

Sankey Helper 2.1 Read Me

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Quick Guide: If you read the highlighted portions you get the most essential information for using Sankey Helper 2.1.

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Basic Concept

The idea of a Sankey diagram in general is that you represent flows with arrows or similar shapes, whose widths are proportional to the magnitude of the flow they represent.

The basic idea of Sankey Helper 2.1 is that **you assign certain sheet table cells to shapes** (drawing objects). The cells are **common Excel sheet cells**, and contain the flux data (numbers) you want to visualize. The cells can also contain common Excel calculation formulas. The shapes are **common Excel drawing objects**.

Sankey Helper 2.1 contains essentially two VBA macros:




1. The first macro Helps you to create assignments between table cells and drawing objects (a_assig)
2. When the data in the table changes, a second macro needs to be run, in order to redraw the diagram (d_SizeAll)

Sankey Helper 2.1 is **Sankey-ware: Send me a picture of the diagrams you created with the help of Sankey Helper** (XLS, GIF, JPEG, PCT, SVG...). For this little price, you are allowed to use Sankey Helper freely. Sankey Helper can be distributed freely, provided this manual and the workbook are included unchanged. Commercialisation of Sankey Helper is prohibited.

Send samples to sankey@doka.ch

Advice

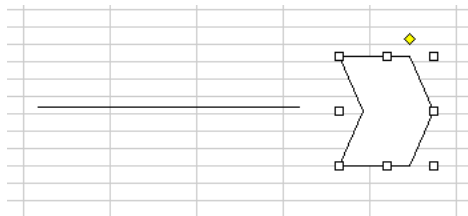
Sankey Helper 2.1 heavily relies on the users abilities to colour and arrange the **standard Excel drawing shapes**. If you are not familiar with these, seek help immediately ;-).

Seriously, check out the toolbar 'Drawing' and use the built-in Excel help to familiarise yourself with Excels drawing shapes. Excel really contains a large selection of useful drawing objects. To arrange those into Sankey diagrams, especially the toolbar sub-menus 'Order' (for layering), 'Rotate or Flip', and 'Align or Distribute' are useful for creating Sankey diagrams. Run the macro 'm_toggleDrawingtoolsMenu' of Sankey Helper 2.1 to show those toolbar submenus, or press 'Option+Shift+m', or click on the toolbar symbol . You can place the toolbars anywhere on screen by dragging the header bit of the toolbar that looks like this  , or like this .

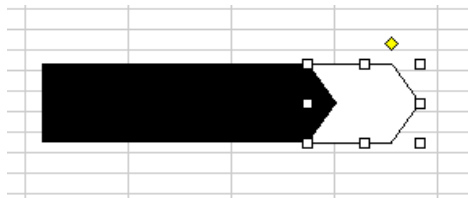
Basic Geometries

The most basic building block of a Sankey Helper diagram consists of **a line plus a shape representing an arrow head, to indicate the flow direction**. These are two *separate* drawing objects. Now, lines in Excel can have virtually *any kind of width*¹. The Sankey Helper 2.1 macros adjust line widths to represent fluxes of variable widths. The height of the arrowhead shape must be adjusted too. The basic procedure is depicted below:

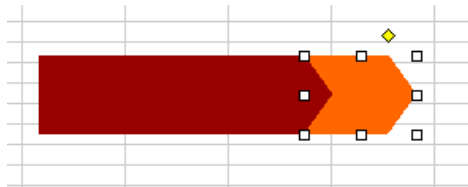
A line and an arrowhead shape:



The same two shapes after adjusting the width of the line and the height of the shape both to 50 points. This is the crucial step which Sankey Helper 2.1 helps to automatise.



The same two objects after some colouring: red line colour for the line, and orange fill colour for the shape:

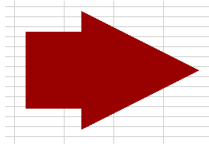


In case you are wondering: This arrowhead shape is a standard Excel drawing object. It is available from the 'block arrows' menu, in the AutoShapes menu (cf. below). The shape is called a 'chevron'.



¹ Actually up to 1584 points. The custom menu only goes up to 6 points.

I know that Excel can draw **built-in arrowheads** on all kinds of lines. However, I don't use that feature. The built-in line arrowheads are quite spikey (cf. below). This means that in order to display a line with the arrowhead, this line must be at least be twice as long as its width to be intelligible. This is an unnecessary restriction to the design freedom. For wide fluxes the diagrams can also become quite bizarre. However, Sankey Helper 2.1 *does* also manipulate lines with the built-in arrowheads (Cf. group in example 'Pseudo3D' in the workbook). I just don't recommend them as flux shapes.



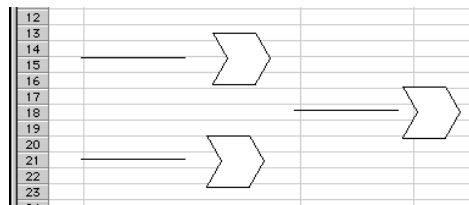
A first basic diagram

Let's draw a **very simple Sankey diagram**. Let's assume you want to combine two input fluxes into one output flux. The corresponding **data table** might look something like this:

	A	B	C
1			
2		Name of flux	Flow
7			grams/day
8		Spaghetti (input 1)	150
9		Sauce (input 2)	80
10		Lunch (output 1)	230

No, I'm not Italian...

Now, **on the same sheet** draw three fluxes each consisting of a line and an arrowhead.



Before you can start to construct the Sankey diagram, you need another data item: the scaling factor.

Scaling factor

The data you want to represent is *proportional* to the width of objects in the diagram – *not the same figure in pixels*. E.g. you wouldn't want to print diagrams with objects 10'000 pixels wide, if you happen to have '10'000 kg potatoes' as flux in your diagram.

An overall scaling factor is needed. In Sankey Helper 2.1 the scaling factor can be given *anywhere* in the data sheet, **provided it is exactly in the following layout:**

scaling factor
2

1. There is a top cell containing the words "scaling factor" (and nothing else)
2. In the cell *immediately below it* the value for the scaling factor is given.


The flux data in the table times the scaling factor then gives the drawn flux width (in pixels). The scaling factor can be changed arbitrarily, but obviously must be above zero. Attempting to draw width of over 1584 points will lead to an error. The text cell must not be changed, and no rows must be inserted between the two cells.


There is only one scaling factor possible per sheet. This means that all diagrams on the same sheet must have the same scaling factor.

Having defined the scaling factor, we can now assign flux values to the shapes.

Assigning data values to shapes

To assign a certain data cell to certain shapes, you do the following:

1. Remove any split windows (or work within 1 panel only)
2. Activate the cell that contains the flux data
3. *Immediately after step 2*, and on the same sheet, select the shape(s) you want to assign that cell to.
4. Run the macro 'a_assig'; or press Alt-Shift-a; or click on the toolbar symbol .

Sankey Helper assumes the shapes to be on the same sheet as the data table. To select multiple shapes use shift-click or use the shape selection tool () from the drawing toolbar. You can change the keyboard commands for macros in the macro menu, if it conflicts with other commands you need.

For the example, activate the cell containing the first flux data item, i.e. cell C8 (containing the value '150' for spaghetti). Then select both, a line *and* an arrowhead shape together and run the macro.

The macro will ask you for a name to be given to the cell, if none is already given. The names of data cells need to be unique. The names of the cells will be used for the assignment between shape and data cell. The shapes will be changed in width to represent the flux, using the scaling factor.

Repeat this procedure for the second input (Sauce, 80) and the output flux (Lunch, 230) with the other two arrows.

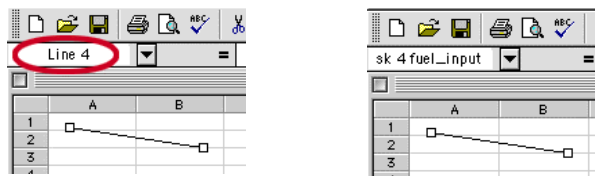
Technical bit

The assignment macro 'a_assign' puts a reference to the data cell into the *name of the selected shape(s)*.

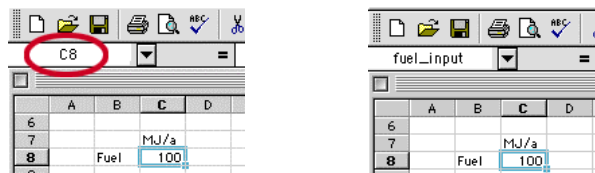
To explain: When you create a shape in Excel it receives a default name. For example a line will receive the name 'Line 4' or similar. The name of any single selected shape is displayed in the '*name field*' in the top left corner of the Excel workspace.

Similarly, table cells can be named. A table cell is usually referred to with the common column-row code, e.g. 'C8'. Excel allows to give cells more meaningful names, such as e.g. 'fuel_input' (spaces are not allowed). These names can then be used to refer to the cells with that name.

An Excel line before and after renaming:



A table cell before and after renaming:



E.g. if you run the assignment macro with an active cell named e.g. 'fuel_input', and 'Line 4' selected, the name of Line 4 will be changed to 'sk 4 fuel_input'. This means the following:

1. The prefix 'sk' signifies that the shape has an assigned cell for a Sankey diagram, i.e. is a 'Sankey shape'. Only those are recognised as changeable part of the Sankey diagram.
2. The number '4' is the identification number of the shape
3. The last part 'fuel_input ' is the reference by name to the data cell.

So the 'a_assig' macro puts the *name of data cell* into the *name(s) of the selected shape(s)* as a reference. From the name of a Sankey shape, the name of the assigned data cell can be retrieved².

You can change the name of the shape, and hence the cell reference, also **manually** in the 'name field' (single-click to edit). In either case, the name is a purely *static* reference text which *won't be changed if the cells are moved to another location*.

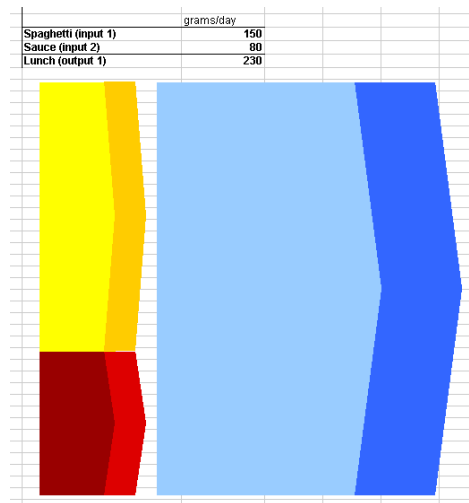
Cell names can be very long in Excel, but *shape names are apparently limited to 32 characters*. Since the former need to be contained in the latter (plus the "sk" and ID# prefix) don't make the cell names too long.

End of technical bit

Once you have assigned cells to shapes, **don't rename data table cells**, since that action won't be reflected in the shape names and the assignment will be corrupted. You can however shift and move cells of the data table. The name of the cells will stay with the moved cells. This makes it easier to expand and modify Sankey data tables.


² The reference by cell name in Sankey Helper 2.1 is different from the assignment procedure in the former Sankey Helper 2.0. Accordingly you won't be able to process diagrams created for v.2.0 with v.2.1. If this is a huge problem for you, mail me and I might write a filter that transfers v.2.0 diagrams to v.2.1 diagrams.

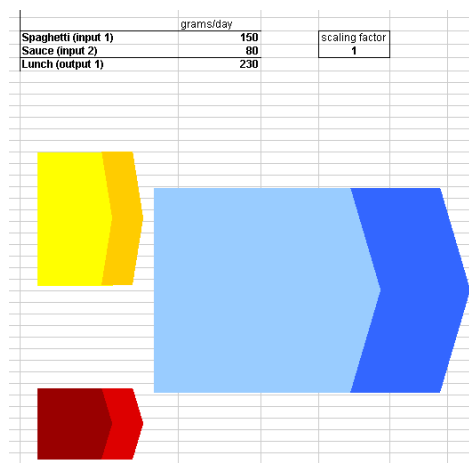
From our example, after some manual colouring and arranging you get something like this:



These are still just three lines and three 'chevron' shapes, but essentially they represent a Sankey diagram. But most importantly, since they are **connected via their names to the data table**, it is now very easy to change the data table and redraw the chart – with the use of another macro command.

Changing the scaling factor

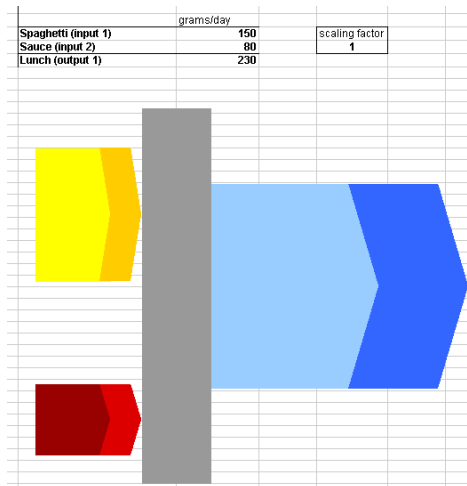
Maybe the chart above seems a bit large. You can change the scaling factor from 2 to 1 and thus halve the flux widths. To recalculate and display the new diagram, run the Macro 'd_SizeAll', or press Option+Shift+d, or click on the toolbar symbol . This gives you:



The fluxes are redrawn with half the size. Scaling occurs from the respective central lines. However this redraw disjoins the fluxes and they are not adjacent anymore. This is the major inconvenience of Sankey Helper 2.1 and the reason why I still call it only a

helper program. Keeping the flows nicely adjacent would mean a *lot* more complex programming.

This problem can be avoided by not insisting on adjacent fluxes and using intervening 'pool boxes' which receive inputs and release outputs:



However, changing the scaling factor is probably less frequent than changing the flux data itself...

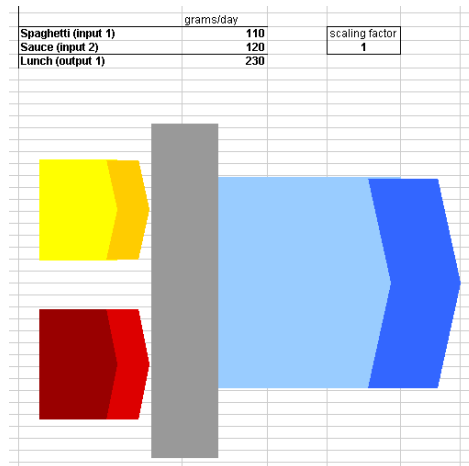
Changing the data

For example, let's assume you want more sauce and less spaghetti.

1. **Change the data table accordingly**
2. **Recalculate the sheet** (press Alt+=, or ⌘+= on a Mac)

Recalculating the sheet prompts Sankey Helper 2.1 to automatically run the macro 'd_SizeAll', which updates the Sankey diagram³.

³ If you don't want Sankey Helper to continually update the diagram (e.g. you have a large diagram and/or a slow machine) deselect the automatic calculation in the Excel Preferences (menu command Extras/Preferences/Calculation) and select manual calculation.



There you go! This is the real skill of Sankey Helper.

The 'd_SizeAll ' macro looks into the names of all drawing shapes on the active worksheet and recognises assigned Sankey shapes from names beginning with 'sk...'. From the shape name it grabs the *cell name* as a reference to locate the assigned data cell. It sort of traces back the path created by the assignment macro 'a_assig'.

Advanced topics

Quick creation of Sankey Diagrams

In the above sections the creation of diagrams from *already existing shapes* was outlined, as means of introduction to the basic drawing principles. Once you have understood the elements of the assignment procedure from cells to lines and shapes, it can become tedious to draw Sankey shapes from scratch. **Sankey Helper can quickly create some default shapes for you.** What remains to do for you is to assemble the shapes into a meaningful structure.


1. Create a suitable data table

Assemble the data you want to draw into a concise table. To the left of the table type in meaningful descriptions of the data. The table might look like this:

		grams
Inputs	Bread	500
	Butter	30
	Garlic	30
	Thyme	15
	Olive oil	40
Outputs	Garlic Bread	310
	Thyme Bread	305

Somewhere on the same sheet, create a scaling factor (cf. page 5).



2. Create Sankey shapes

Select the cell with the first data figure (e.g. 500). Then, run the macro 'f_NewFlux'; or press Option+Shift+f; or click the toolbar symbol . You will be prompted to confirm a suitable name for the data cell. The text on the far left of the cell and on the top cell of the cell region will be used to derive a suggestion for a name⁴. So if the header cells of your table region contain meaningful text, suitable and meaningful cell names will be suggested.


A new line and a pentagon arrowhead will be created right of the selected cell. Both shapes will have random, but matching colours.

Repeat this procedure with all data cells.

3. Arrange the Sankey shapes


You need to rearrange the resulting Sankey shapes into a meaningful diagram yourself. Sankey Helper 2.1 cannot help you with this, as it is not aware of the function of any shape within the whole system. It is not even aware if a flux is an input or an output. Use the toolbars available by clicking on the symbol  to rearrange, rotate, tilt, and edit these shapes (This runs the macro 'm_toggleDrawingtoolsMenu', also available by pressing Option+Shift+m). Remember that you can change simple, straight lines into more complex paths by selecting the standard 'Edit nodes' command available from context-specific menu (right-click or ctrl-click on a line); or by click the toolbar symbol . Do not create groups from Sankey shapes at this point, since the assignments in grouped objects won't be recognised by Sankey Helper 2.1.

Changing colour

However, Sankey Helper 2.1 can help you with colouring: if you want to change the given colour of lines and shapes, then select those shapes and again run the macro 'f_NewFlux'; or press Option+Shift+f; or click the toolbar symbol . A random, but matching colour will be given to all selected shapes⁵.

Changing shape types

If you don't like the default arrowhead shape (pentagon), you can change it by selecting the shape(s) and choosing the standard menu Excel command 'Drawing/Change AutoForm...' available from the drawing menu toolbar, and then choose the shape of your liking. This won't affect the already assigned names of the shapes.

You can always convert simple, straight lines into more complex paths by selecting the standard 'Edit nodes' command available from context-specific menu (right-click on a line); or by click the toolbar symbol .

⁴ Cell names need to be unique. The macro will check, if the suggested name already exists for a cell. If so, it will append a two digit random number to the suggested name for clarification.

⁵ If you want to do this manually, e.g. to achieve a specific colour, you can. Remember that for lines you need to change the line colour, but for 2D shapes you need to change the fill colour.

More on converting Sankey shapes in the section 'Toggle existing shapes ↔ lines' on page 13.

Very small fluxes

For fluxes where widths drop below 0.5 points, a minimal line width of 0.5 points is maintained, in order to keep this flux visible.

Arrow heads for small flux widths below 6 points are kept slightly bigger (10 points), in order to visualise flow direction.

A small flow might then look like this:



Fluxes of zero are displayed as small, semi-transparent shapes i.e. they are *not* removed from the diagram, but their visual appearance is altered. They will be changed back to opaque colour if they happen to become larger-than-zero values again⁶.

A zero flow might then look like this:



Negative fluxes are also displayed likewise (0.5 points line width, semi-transparent), but lead to an alert telling you that the data contains negative values⁷.

Labelling

The flows by themselves are not very self-explanatory. For explanations, you can **add simple text boxes**, that explain what each flux represents.

But what if you want the **data figures** to be typed in the diagram, e.g. if the output flow would be labelled with "*Lunch: 230 grams/day*" and you want that figure to be *updated* according to the changes in the data table?

Check out the formulas in the workbook for suggestions how to create cells with text, that updates (btw. the formula looks complex, because it contains a part for *rounding* to a given number of *significant digits*; built-in Excel functions can only round *decimal places*).

⁶ However, gradient fill colours in arrowhead shapes can vanish in the process. I.e. Sankey Helper 2.1 is not aware, if an arrowhead shape has a gradient fill colour.

⁷ A neat trick here would be if the flux *direction* would be *reversed* for negative fluxes. However this would require the original (positive) direction to be remembered, which is more complex to implement than I currently feel up to.

=B10&" "&RUNDEN(C10;E\$B-GANZZAHL(LOG(ABS(C10))+1))&" "&C\$9					
Sankey by Name Assign new					
	B	C	D	E	F
Name of flux	Original Width	Drawing width	Labels		
		scaling factor	rounding of figures		
		2	2		
	kt/yr	points			
Raw material	80	40	Raw material: 80 kt/yr		
Recyclate	20	10	Recyclate: 20 kt/yr		
Product	100	50	Product: 100 kt/yr		
Recycling rate	20%	0.1			
Waste	80	40	Waste: 80 kt/yr		

You can then link these cell texts to text boxes and use them as active labels.

To link a text box to a cell containing any kind of label text, you do the following:

4. Select the text box shape
5. Click into the formula bar (where you edit cell formulas)
6. Click on the cell
7. Press 'enter'

This links the text box text to the value in the cell. This procedure apparently calls on an old Excel4Macro command – i.e. Excel version 4.0 from 1992 – and thus might not work in all Excel versions. Works fine in my Excel 8 for Macintosh (1998) – without any additions.


It is apparently not possible to *disconnect* this link *manually* (at least, I didn't figure it out). So I wrote a small macro that removes any links to cells from one or several selected shapes, in case this is necessary. The macro is called 'c_dessignCellToShape()' (press Option+Shift+c).

Toggle existing shapes ↔ lines

When creating more complex Sankey diagrams, it can become convenient not to create flux shapes from scratch, but to simply copy existing Sankey shapes.

For example assume you already have a pentagon shape that is assigned to a data cell. Now additionally you want a line representing that same flux. You could find out which data cell the pentagon is assigned to, create a line and assign it to the same data cell.

Much easier is the following procedure:

1. Copy the pentagon (the name of the shape containing the assignment will be copied too)
2. With the copy selected, run the macro 't_ToggleShape'; or press Option+Shift+t; or click on the toolbar symbol .

This gives you a Sankey line with the same width as the pentagon, the same colour, the same location and orientation, and referring to the same data cell. The reverse is possible too: this macro will convert selected Sankey lines to pentagons⁸.

Search and replace in shape names

With the macro 'r_ReplaceShapeName' you can search and replace substrings in the Sankey shape's names. This can for example be used to change all references in Sankey shapes to a cell named e.g. 'product_A' to 'product_B', and circumvents lengthy reassignments in existing diagrams.

A more powerful use of macro 'r_ReplaceShapeName' is the creation of scenario diagrams. Say you do not only want one diagram, but also diagrams from deviating *scenarios* with different data. Make sure that the original Sankey diagram refers to cells all containing the substring e.g. 'sc1' in their names. Duplicate the finished diagram. Now replace the substring 'sc1' with e.g. 'sc2'. This will redirect the references to a different set of cells (ideally they can be neighbouring cells in the data cells defining scenario 1). If you type the scenario code in the top header cell of your data table and use the procedure described in the section 'Quick creation of Sankey Diagrams' on page 10, the cell names suggested by macro 'f_NewFlux' will already contain the scenario code.

More complex diagrams

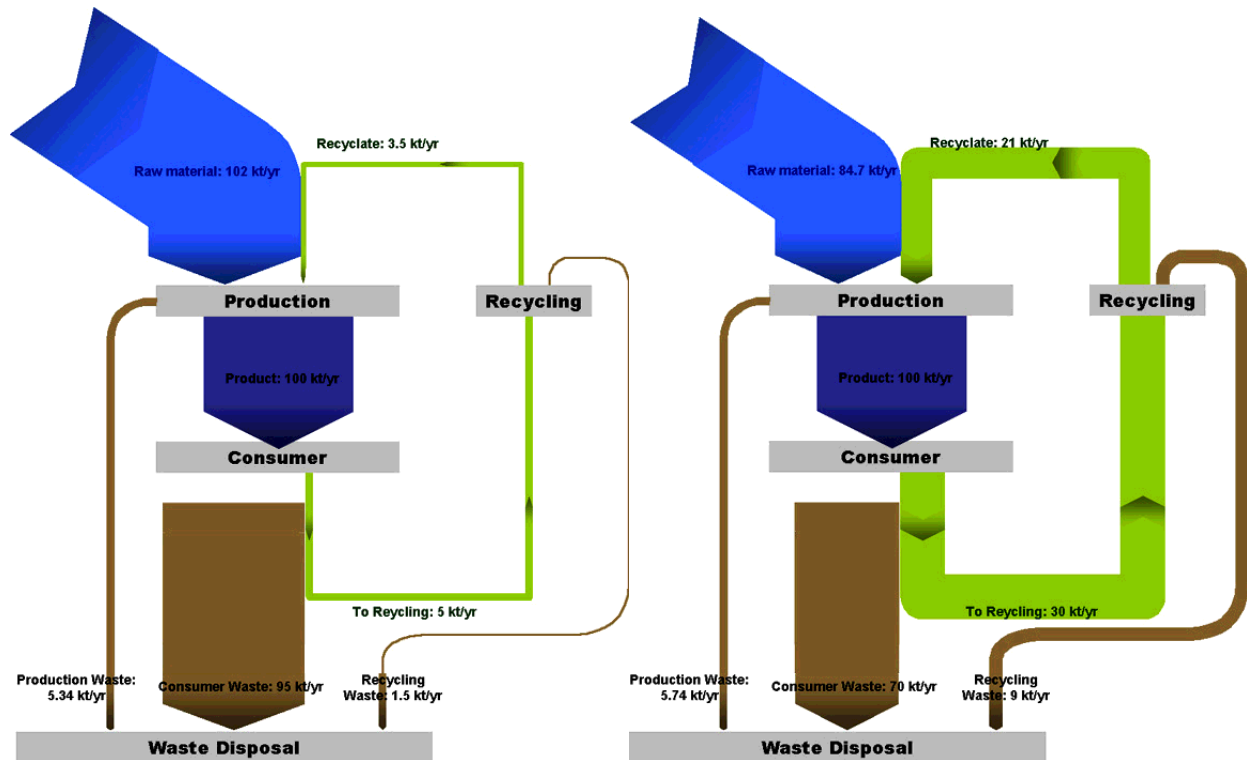
More complex diagrams can be created using the basic techniques outlined above.

Check out the examples given in the Excel Workbook. Mass or energy conservation needs to be heeded in the data table by the user. Sankey Helper 2.1 cannot check for mass balance violations, as it is not aware of the 'connectedness' of the shapes.

Grey table cells in the example data tables contain user-changeable figures. Recalculate and run the macro 'd_SizeAll', or press Option+Shift+d to see the resulting changes.

In the following pictures we see the effects on increased recycling on a product life-cycle. While in the left panel the post-consumer recycling rate is 5%, in the right panel it is increased to 30%. Only the recycling rate in the data table has been changed; no rearranging of the shapes was done. Sankey Helper adjusts flows in width while keeping the central position of the line steady (scaling from the middle). That means, that the *tip of arrowheads* will remain at the same place.

⁸ Multi segmented lines (polylines) will be replaced by *one single pentagon*, at the approximate location of the former polyline.



Analysing Assignments



In complex diagrams it can become difficult to bear in mind which shape is connected to which cell. Theoretically, As explained in section 'Assigning data values to shapes' on page 5, you can check out the names of shapes in the 'name field' and read there, which cell that shape is connected to. For more than a few shapes, this procedure is unpractical and exhausting. In order to be able to see at a glance, which shapes are connected to which cell, the macro 'p_ShowPrecedents' (press Option+Shift+p) draws a blue arrow from selected shape(s) to their connected data cell, if any. The macro 'l_DeletePrecedents' (press Option+Shift+l (L)) removes all the arrows created by the former macro.

Adjusting arrowhead angles






When the flux width is changed, arrowheads can become quite blunt or pointy (cf. recycling flow in the left panel above). This can be OK, but is maybe unwanted. To redraw the arrowheads with a constant angle (irrespective of the width) run the macro 'y_slantarrow' (or press Option+Shift+y). This gives all chevrons (Σ) and pentagons (\square) an angle of 26.6° (1:2). Other arrowhead shapes are ignored by this macro. The angle value can be changed in the macro code. If the height of the shape is too small to allow the correct angle, the maximum possible angle with this height is established.

Suitable Excel shapes for Sankey Helper 2.1

What you need to know for creating more complex diagrams, is what kind of shapes are suitable for using with Sankey Helper 2.1. In the first example above we used straight lines and a shape representing the arrowhead. The corresponding toolbar symbols for these two shapes are:

Shape description	Excel toolbar symbol	Adjusted dimension
Straight line		line width
Arrowhead shape (chevron)		overall height






Other shapes can be used as lines. For these shapes the **line width** will be adjusted by the macros.

Shape description	Excel toolbar symbol	Adjusted dimension
Curved line		line width
Freehand form		line width
Freehand line		line width
Connectors *		line width
Arcs		line width

*) connectors can be used, but somehow MExcel manages to connect them to shapes slightly off-centre.

Many shapes can be used as arrowheads. However only a few are really sensible. For these shapes the **overall height** will be adjusted by the macros.

By Excel convention, the overall height of a shape is defined from its *original upright orientation* and will not be affected by any rotations. E.g. The open side of a bracket is *always* its 'height' and that side will be adjusted in size, even when it's rotated 90° into an U shape.

Shape description	Excel toolbar symbol	Adjusted dimension
Flat end arrow (pentagon)		overall height
Brace		overall height
Bracket		overall height
Quarter moon		overall height
Callout arrow (Flowchart)		overall height

All these shapes possess 'handles' to change their appearance (◆). Especially the last shape (Callout arrow) is *very* versatile and can be used e.g. for adjustable, 'half-width' arrows within lines or for adjustable arrowheads that are wider than the flux itself (see sample 'Exotic').

Groups as drawing objects




Groups *can* be used as Sankey shapes. **The overall height of the group will be adjusted. Line widths within the group will not be changed** (even if the group consists only of lines). Very complex shapes can be constructed from that.

Using groups has however a drawback: **ungrouping destroys the shape name assigned to the group**, which is essential to the functionality of Sankey Helper 2.1. Regrouping does not restore that name. Also ungrouping/regrouping unmakes any rotation operations performed on the group, and for the regrouped shape again the height will be adjusted (regardless what orientation the group had before). This means that editing diagrams with groups can become quite tricky. However, if ungrouping is not used, groups (with their names) can be used as proper Sankey objects. See an example of that in the workbook, sheet 'Pseudo3D' on the right).

Pseudo 3D diagrams

For pseudo-3D Sankey diagrams (cf. workbook) I used not lines, but rectangles as main fluxes (to apply gradient fills). However, since the macro adjusts overall height (not overall width), the rectangles sometimes need to be rotated 90°. Suitable end and start shapes to achieve a 3D-tube effect are the 'barrel' and the 'barrel front' shape from the 'flow chart' menu⁹. Flow direction is indicated with the 'Callout arrow' (cf. above).

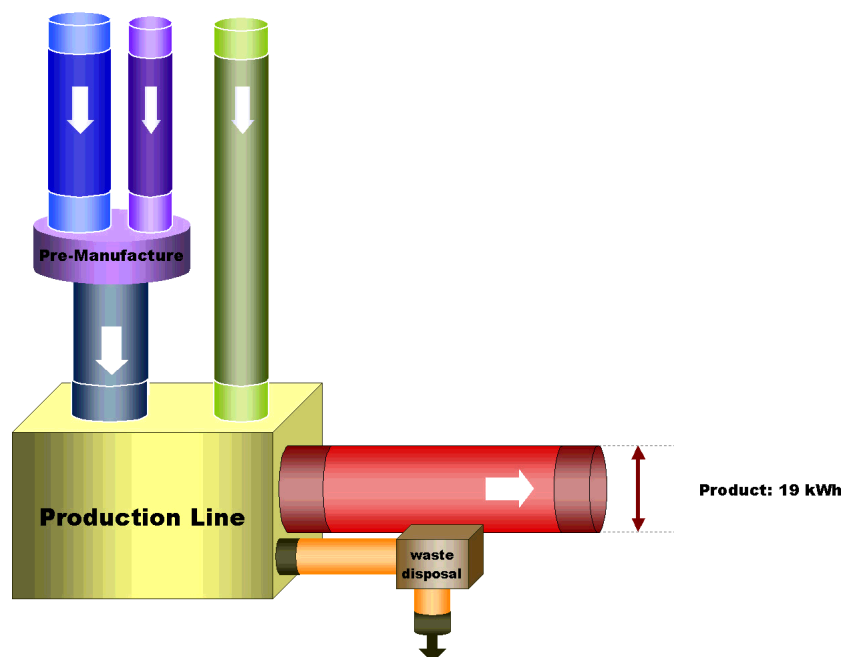
⁹ These are the Excel 'Flowchart' symbols for 'Direct Access Storage' and 'Stored Data'.

Shape description	Excel toolbar symbol	Adjusted dimension
Rectangle		overall height
Barrel (Direct Access Storage)		overall height
Barrel front (Stored Data)		overall height

With appropriate colouring and layering these three shapes give a 3D-tube:




The visual impression of a tube is that of its volume rather than that of its width. A tube with a doubled width conveys the impression of a fourfold flux. This effect can distort the meaning of fluxes, so use this layout only where appropriate.



Troubleshooting

If I change the figures in the data sheet , the diagram doesn't change accordingly.

run the macro 'd_SizeAll'; or press 'Option+Shift+d'; or click on the toolbar symbol .

Alternatively, you can force a recalculation of the sheet by pressing Alt=, or on



Mac ⌘-=. This will also prompt Sankey Helper 2.1 to automatically update all Sankey shapes.

What does the message "No cell with scaling factor found" mean?

It means that Sankey Helper has not found any scaling factor it needs to draw the diagram. Make sure that in the same sheet where the data table and the Sankey shapes are that there are two cells for the scaling factor as described in the section 'Scaling factor' on page 5.

When I run the macro the diagram does not change accordingly?

Are you sure that all shapes are connected to a data cell? Are all shapes connected to the *correct* data cell?

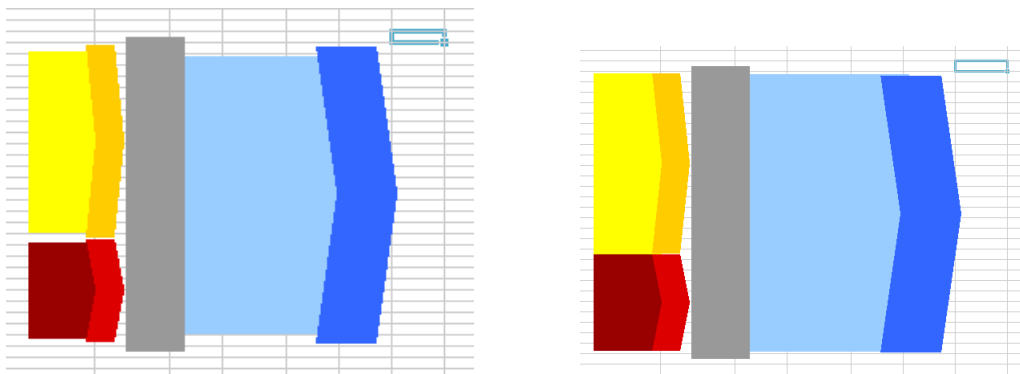
To see which shape is connected to which cell you can select shapes and run the macro 'p_ShowPrecedents' (or press Option+Shift+p; or toolbar symbol ). This will display a blue arrow from each single Sankey shape to its assigned cell. If no shape(s) are selected, the connections of *all* Sankey shapes on that sheet is shown. Run the macro 'l_DeletePrecedents' (or press Option+Shift+L; or toolbar symbol ) to remove all blue arrows. An efficient procedure is to select all shapes that are supposed to refer to the same cell and then run 'p_ShowPrecedents': all the arrows should point to the same cell and deviations become obvious.

Did you rename data cells? You can't do that (without correcting the names of shapes).

You can also check out the names of the Sankey shapes. A name like 'sk 4 fuel_input' means that this shape is connected to a cell named 'fuel_input'. If no 'sk' prefix is found, that shape is not recognised as a Sankey shape. Read section 'Assigning data values to shapes' on page 5.

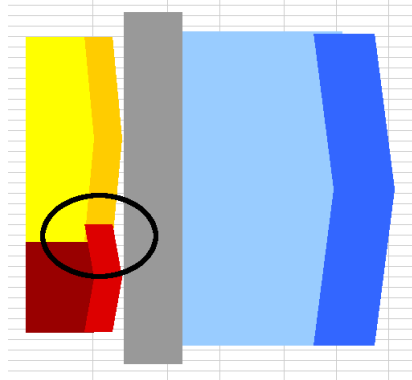
I did all the things in the above answer and it still looks wrong

Maybe you are working with a window zoom unequal to 100%. Excel shapes are only precise up to one point (pixel). In zoomed views shapes can become inexact, probably due to rounding effects. Might perhaps also depend on graphic rendering capabilities of your computer. Consider the two screenshots below: the left viewed at a zoom of 50%, the right showing exactly the same shapes at zoom 100%.



The shapes overlap

This can happen, because Sankey Helper treats each shape on its own and is not aware of the overall composition. As explained in section 'Changing the scaling factor' on page 8 this is *the* major drawback of Sankey Helper 2.1 and the chief reason I call it a Helper program (and also contributing to the fact that it is almost freeware).



Overlaps can happen after the scaling factor has been increased. So decrease it again; or rearrange the shapes manually.

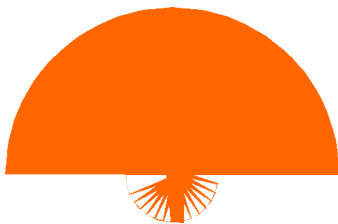
The diagram looks ugly.

Sankey Helper 2.1 only adjusts the widths of the shapes you assigned to certain data cells. The rest is really up to you and so the appearance of the diagram depends largely on your abilities to edit and arrange Excel drawing shapes. Check the section 'Advice' on page 2. If flows look too large you might want to decrease the scaling factor.

Sankey Helper seems to adjust the wrong dimension of a shape

You probably have a 90° rotation on your shape. As explained in section 'Suitable Excel shapes for Sankey Helper 2.1' on page 16, Sankey Helper adjusts the overall height of shapes. Rotate the shape by 90° steps and retry.

What the hell is this thing?



This is a circular arc whose line width is larger than its radius. Increase the radius of the arc manually or decrease the scaling factor in the scaling factor cell.

List of all Macros in Sankey Helper 2.1











The Toolbar

The Sankey Helper 2.1 Excel workbook has an embedded toolbar that helps to call up the macros. Also included are some standard Excel tools for drawing¹⁰.



¹⁰ The creation of a toolbar was inspired by Oliver Cencic of Vienna Technical University.

The List

Macro Name	Function	Shortcut Key	Tool-bar
f_NewFlux	From a selected data cell create a new Sankey Flux (line + arrow) of appropriate height. If shape(s) and not a cell are selected then the colour of the shapes will be altered consistently.	Option+Shift+f	
a_assig	Assigns the currently selected shape(s) to the activated table cell	Option+Shift+a	
d_SizeAll	Adjusts all line widths and shape heights of assigned Sankey shapes, using the current scaling factor	Option+Shift+d or recalculate sheet ( -=)	
y_slantarrow	This gives all Sankey chevrons () and pentagons () an arrowhead angle of 26.6° (1:2).	Option+Shift+y	
t_ToggleShape	Converts Sankey lines into Sankey pentagons and 2D shapes into lines of appropriate dimensions	Option+Shift+t	
RandomizeShapeID	Randomizes all Sankey shape ID numbers, so all IDs are unique.	none	
c_dessignCellToShape()	Disconnects the link between a text box (label) an a cell containing label text.	Option+Shift+c	–
p_ShowPrecedents	Shows which shapes are connected to which table cells (blue arrows)	Option+Shift+p	
l_DeletePrecedents	Deletes all blue arrows created by the above macro	Option+Shift+  (L)	
r_ReplaceShapeName	Replaces substrings in the names of Sankey shapes	Option+Shift+r	–
deleteCellNames	Deletes all cell names <i>in the whole active workbook</i> . And thus destroys all assignments! Use with care.	none	–
m_toggleDrawingtoolsMenu	Shows/Hides toolbars with useful built-in Excel drawing tools	Option+Shift+m	
g_SaveCollectionAsGIF	Exports selected shape(s) as a GIF picture to the hard drive (shared filter for GIF Export needs to be present. Extended from Ed Ferrero's Chart Export).	Option+Shift+g	
listshape	Gives out a crude list of all recognised Sankey shapes with their name, VBA autotype and type designations. A line is "Autotype: -2 Type: 9"; a chevron arrowhead is "Autotype: 51 Type: 1".	none	–

Happy visualising, and remember to send me one sample of your diagrams. Sankey Helper is Sankey-ware.

Send samples to sankey@doka.ch

Legalese

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Sankey Helper 2.1 is provided free of charge. However I'd be most interested to see, what is done with Sankey Helper. So any nice diagrams (as XLS, GIF, JPEG, PNG et cetera) you created with the help of Sankey Helper are welcome and enthusiastically applauded (send to sankey@doka.ch).

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