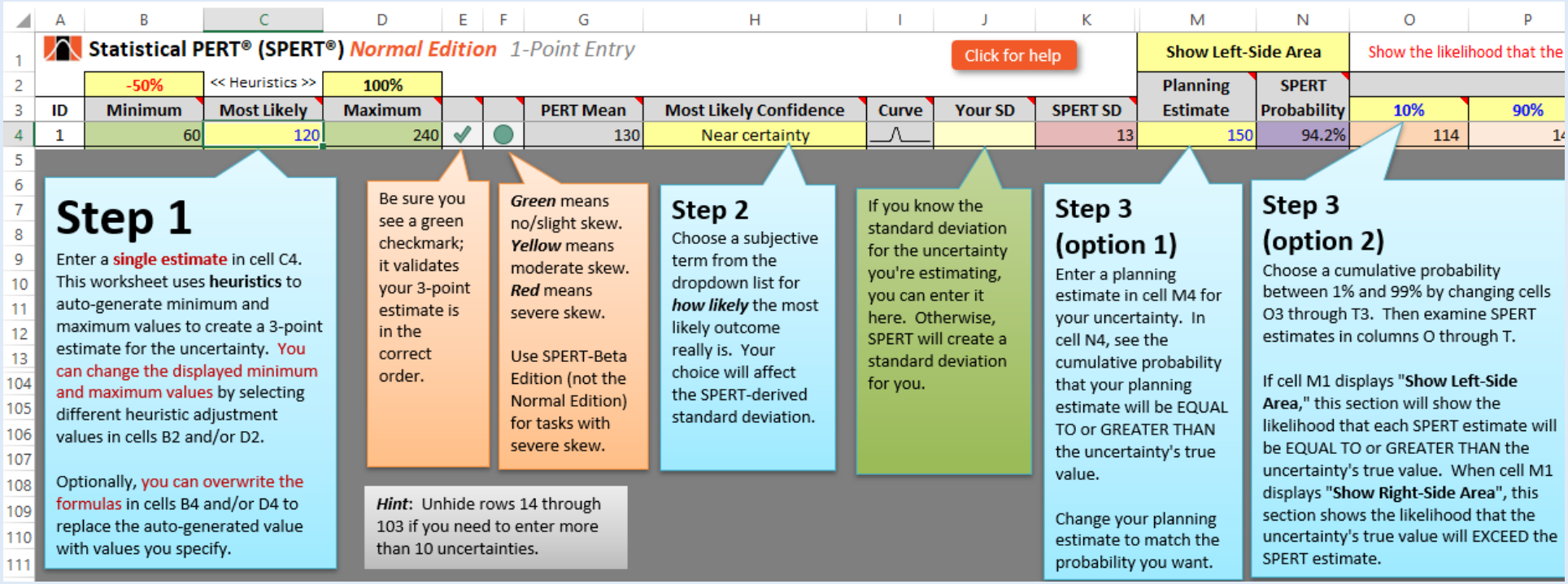
- Models bell-shaped uncertainties where the underlying uncertain only has mild-to-moderate skewing
- Uses simple formulas that can be easily written into a blank Excel spreadsheet
- Is better supported with whitepapers, brochures, blog articles, and a Pluralsight training course
- Uses Excel's NORM.DIST, NORM.INV functions for the normal distribution
- Can be easily changed

Beta Edition:

- Models a wider range of bell-shaped uncertainties, including very skewed uncertainties, with greater overall accuracy (vs. the Normal Edition)
- Uses ratio scales to estimate the standard deviation and mean
- Uses 290 pre-determined probability curves to fit the best one for a specific uncertainty
- Uses Excel's BETA.DIST, BETA.INV for the beta distribution (plus NORM.DIST and NORM.INV functions where the Central Limit Theorem applies)
- Cannot be easily changed

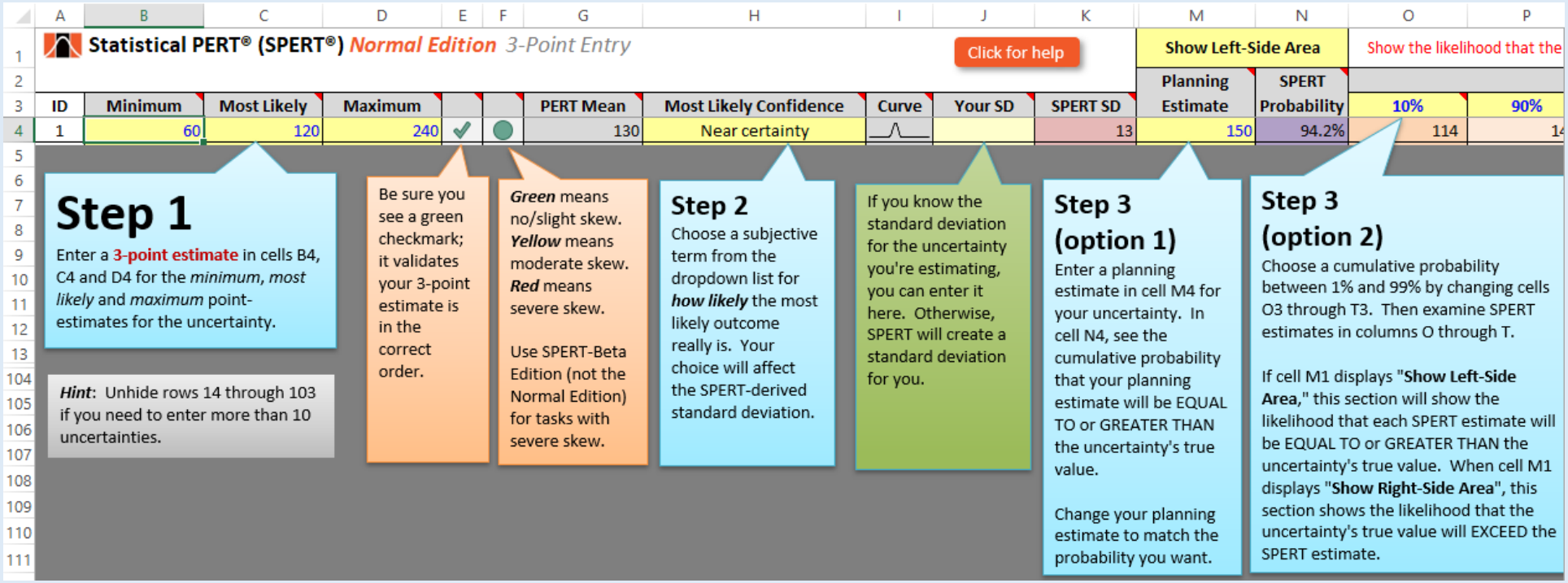
Using the SPERT® Normal (1-Point entry) worksheet

Examine the annotated screenshot below to learn how to enter **single, 1-point estimates** for each uncertainty into the **Statistical PERT® Normal Edition** worksheet, and how to obtain probabilistic estimates for each uncertainty you enter:



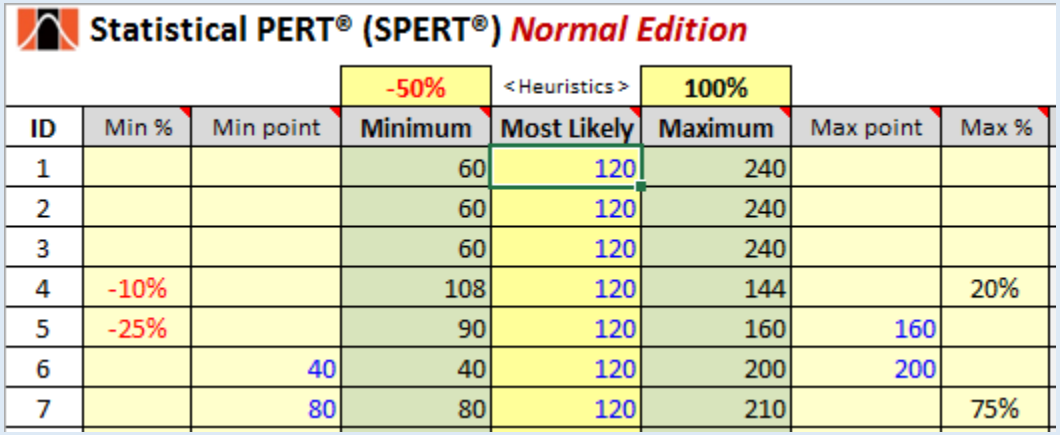
Using the SPERT® Normal (3-Point entry) worksheet

Examine the annotated screenshot below to learn how to enter **3-point estimates** for each uncertainty into the **Statistical PERT® Normal Edition** worksheet, and how to obtain probabilistic estimates for each uncertainty you enter:



Using the SPERT® Normal (Mixed entry) worksheet

This worksheet combines the features of the **1-point entry** and **3-point entry** worksheets into a single worksheet, offering you the flexibility to use global heuristics, row-level calculations, and manual entry of the minimum and/or maximum point-estimates.



Statistical PERT® (SPERT®) *Normal Edition*

			-50%	<Heuristics>	100%		
ID	Min %	Min point	Minimum	Most Likely	Maximum	Max point	Max %
1			60	120	240		
2			60	120	240		
3			60	120	240		
4	-10%		108	120	144		20%
5	-25%		90	120	160	160	
6		40	40	120	200	200	
7		80	80	120	210		75%

With **Mixed entry**, you can choose three different ways to specify the minimum and maximum point-estimates for each uncertainty. You can:

- Use global heuristics (specified above the **Minimum** and **Maximum** column headings) to calculate minimum and maximum point-estimates for all rows as a percentage of the value(s) entered under the **Most Likely** column (just like with the **1-point entry** worksheet)
- Use a row-specific minimum and/or maximum percentage (**Min %** and **Max %**) to calculate minimum and/or maximum point-estimates as a percentage of each row's **Most Likely** point-estimate
- Enter a minimum and/or maximum point-estimate for any row (under **Min point** and **Max point,** similar to entering values in the **3-point entry** worksheet)

The cell formulas under the **Minimum** and **Maximum** column headings use a precedence order to determine minimum and maximum point-estimates:

- First, if entered, values under the **Min point** and **Max point** are used to create three-point estimates for each uncertainty
- Second, if specified, minimum and/or maximum point-estimates are calculated using the row-specific percentages (these are specified under the **Min %** and **Max %** column headings)
- Third, global heuristics (specified above the **Minimum** and **Maximum** column headings) are used to calculate the minimum and maximum point-estimates for all rows

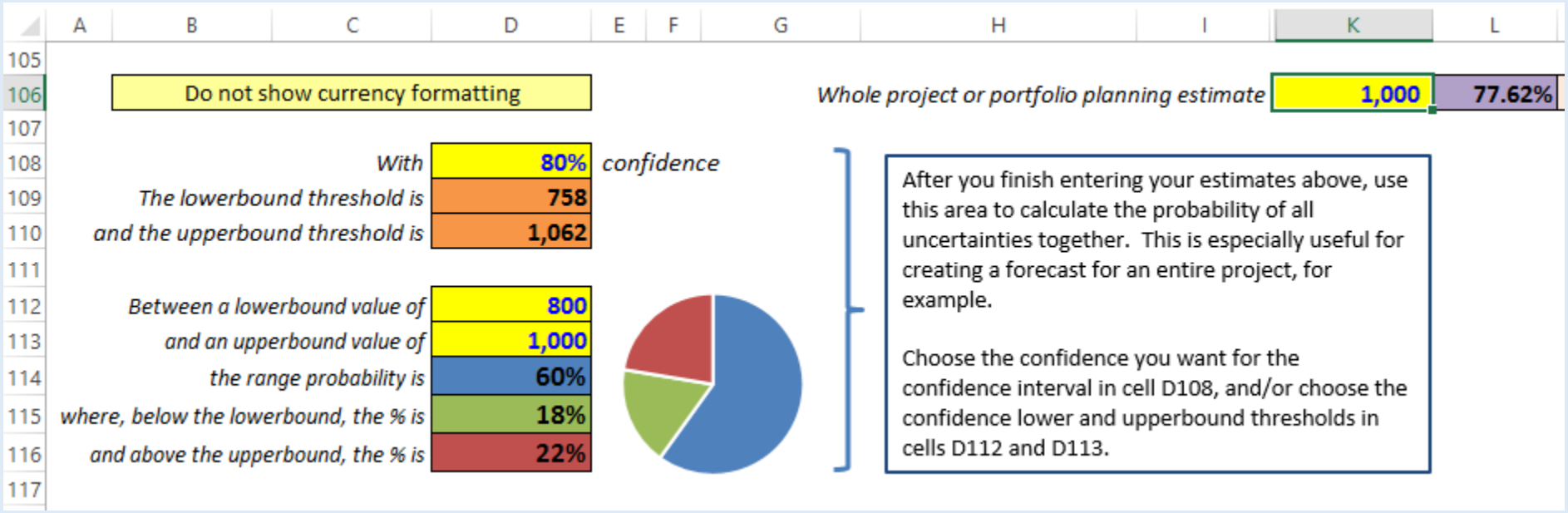
You can selectively choose when to use global heuristics, row-level percentages, or specific values for the minimum and maximum point-estimates.

On the bottom half of the **SPERT® Normal (1-Point entry)**, **SPERT® Normal (3-Point entry)**, and **SPERT® Normal (Mixed entry)** worksheets, you will see probabilistic estimates for all the uncertainties you entered, respectively, in those worksheets. You may change any of the cells highlighted with a bright yellow background color. The other cells have formulas in them; do not change those cells.

Use this section to create a range forecast showing the likelihood of all uncertainties having a sum between the lowerbound and upperbound limits.

Example using work effort estimates for all tasks on a project *{SPERT® Normal (1-Point entry) worksheet}:*

- Enter all work effort estimates for all project tasks (using effort hours, days, weeks, story points, etc.) in rows 4 through 103
- Create a high confidence range forecast for the project by entering a high confidence percentage (like 80% or higher) in cell D108, then see how much total effort the entire project will likely require in cells D109 and D110
- Choose a custom interval by specifying both the lowerbound and upperbound limits in cells D112 and D113, respectively, then examine the likelihood that the project's total effort will be within the interval you specified



Using the SPERT® Normal Scheduler worksheet (Version 5 only)

This worksheet is a copy of the **SPERT® Normal (Mixed entry)** worksheet, but adds new columns to permit creating a probabilistic schedule for a project at either the task or activity level. Every task or activity's time duration can be modeled separately, and this worksheet will calculate the start and finish dates for each step of the project.

To use this feature, only enter tasks or activities that are on the project's ***critical path***. Do not enter non-critical path tasks or activities because that will wrongly elongate the project's finish date. Also, if a project's critical path has multiple paths, enter only one path, not both, otherwise the project's finish date will wrongly elongate.

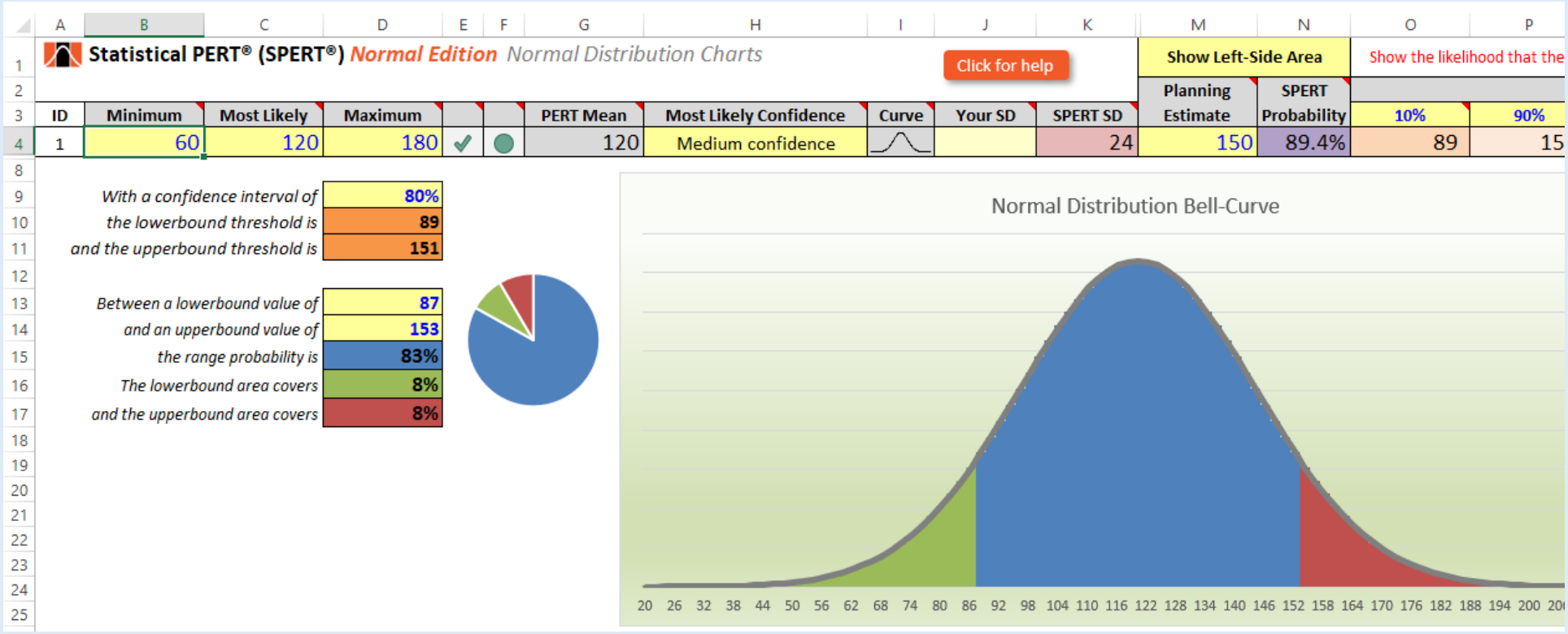
In the example below, a project's critical path is shown at the activity level. To begin, enter the project's start date in cell C1, then enter the probability of each activity (or task) finishing on-time in cell B2 (the confidence level for each step of the project). Statistical PERT's Scheduler worksheet will calculate the start and finish dates of each project step and show the project's finish date in cell D1. Include a schedule contingency in cell B105. In cell range A108:B147, enter non-working dates. The SPERT Scheduler will assume a normal, five-day work week (Monday-Friday) but exclude any non-working dates you list.

	A	B	C	D
1	SPERT® Scheduler	Start & Finish	8/2/2021	8/18/2022
2	*For scheduling the critical path ONLY!*	90%		34.9%
3	Activity *or* Task	Duration	Start Date	Finish Date
4	Project initiation	6	8/2/2021	8/9/2021
5	Business requirements analysis	24	8/10/2021	9/13/2021
6	Detail design	19	9/14/2021	10/8/2021
7	Prototype	26	10/11/2021	11/15/2021
8	Build solution	99	11/16/2021	4/20/2022
9	Migrate to QA	8	4/21/2022	5/2/2022
10	QA user acceptance test	42	5/3/2022	6/30/2022
11	Pre-production prep	11	7/1/2022	7/18/2022
12	Production migration	2	7/19/2022	7/20/2022
13	Project closure	11	7/21/2022	8/4/2022
14				
15				
104	*If needed, unhide rows 16-103*	248		
105		10	*Optional schedule contingency*	

	A	B
107	Non-work Day Description	Date
108	Labor Day (USA)	9/6/2021
109	Thanksgiving Day (USA)	11/25/2021
110	Day after Thanksgiving Day (USA)	11/26/2021
111	Christmas Break	12/20/2021
112	Christmas Break	12/21/2021

Using the SPERT® Normal Charts worksheet

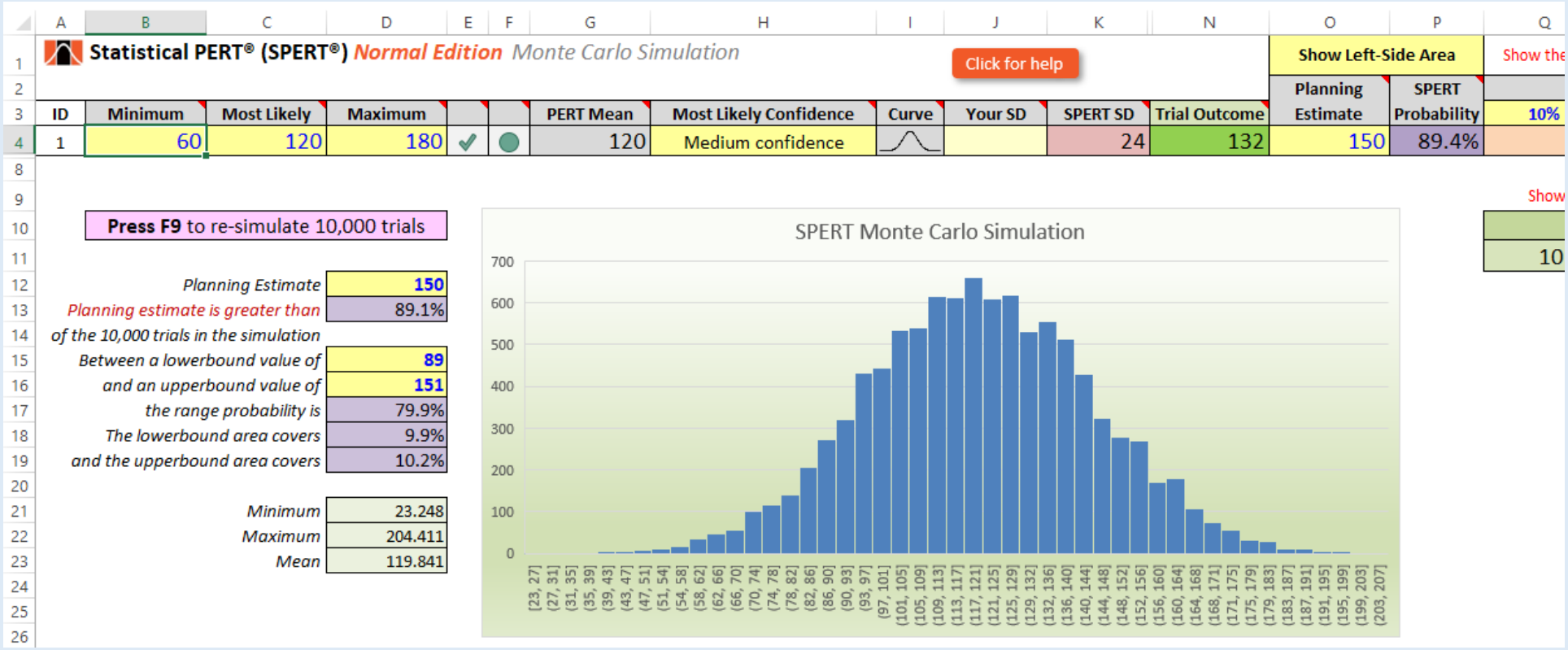
On this worksheet, you can model just one uncertainty and see the implied, bell-shaped probability curve (the probability density function):



Changing *minimum, most likely* and/or *maximum* values (cells B4, C4, and D4, respectively) or changing the *most likely confidence* dropdown (cell H4) will alter the appearance of the tri-colored, bell-shaped curve. The areas under the bell-curve are determined by the values in cells D13 and D14, which determine the lowerbound and upperbound thresholds, respectively.

Using the SPERT® Normal MC Simulation worksheet

On this worksheet, you can model just one random, independent variable **using Monte Carlo simulation** and see the implied, bell-shaped probability curve (the probability density function):



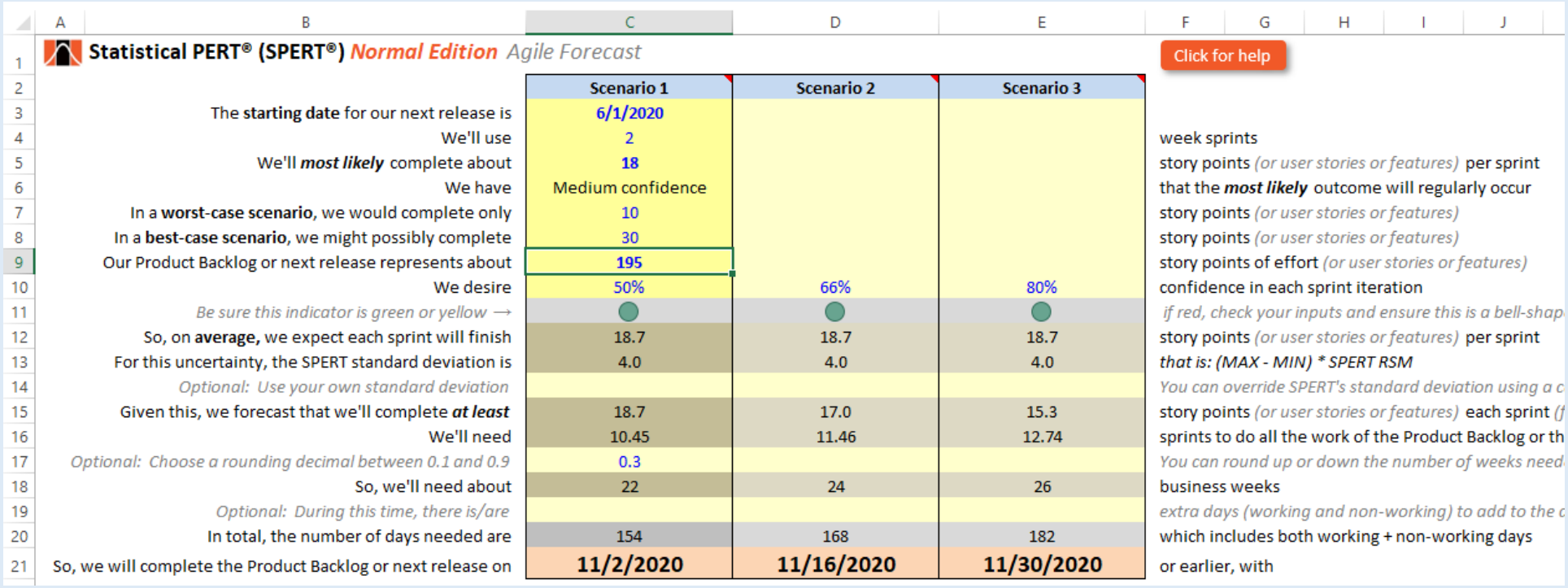
The Monte Carlo simulation uses an Excel data table to sample 10,000 trials of the uncertainty with the characteristics you specified (that this, your 3-point estimate and your *Most Likely Confidence* dropdown selection). To re-simulate, **press F9**. If the Statistical PERT spreadsheet appears sluggish on other worksheets, check the Excel formula calculation setting for Excel. This is an application-level setting.

Here's how to do that: on the Excel Ribbon, look for the "Calculation" group under the "Formulas" menu selection. Then, click the "Calculation Options" button and select "**Automatic Except for Data Tables**" to increase the speed and performance of all Version 4 SPERT worksheets. Or you can simply delete the SPERT® Normal MC Simulation worksheet from this Excel workbook of you don't want or need to use the Monte Carlo simulation capability of Statistical PERT.

Note: This worksheet uses Excel's built-in Histogram chart introduced with Excel 2016. Excel 2010 and 2013 users will instead see an error message inside the histogram chart box. Users of Excel 2010 or 2013 can manually create a histogram chart by visiting this blog post.

Using the SPERT® Normal - Agile Forecast worksheet

On this worksheet, you can evaluate different release date options for your agile team using Scrum or for a team that uses regular iteration cycles to plan work:



Statistical PERT® (SPERT®) *Normal Edition* *Agile Forecast*

Click for help

	Scenario 1	Scenario 2	Scenario 3	
The **starting date** for our next release is	6/1/2020			
We'll use	2			week sprints
We'll ***most likely*** complete about	18			story points *(or user stories or features)* per sprint
We have	Medium confidence			that the ***most likely*** outcome will regularly occur
In a **worst-case scenario**, we would complete only	10			story points *(or user stories or features)*
In a **best-case scenario**, we might possibly complete	30			story points *(or user stories or features)*
Our Product Backlog or next release represents about	195			story points of effort *(or user stories or features)*
We desire	50%	66%	80%	confidence in each sprint iteration
Be sure this indicator is green or yellow →				*if red, check your inputs and ensure this is a bell-shap*
So, on **average,** we expect each sprint will finish	18.7	18.7	18.7	story points *(or user stories or features)* per sprint
For this uncertainty, the SPERT standard deviation is	4.0	4.0	4.0	*that is: (MAX - MIN) * SPERT RSM*
Optional: Use your own standard deviation				*You can override SPERT's standard deviation using a c*
Given this, we forecast that we'll complete ***at least***	18.7	17.0	15.3	story points *(or user stories or features)* each sprint *(f*
We'll need	10.45	11.46	12.74	sprints to do all the work of the Product Backlog or th
Optional: Choose a rounding decimal between 0.1 and 0.9	0.3			*You can round up or down the number of weeks need*
So, we'll need about	22	24	26	business weeks
Optional: During this time, there is/are				*extra days (working and non-working) to add to the c*
In total, the number of days needed are	154	168	182	which includes both working + non-working days
So, we will complete the Product Backlog or next release on	**11/2/2020**	**11/16/2020**	**11/30/2020**	or earlier, with

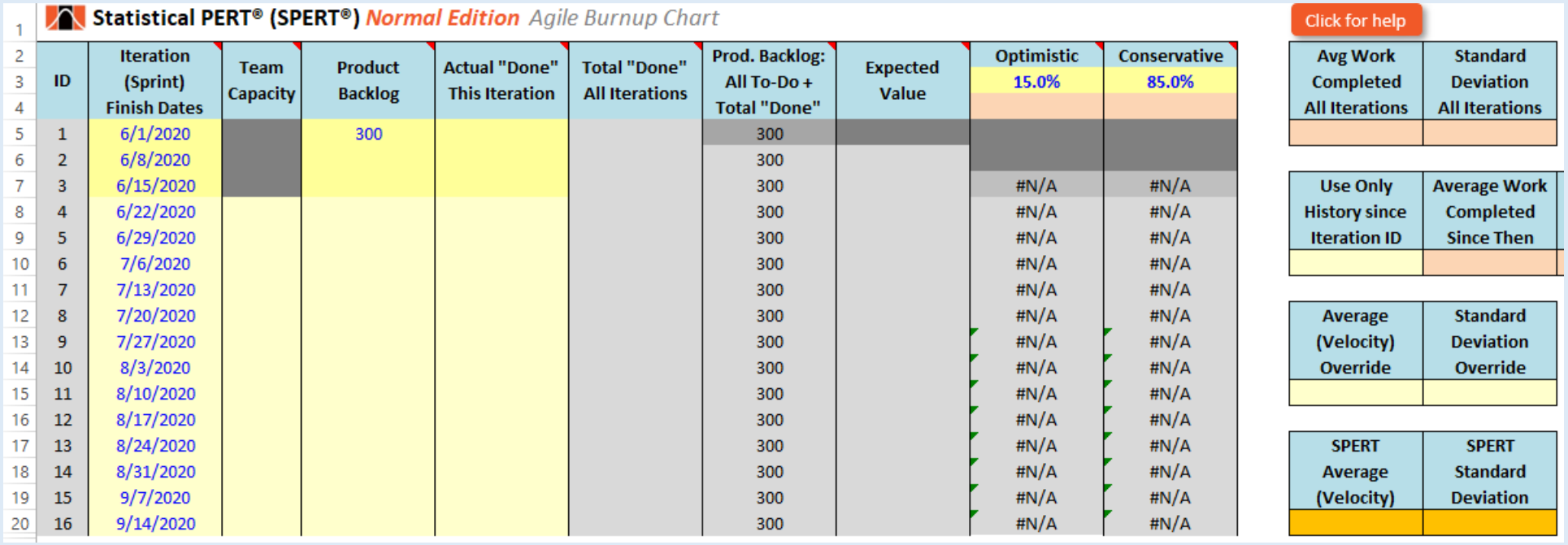
This worksheet uses the same approach for estimating as all SPERT worksheets: Enter a 3-point estimate (cells C5, C7 and C8) and a subjective judgment about the most likely outcome in the C6 dropdown. Use your team's velocity (actual or estimated) in cell C5. Enter the total work represented on your product backlog or the next major release in cell C9. Statistical PERT will generate a standard deviation which is necessary to make a probabilistic date calculation. For higher confidence, the release date will be longer, with less confidence, the release date will be sooner. *Be very cautious about selecting any release date with less than 50% confidence (cell C10), as very often "unknown unknowns" in software development causes work efforts to take longer than expected!*

Use the optional rounding decimal (cell C17) to force fractional sprints to be rounded up. In the example above, cell C16 shows it takes 10.45 sprints to complete 195 units of work represented on the product backlog, but that is rounded up to 11 sprints (22 business weeks in cell C18; each sprint is 2 weeks long in the example) by adding an extra 0.3 amount to force rounding up to the next integer amount.

Scenarios 2 and 3 (columns D and E) use the same inputs as Scenario 1 unless they are explicitly overridden. In the example above, Scenario 2 replaces the 50% confidence choice in cell C10 with a 66% value in cell D10, and Scenario 3 uses an 80% value in cell E10. Scenario 1's other input choices remain unchanged.

Using the SPERT® Normal - Burn-up Chart worksheet

On this worksheet, you can enter input values necessary to create an agile burn-up chart. The agile burn-up chart plots the amount of work your agile team has completed so far, and then estimates the most likely amount of work your team will complete in the future, along with two other projections (usually, an optimistic/aggressive estimate and a pessimistic/conservative estimate):



Statistical PERT® (SPERT®) *Normal Edition* *Agile Burnup Chart*

Click for help

ID	Iteration (Sprint) Finish Dates	Team Capacity	Product Backlog	Actual "Done" This Iteration	Total "Done" All Iterations	Prod. Backlog: All To-Do + Total "Done"	Expected Value	Optimistic 15.0%	Conservative 85.0%
1	6/1/2020		300			300			
2	6/8/2020					300			
3	6/15/2020					300		#N/A	#N/A
4	6/22/2020					300		#N/A	#N/A
5	6/29/2020					300		#N/A	#N/A
6	7/6/2020					300		#N/A	#N/A
7	7/13/2020					300		#N/A	#N/A
8	7/20/2020					300		#N/A	#N/A
9	7/27/2020					300		#N/A	#N/A
10	8/3/2020					300		#N/A	#N/A
11	8/10/2020					300		#N/A	#N/A
12	8/17/2020					300		#N/A	#N/A
13	8/24/2020					300		#N/A	#N/A
14	8/31/2020					300		#N/A	#N/A
15	9/7/2020					300		#N/A	#N/A
16	9/14/2020					300		#N/A	#N/A

Avg Work Completed All Iterations	Standard Deviation All Iterations

Use Only History since Iteration ID	Average Work Completed Since Then

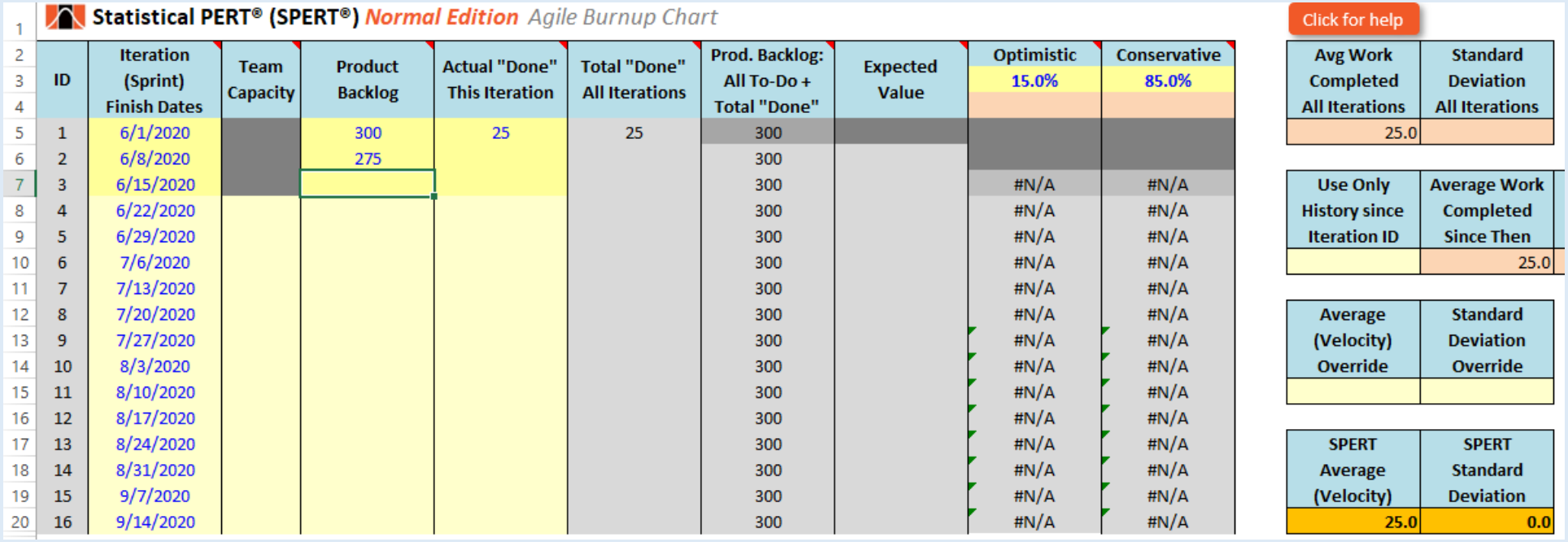
Average (Velocity) Override	Standard Deviation Override

SPERT Average (Velocity)	SPERT Standard Deviation

First, enter the iteration finish dates *for at least six iterations* in cells B5:B10. You can enter up to 52 iteration finish dates by unhiding rows 21 to 56. Then, enter the total amount of work to be completed in cell D5 (either the entire product backlog, or a subset of the product backlog for release planning).

Then, as your team completes an iteration, fill-in column E with the amount of "done" work that your team completed. Adjust the amount of work left to do in column D to reflect product backlog changes (work that is removed, work that is added, work that is completed). *Do not go back to change the history of what was formerly estimated on the Product Backlog!* The historical account will be reflected in the Product Backlog trend line on the agile burn-up chart.

(Note: In Version 4.0 thru Version 4.1, this worksheet required users to copy the last Product Backlog entry (in column D) downward to match the last iteration finish date entered in column B. In Version 4.2, this extra step is no longer required. Version 4.3 introduced the all-new Team Capacity which is now column C.)



Statistical PERT® (SPERT®) *Normal Edition* *Agile Burnup Chart*

Click for help

ID	Iteration (Sprint) Finish Dates	Team Capacity	Product Backlog	Actual "Done" This Iteration	Total "Done" All Iterations	Prod. Backlog: All To-Do + Total "Done"	Expected Value	Optimistic 15.0%	Conservative 85.0%
1	6/1/2020		300	25	25	300			
2	6/8/2020		275			300			
3	6/15/2020					300		#N/A	#N/A
4	6/22/2020					300		#N/A	#N/A
5	6/29/2020					300		#N/A	#N/A
6	7/6/2020					300		#N/A	#N/A
7	7/13/2020					300		#N/A	#N/A
8	7/20/2020					300		#N/A	#N/A
9	7/27/2020					300		#N/A	#N/A
10	8/3/2020					300		#N/A	#N/A
11	8/10/2020					300		#N/A	#N/A
12	8/17/2020					300		#N/A	#N/A
13	8/24/2020					300		#N/A	#N/A
14	8/31/2020					300		#N/A	#N/A
15	9/7/2020					300		#N/A	#N/A
16	9/14/2020					300		#N/A	#N/A

Avg Work Completed All Iterations	Standard Deviation All Iterations
25.0	

Use Only History since Iteration ID	Average Work Completed Since Then
	25.0

Average (Velocity) Override	Standard Deviation Override

SPERT Average (Velocity)	SPERT Standard Deviation
25.0	0.0

In the example above, after the 6/1/2020 iteration completed, a Scrum team completed 25 story points off their product backlog (cell D5). The new amount of work left to complete is 275 story points (300 minus the 25 that was finished in the first iteration). So, 275 is entered in cell D6. *Note that the number of story points estimated in cell D5 is left unchanged after the first sprint finishes.*

Important note: Always re-calculate the amount of work left to complete on the Product Backlog (or for the next release) at the end of every iteration. The amount may change because new items might be added, and existing items might have been removed or re-estimated. Product Backlogs are actively managed, and the amount of work left to do may change frequently throughout the iteration.

Once you have finished several iterations and have added the history of what each iteration completed, you'll begin to see how the agile burn-up chart shows both the historical record and a projection of what the team might accomplish in future iterations.

Statistical PERT® (SPERT®) *Normal Edition* *Agile Burnup Chart*

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ID	Iteration (Sprint) Finish Dates	Team Capacity	Product Backlog	Actual "Done" This Iteration	Total "Done" All Iterations	Prod. Backlog: All To-Do + Total "Done"	Expected Value	Optimistic 15.0%	Conservative 85.0%
								33.3	17.2
1	6/1/2020		300	25	25	300			
2	6/8/2020		275	18	43	300			
3	6/15/2020		253	38	81	296		#N/A	#N/A
4	6/22/2020		215	20	101	296	101	#N/A	#N/A
5	6/29/2020		150			251	126	134	118
6	7/6/2020					251	152	168	135
7	7/13/2020					251	177	201	153
8	7/20/2020					251	202	234	170
9	7/27/2020					251	227	268	187
10	8/3/2020					251	253	301	204
11	8/10/2020					251	278	334	221
12	8/17/2020					251	303	368	238
13	8/24/2020					251	328	401	256
14	8/31/2020					251	354	434	273
15	9/7/2020					251	379	468	290
16	9/14/2020					251	404	501	307

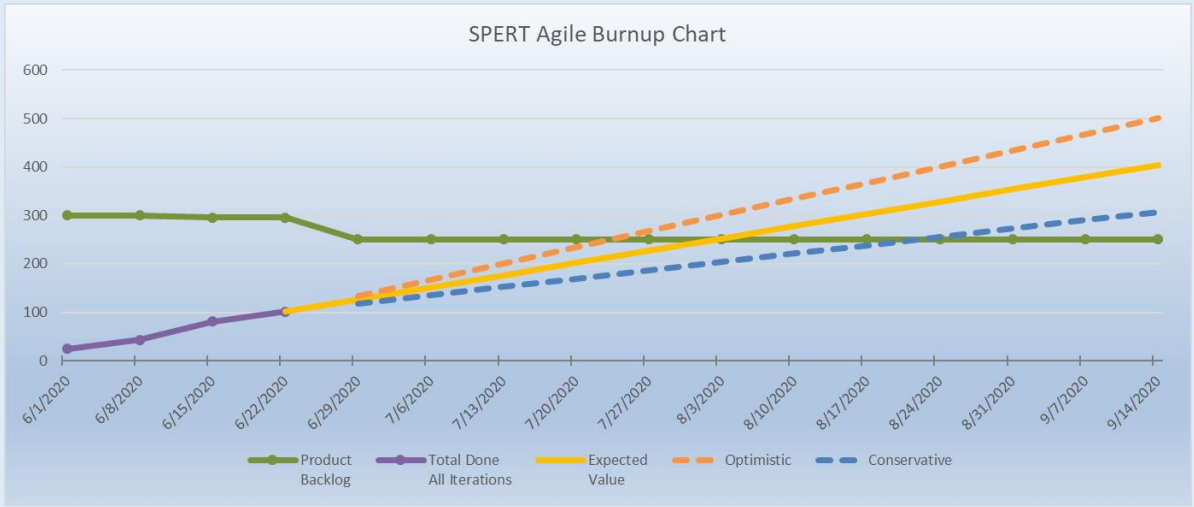
Avg Work Completed All Iterations	Standard Deviation All Iterations
25.3	7.8

Use Only History since Iteration ID	Average Work Completed Since Then
	25.3

Average (Velocity) Override	Standard Deviation Override

SPERT Average (Velocity)	SPERT Standard Deviation
25.3	7.8

In the example above, a Scrum team has worked together for four sprints. They have completed 101 story points of work to-date (cell G8). After the 4th sprint, the Product Owner removed items from off the Product Backlog to shorten the delivery date, leaving only 150 story points left to do. The aggressive finish date (only 15% probable) is 7/27/2020. The expected finish date (50% probable) is 8/3/2020. The conservative finish date (85% probable) is 8/24/2020.



Now this team realizes that they will not be working on this agile effort for the entire week ending July 6, 2020. They can modify their expected team capacity for future iterations using the new "Team Capacity" feature in Version 4.3 (column C). By selecting 0% from the dropdown list in cell C10, the forecast lines automatically adjust for the lower team capacity. *Note: The team has other team capacity choices besides just 0%.*

You can control the dropdown values that display in column C by interacting with the Vlookups worksheet.

Statistical PERT® (SPERT®) *Normal Edition* *Agile Burnup Chart*

Click for help

ID	Iteration (Sprint) Finish Dates	Team Capacity	Product Backlog	Actual "Done" This Iteration	Total "Done" All Iterations	Prod. Backlog: All To-Do + Total "Done"	Expected Value	Optimistic 15.0%	Conservative 85.0%
								33.3	17.2
1	6/1/2020		300	25	25	300			
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3	6/15/2020		253	38	81	296		#N/A	#N/A
4	6/22/2020		215	20	101	296	101	#N/A	#N/A
5	6/29/2020		150			251	126	134	118
6	7/6/2020	0%				251	126	134	118
7	7/13/2020					251	152	168	135
8	7/20/2020					251	177	201	153
9	7/27/2020					251	202	234	170
10	8/3/2020					251	227	268	187
11	8/10/2020					251	253	301	204
12	8/17/2020					251	278	334	221
13	8/24/2020					251	303	368	238
14	8/31/2020					251	328	401	256
15	9/7/2020					251	354	434	273
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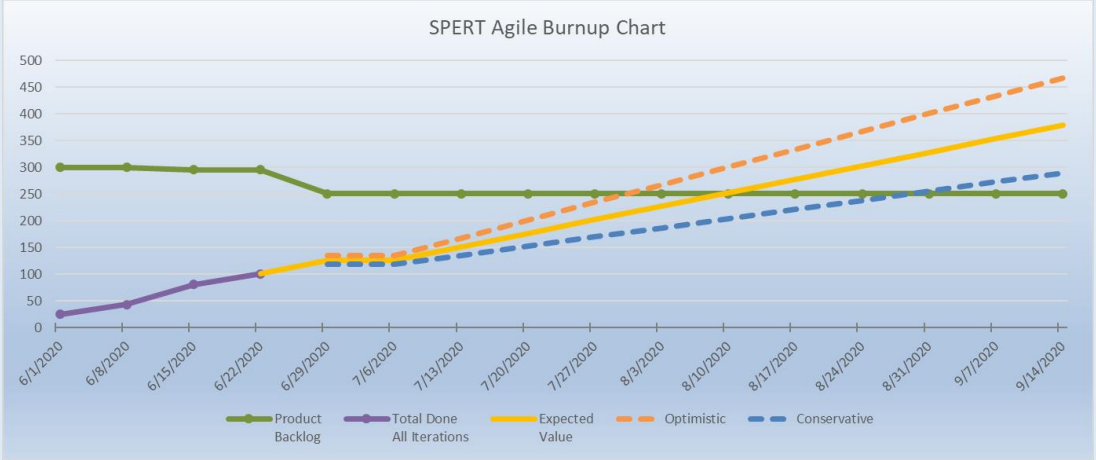
Avg Work Completed All Iterations	Standard Deviation All Iterations
25.3	7.8

Use Only History since Iteration ID	Average Work Completed Since Then
	25.3

Average (Velocity) Override	Standard Deviation Override

SPERT Average (Velocity)	SPERT Standard Deviation
25.3	7.8



Using the SPERT® Normal – CFD Chart worksheet (Version 5)

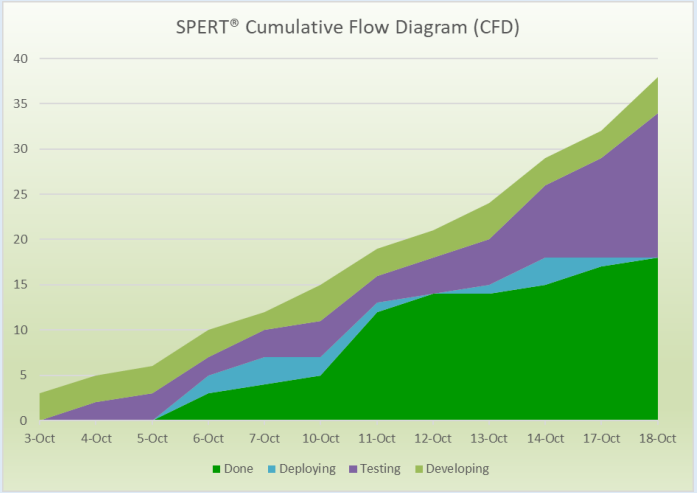
On this worksheet, you can map your team's workflow process steps and create a **cumulative flow diagram** (CFD) to visually depict your team's workflow efficiency. This worksheet can be used for any team that has a workflow process—it's not just for agile teams! Typically, teams using Kanban to visually depict their workflow process are most likely to gain value of using a CFD to spot bottlenecks and other workflow impediments or concerns.

IMPORTANT NOTE: Do not delete the sample data in Row 6 of this worksheet. If you delete the sample data in Row 6, Excel formulas will break that calculate dynamic cell ranges and Excel will display an error message. Instead of deleting the sample data in Row 6, simply ***overwrite*** that sample data with your team's actual data. This way, the dynamic cell ranges used to create the CFD charts will not break.

In the example worksheet, sample data is used to generate the CFDs. Begin by overwriting the column headers beginning in cell C2 (a merged cell with C3 and C4) to match the first step of your team's workflow process. This worksheet can work with up to 20 workflow process steps (unhide columns H through V to see 15 hidden columns). Hide any columns that you don't need to create your team's workflow process so they don't appear in the CFD charts.

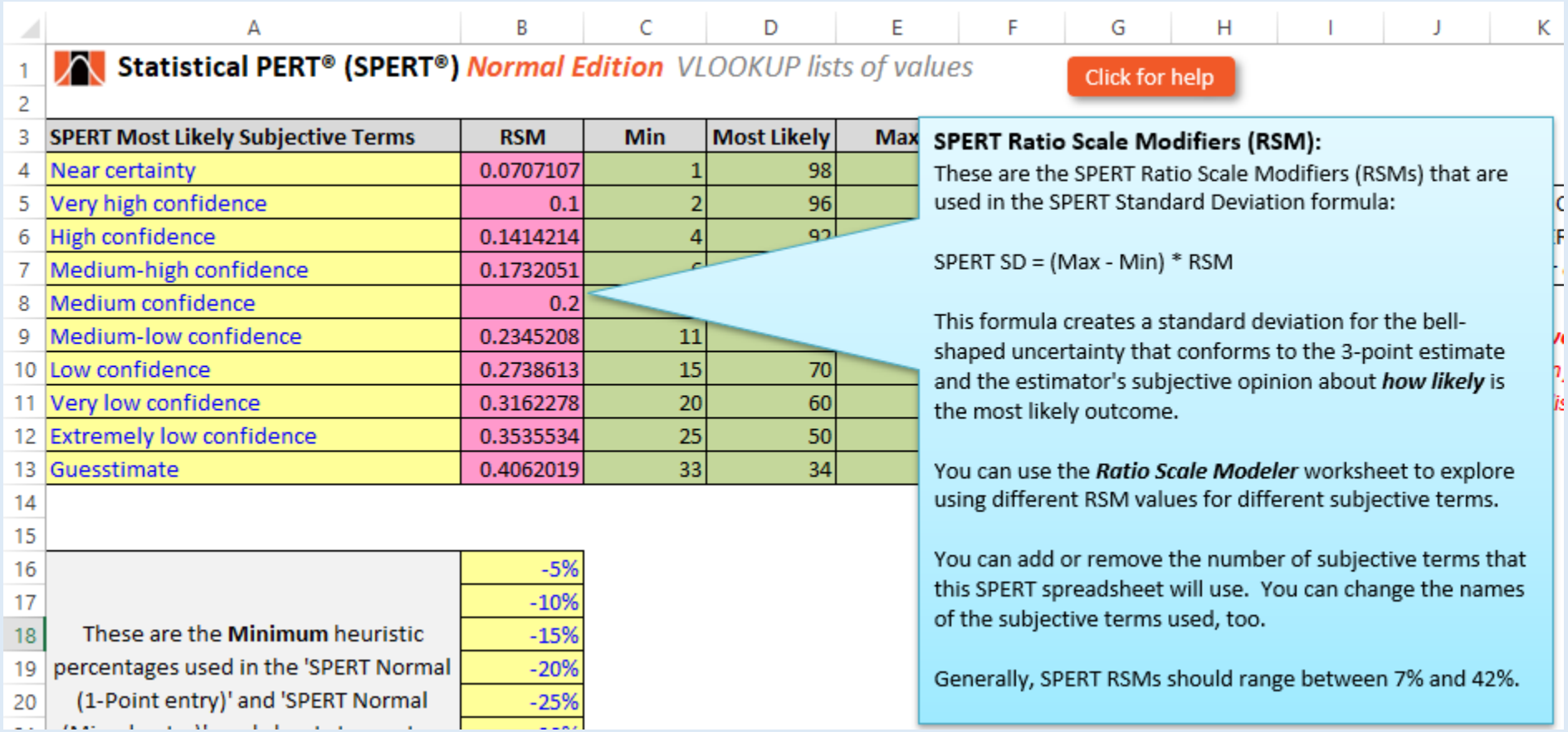
After you identify your workflow process steps, simply erase the sample data you don't want—but remember to ***overwrite*** the data in Row 6, which is the first row of input data. At the same time each day, count up the work items in each process step of your Kanban board and enter those values into this table. As you do so, you can see the CFD stacked area charts on the left-side of the worksheet. *Hint: Do a Google search to learn how to interpret and use a CFD chart.*

	A	B	C	D	E	F	G
1	Statistical PERT® (SPERT®) *Normal Edition* *Cumulative Flow Diagram (CFD) S*						
2							
3	**Day**	**Date**	**Backlog**	**Developing**	**Testing**	**Deploying**	**Done**
4							
5	*You may overwrite Row 6's data, but **DO NOT DELETE the data in Row 6** or else Excel formula errors will occur*						
6	1	3-Oct	97	3	0	0	0
7	2	4-Oct	95	3	2	0	0
8	3	5-Oct	94	3	3	0	0
9	4	6-Oct	90	3	2	2	3
10	5	7-Oct	88	2	3	3	4
11	6	10-Oct	85	4	4	2	5
12	7	11-Oct	81	3	3	1	12
13	8	12-Oct	101	3	4	0	14
14	9	13-Oct	98	4	5	1	14
15	10	14-Oct	93	3	8	3	15
16	11	17-Oct	90	3	11	1	17
17	12	18-Oct	85	4	16	0	18



Using the VLookups worksheet

On this worksheet, you can manipulate the SPERT **Ratio Scale Modifier (RSM)** values, and add/modify/delete subjective terms used to describe how likely the most likely outcome really is. You can modify other lookup tables used throughout the Statistical PERT spreadsheet.



Statistical PERT® (SPERT®) *Normal Edition* *VLOOKUP lists of values*

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SPERT Most Likely Subjective Terms	RSM	Min	Most Likely	Max
Near certainty	0.0707107	1	98	
Very high confidence	0.1	2	96	
High confidence	0.1414214	4	92	
Medium-high confidence	0.1732051			
Medium confidence	0.2			
Medium-low confidence	0.2345208	11		
Low confidence	0.2738613	15	70	
Very low confidence	0.3162278	20	60	
Extremely low confidence	0.3535534	25	50	
Guesstimate	0.4062019	33	34	

These are the **Minimum** heuristic percentages used in the 'SPERT Normal (1-Point entry)' and 'SPERT Normal	-5%
	-10%
	-15%
	-20%
	-25%

SPERT Ratio Scale Modifiers (RSM):

These are the SPERT Ratio Scale Modifiers (RSMs) that are used in the SPERT Standard Deviation formula:

SPERT SD = (Max - Min) * RSM

This formula creates a standard deviation for the bell-shaped uncertainty that conforms to the 3-point estimate and the estimator's subjective opinion about ***how likely*** is the most likely outcome.

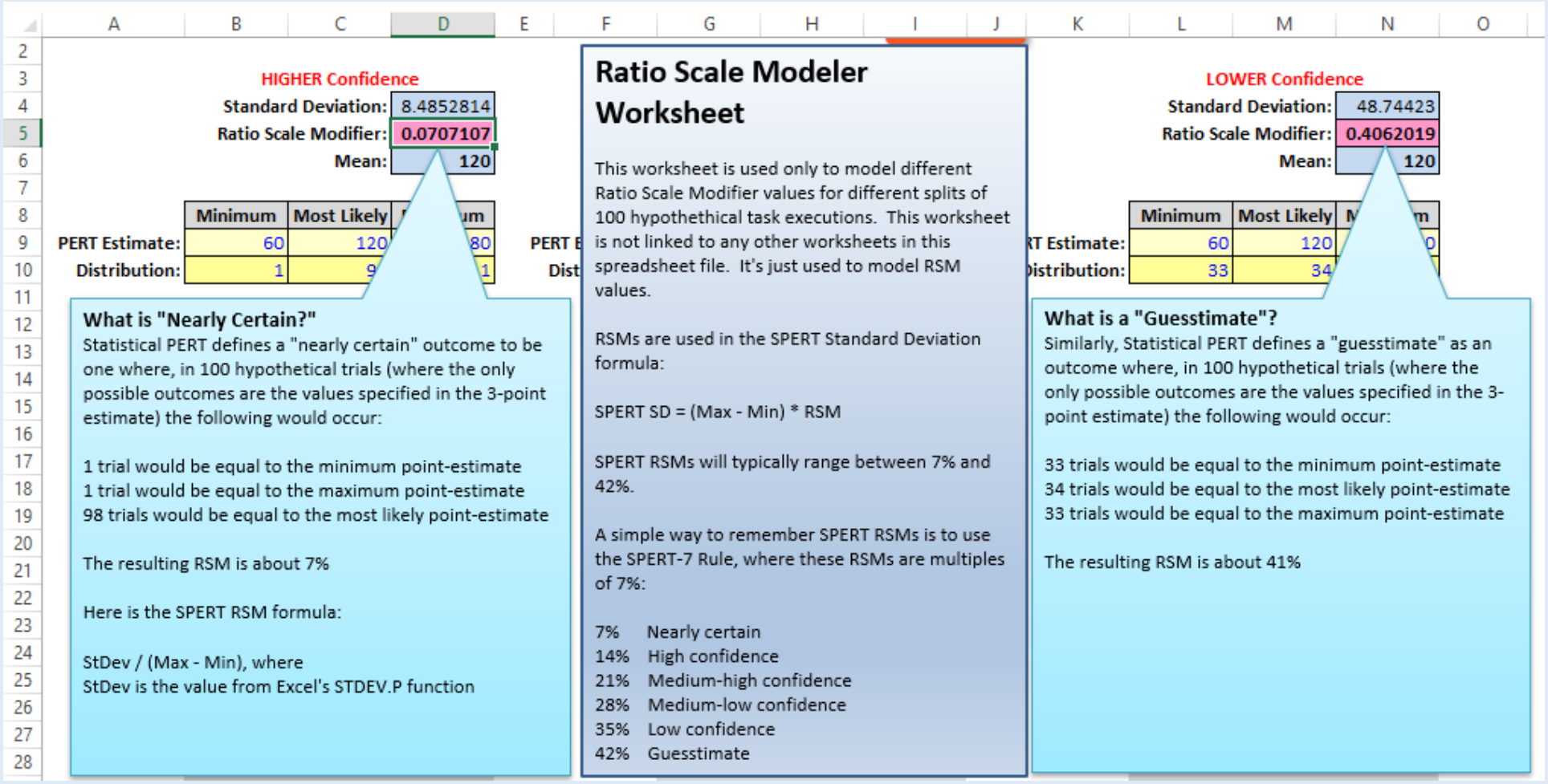
You can use the ***Ratio Scale Modeler*** worksheet to explore using different RSM values for different subjective terms.

You can add or remove the number of subjective terms that this SPERT spreadsheet will use. You can change the names of the subjective terms used, too.

Generally, SPERT RSMs should range between 7% and 42%.

Using the Ratio Scale Modeler worksheet

On this worksheet, learn how Statistical PERT creates Ratio Scale Modifiers to create standard deviations used in many formulas in the spreadsheet.



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Have any Questions? Find a Bug? Want to Connect?

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