



Biggest Excel Spreadsheet Mistakes Everyone Makes

Are these hindering your ability to analyze data?

By Jay Arthur

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Biggest Excel Spreadsheet Mistakes Everyone Makes

Are these hindering your ability to analyze data?

How you set up your data in Excel has everything to do with your ability to analyze it later. Unfortunately most people don't know how to do this. Here are 10 mistakes to avoid:

1. Trying to make your spreadsheet easy for *people* to read.

Tip: No one can read a spreadsheet.

Instead of overcooking your data, make it easy for *Excel* to chart or summarize using PivotTables. For example, most people try to make date information look like a calendar.

Wrong

	A	B	C	D	E	F	G	
1			2021					
2	Jan		Feb		Mar		Apr	
3	6.2		5.9		4.9		4.1	
4								
5	May		Jun		Jul		Aug	
6	6.6		5.4		4.7		4.2	
7								
8	Sep		Oct		Nov		Dec	
9	2.9		1		4.2		5.5	

Right

	A	B
1	Month	Data
2	Jan	6.2
3	Feb	5.9
4	Mar	4.9
5	Apr	4.1
6	May	6.6
7	Jun	5.4

It's impossible to analyze this data or turn it into a chart without first reorganizing it into columns.

2. Splitting data across multiple worksheets

Multiple worksheets are difficult if not impossible to analyze, because you have to combine the data into one worksheet. Data is often split by month or by facility or location.

	Jan	Feb	Mar	Apr	May	Jun
Facility A	89%	90%	86%	91%	91%	97%
Facility B	100%	89%	95%	95%	100%	95%
Facility C	80%	80%	80%	89%	75%	85%
Facility A	96%	96%	97%	100%		
Facility B	95%	93%	94%	100%	95%	
Facility C	89%	83%	83%	77%	97%	

Start putting all of your data in one worksheet.

	A	B	C	D
1	Month	Facility A	Facility B	Facility C
2	Jan	89%	100%	80%
3	Feb	90%	89%	80%
4	Mar	86%	95%	80%
5	Apr	91%	95%	89%
6	May	91%	100%	75%
7	Jun	97%	95%	85%

3. Hiding columns or rows

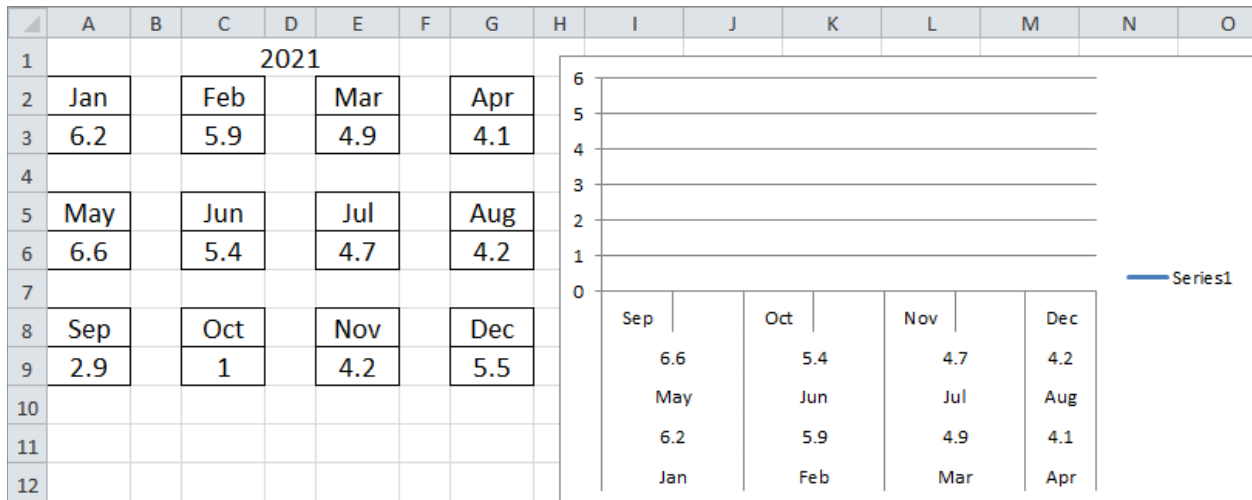
Just because they're hidden, doesn't mean that Excel won't use them if you are trying to create a chart or PivotTable.

	A	B
1	2015	Average
2	Jan	6.2
3	Feb	5.9
4	Mar	4.9
5	Apr	4.1
6	May	6.6
7	Jun	5.4
14	Total	55.6

Hidden Rows

4. Using blank rows and columns

Blank rows and columns make it harder to select, analyze or chart your data. If you select this data and try to create a line chart, you'll get:



How should you organize your data?

Data should be organized in columns, with time or categories on the left (column A) and data on the right (column B).

	A	B
1	Month	Data
2	Jan	6.2
3	Feb	5.9
4	Mar	4.9
5	Apr	4.1
6	May	6.6
7	Jun	5.4

	A	B
1	Type	# of items
2	Bad	8
3	Bridge	1
4	Damage	6
5	Excess	3
6	Extra	1
7	Insult	9

5. Merging cells

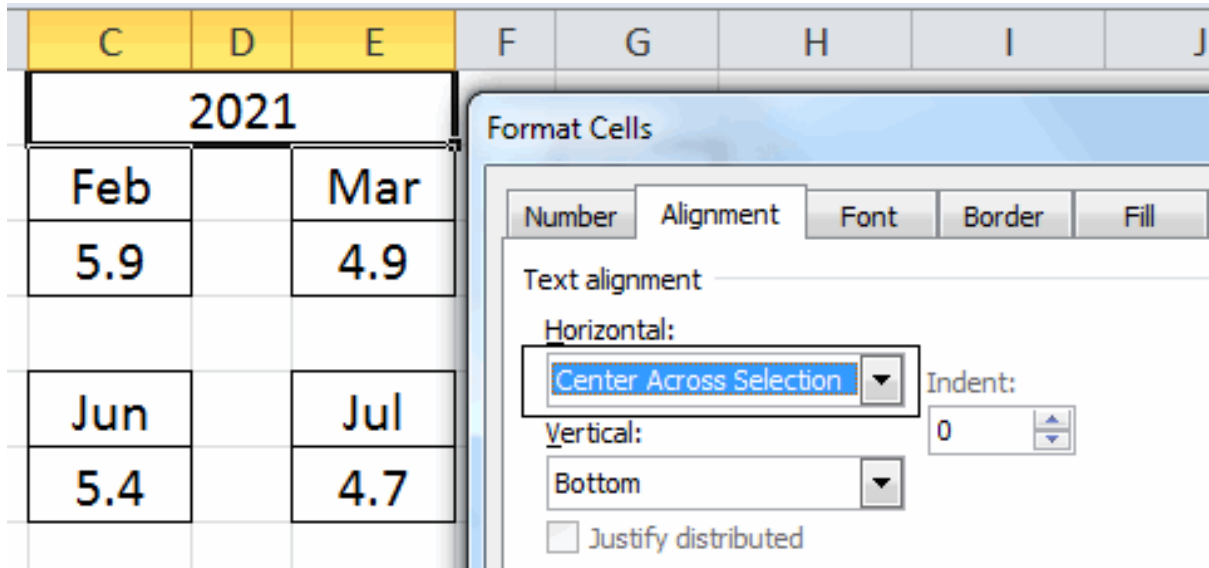
Merged cells make it impossible to analyze your data. Merged cells can be identified by missing gridlines or when you click on a merged cell, Excel will highlight multiple cells to tell you they have been merged.

	A	B	C	D	E
1			→ 2021 ←		
2	Jan		Feb		Mar
3	6.2		5.9		4.9

	A	B	C	D	E
1			2021		
2	Jan		Feb		Mar
3	6.2		5.9		4.9

You will have to unmerge them to use them.

To unmerge, select the cells and use Format Cells: “Center Across Selection” to achieve the same look and feel.



6. Putting headings in multiple cells or missing headings

Multiple cells

Instead of multiple cells, put the heading in one cell and use Format Cells > Alignment > Wrap Text.

	A	B	C
1		Weight	Weight
2		Male	Female
3		Baby	Baby
4	Jan	4.7	6.2
5	Feb	4.0	5.9
6	Mar	7.4	4.9
7	Apr	9.3	4.1
8	May	7.8	6.6
9	Jun	8.4	5.4

	A	B	C
1		Weight	Weight
		Male	Female
		Baby	Baby
2	Jan	4.7	6.2
3	Feb	4.0	5.9
4	Mar	7.4	4.9
5	Apr	9.3	4.1
6	May	7.8	6.6
7	Jun	8.4	5.4

Missing headings

	A	B	C
1	438	450	487
2	413	450	430
3	444	450	446
4	468	459	450
5	445	466	456
6	472	470	433
7	474	457	455
8	454	441	459
9	455	450	423
10	449	445	455

7. Putting multiple values in one cell

Use one cell for each piece of data. Otherwise you will have to split the data to analyze it:

Wrong

Multiple Values in One Cell

	A	B
1	Type	Items
2	Bad	8 - scrap
3	Bridge	1 - broken
4	Damage	6 - dents
5	Excess	3 - solder
6	Extra	1 - weight

Right

One Value per Cell

	A	B	C
1	Type	# of items	Description
2	Bad	8	scrap
3	Bridge	1	broken
4	Damage	6	dents
5	Excess	3	solder
6	Extra	1	weight

8. Inserting subtotals into the data.

Subtotals make it impossible to chart the data in a useful way. Remove the subtotals and use PivotTables to summarize the data.

Wrong

	A	B
		Infection rate
1	Month	rate
2	01/01/19	3.6
3	02/01/19	2.7
4	03/01/19	2.2
5	1st Qtr 19	2.8
6	04/01/19	1.9
7	05/01/19	1.8
8	06/01/19	1.2
9	2nd Qtr 19	1.6
10	07/01/19	1.3
11	08/01/19	0.7
12	09/01/19	1.4

Right

	A	B
1		
2	Row Label:	Average of Infection rate
3	2019	
4	Qtr1	2.83
5	Qtr2	1.63
6	Qtr3	1.13
7	Qtr4	1.10
8	2020	
9	Qtr1	0.87
10	Qtr2	1.60
11	Qtr3	1.67
12	Qtr4	1.73
13	2021	
14	Qtr1	0.73
15	Grand Total	1.48

9. Using values when you could use formulas.

Let Excel do the calculations:

	A	B	C	D	E
1	2015	Average	Total		
2	Jan	6.2	=SUM(B2:B13)		
3	Feb	5.9	SUM(number1, [number2], ...)		
4	Mar	4.9			
5	Apr	4.1			
6	May	6.6			
7	Jun	5.4			

10. Manually Summarizing Raw Data

Raw data is best for data analysis.

Data that has been summarized before its analyzed becomes overcooked and loses much of its value. In this example, information related to the timing of defects has been lost in summarization.

Raw Data				Summarized Data					
	A	B	C	A	B	C	D	E	
1	Date	Line	Defect	1	Carton Mfg Defects	Line 1	Line 2	Line 3	Total Defects
2	1/2/2020	Line 3	Folded flaps	2	Bent/Damaged flaps	37	23	24	84
3	1/2/2020	Line 2	Bent/Damaged flaps	3	Carton will not open	29	18	29	76
4	1/2/2020	Line 2	Carton will not open	4	Damaged Pallet	3			3
5	1/2/2020	Line 3	Folded flaps	5	Fisheye	9			9
6	1/3/2020	Line 3	Off color	6	Folded flaps	16	6	83	105
7	1/3/2020	Line 1	Bent/Damaged flaps	7	Ink smears/streaks		5	19	24
8	1/3/2020	Line 1	Carton will not open	8	Mislabeled			3	3
9	1/3/2020	Line 3	Bent/Damaged flaps	9	Missing color			8	8
10	1/3/2020	Line 3	Ink smears/streaks	10	Off color	14	5	12	31
11	1/3/2020	Line 3	Folded flaps	11	Oil spots			14	14
12	1/4/2020	Line 1	Bent/Damaged flaps	12	Poor ink adhesion	7	8	18	33
				13	Undercount			2	2
				14	Grand Total	115	67	210	392

Always start with raw data and use PivotTables to sort, summarize, slice and dice your data. Using this PivotTable we can run a time series chart by date or a comparison chart by line.

Count of Defec Colum	Line 1	Line 2	Line 3	Grand Total
1/2/2020	2	2		4
1/3/2020	4	3	7	14
1/4/2020	7	3	11	21
1/5/2020	2	1	2	5
2/14/2020	4	1	5	10
2/15/2020			3	3
2/16/2020	4	2	9	15
Grand Total	115	67	210	392

With a small change, we can look at totals by type of defect.

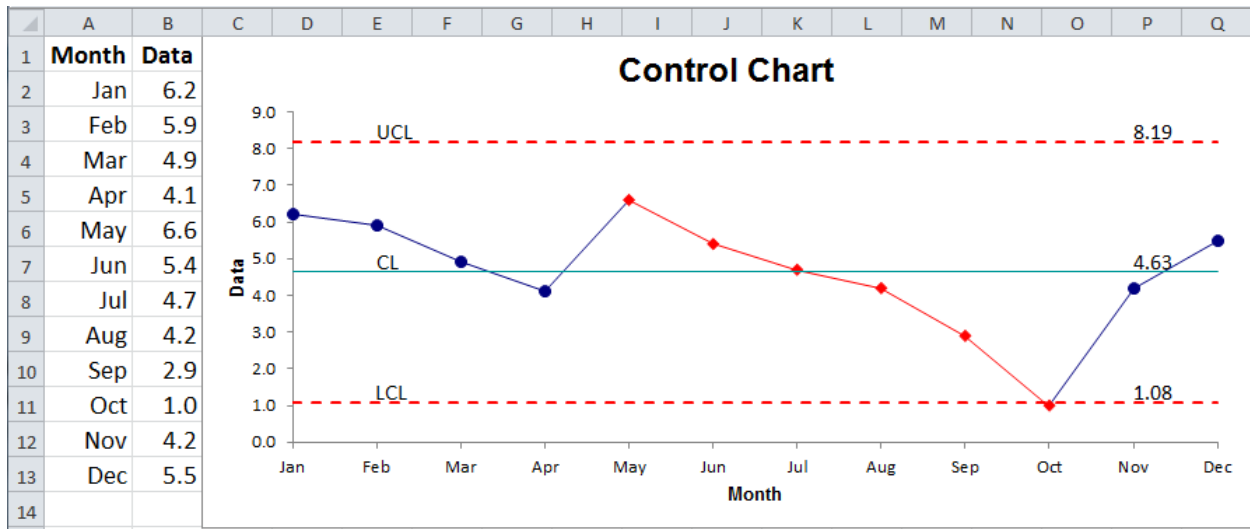
	A	B	C	D	E
1					
2					
3	Count of Defect	Column Labels			
4	Row Labels	Line 1	Line 2	Line 3	Grand Total
5	Bent/Damaged flaps	37	23	24	84
6	Carton will not open	29	18	29	76
7	Damaged Pallet	3			3
8	Fisheye	9			9
9	Folded flaps	16	6	83	105
10	Ink smears/streaks		5	19	24
11	Mislabeled			3	3
12	Missing color			8	8
13	Off color	14	5	12	31
14	Oil spots			14	14
15	Poor ink adhesion	7	8	18	33
16	Undercount		2		2
17	Grand Total	115	67	210	392

A chart is worth a thousand numbers

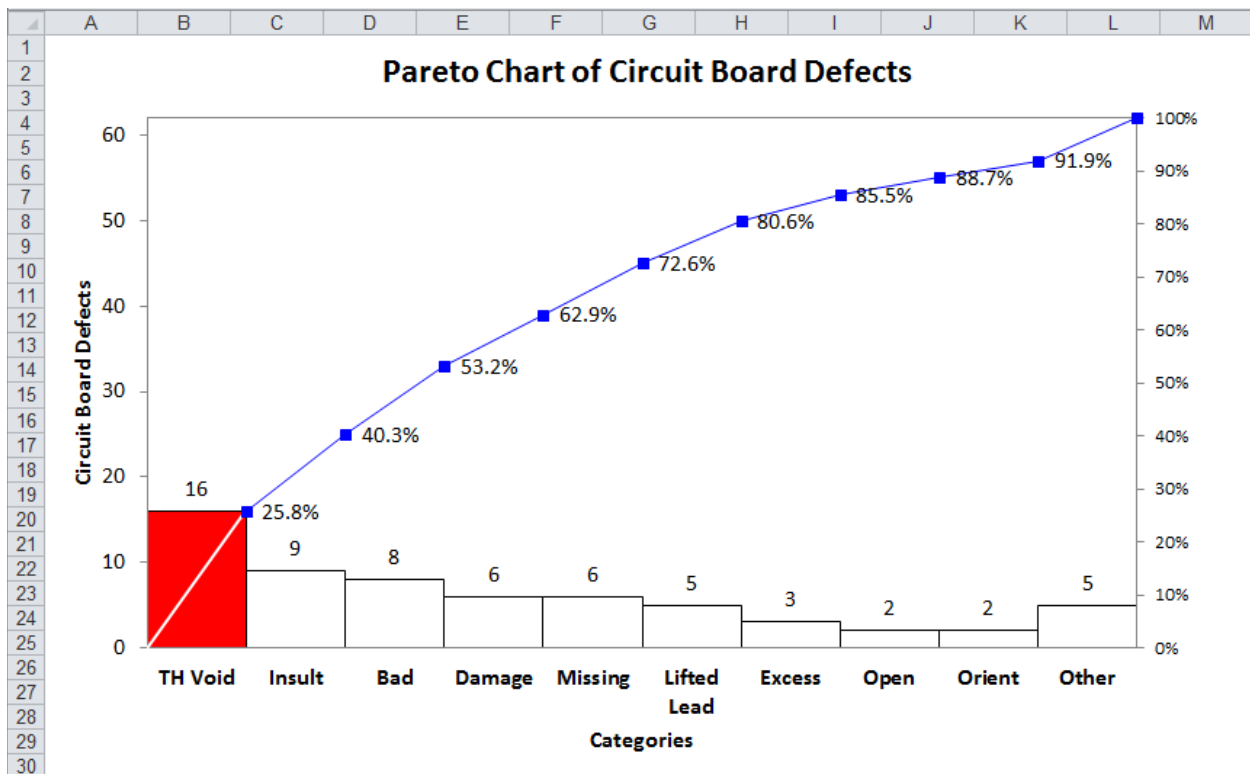
Stop thinking people will understand your spreadsheet!

They can't or won't. Instead, turn your data into charts.

Use line, run or, ideally, control charts for time-series data.



Use bar, column or Pareto charts for category data.



Separate the signal from the noise

If you get data into a format that's easy for Excel to chart and Pivot, it will make it much easier to analyze the data and develop action plans for improvement.

Trying to make spreadsheets *readable* by humans is largely a waste of time, because few people can “read” a spreadsheet. To most folks, a spreadsheet looks like noise. Your job is to find the *signal* in the noise using PivotTables and charts.

Jay Arthur



[Jay Arthur](#), the KnowWare Man, teaches people how to eliminate delay, defects and deviation in one day using Excel and the Magnificent Seven Tools of Lean Six Sigma. Jay is the shortcut to results with Lean Six Sigma.

Jay is first and foremost a Money Belt; he knows how to use data to fix broken processes to save time, save money and save lives. Jay has 25 years of experience helping companies save millions of dollars.

Jay is a frequent speaker at Lean Six Sigma conferences, is the author of many popular Lean Six Sigma books published by McGraw Hill including [Lean Six Sigma Demystified](#) and [Lean Six Sigma for Hospitals](#). He is also the developer of [QI Macros SPC Software for Excel](#).