



Instructions for use:

Card sort analysis spreadsheet

June 2007

Card sort analysis spreadsheet

About the spreadsheet

I have an Excel spreadsheet that I use to analyze data from physical card sorting activities (although it is most useful for analysis, I also use it to print out physical cards). The spreadsheet does not collect the card sorting data—it is purely for analysis of data collected with physical cards.

This document contains the instructions for using the spreadsheet. It contains information on how to set up the spreadsheet, print card labels, enter the results and, most importantly, analyse the data. This document also doesn't tell you everything you need to know about card sorting. For that, read my book (due out later this year), or read this article I wrote a few years ago:

- http://www.boxesandarrows.com/view/card_sorting_a_definitive_guide

If you haven't already, you should download the spreadsheet. There is an empty template ready for your study and a spreadsheet with a fully worked example. They are available from here:

- http://www.rosenfeldmedia.com/books/downloads/cardsorting/cardsort_analysis_template.xls
- http://www.rosenfeldmedia.com/books/downloads/cardsorting/iasummitpapers_cardsort.xls

The spreadsheet manages up to 200 cards, 20 participants and 50 standardized categories. If you need to cater for more and are unsure about how to extend the formulae (and I wouldn't expect you to—I have trouble sorting it out sometimes) let me know and I'll help you out.

Comments & suggestions

I'd love to hear how you use this spreadsheet, what works, what you changed and what you were hoping to do. Send comments and questions to cardsorting@maadmob.net.

An acknowledgement

Many of the ideas in this spreadsheet come from an article by Joe Lamantia called Analysing Card Sort Results with a Spreadsheet Template. You can find it here:

- http://www.boxesandarrows.com/view/analyzing_card_sort_results_with_a_spreadsheet_template

Thanks Joe!

Buy the book!

I writing a book on card sorting, to be published by Rosenfeld Media later this year. It will cover everything I know about card sorting.

You can sign up for a once-off announcement of its release here:

- http://www.rosenfeldmedia.com/books/cardsorting/info/publication_notification/

– Donna Maurer, Maadmob Interaction Design

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A few notes of caution

The spreadsheet provided is just something I have been using and would like to share. It works for me, and I hope it works for you. But who knows—computers do strange things sometimes. Accordingly, here are some things worth watching out for:

- The spreadsheet uses Excel and much of Excel's normal functionality. Excel can be touchy sometimes, especially with formulae so make sure you save often.
- I use a PC and don't have access to test it on a Mac. A few friends checked it for me and said it works. Let me know if you have problems.
- Life will be easier if you have experience with Excel, can figure out how some functions work and can get around related worksheets.
- If you need to delete, delete content from cells rather than deleting entire rows and columns.
- Save just before you sort anything—if something strange happens, you can return to your saved version.

Oh, and I'm Australian, which means everything here is in Australian spelling. I hear that Australians are one of the few to spell organisation with an 's'. Sorry—I'll probably change it one day, but not today.

Prepare the master card list

The first step is to set up the card list in the spreadsheet. You need to do this whether or not you use it to print off labels—the card list drives most of the analysis.

Spreadsheet tab: Cards

List the card names in column 2 (card name). You can include up to 200 cards. Delete the content from any cells you don't need (don't delete the rows as formulae may go haywire).

	A	B
1	Card no	Card name
2	1	The aesthetic imperative: Four perspectives on aesthetics to inform
3	2	Taxonomies, controlled vocabularies, and ontologies
4	3	Using facet analysis for improving information access to marginal
5	4	Creating no-duh deliverables
6	5	Creating a consistent enterprise web navigation solution
7	6	XIA: Xtreme IA
8	7	Redesigning a digital video digital library
9	8	Making personas more powerful
10	9	Emerging content requirements for news products
11	10	Information search experience: Emotions in information seeking
12	11	Blind leading the blind: Theorizing a web for the visually impaired
13	12	Rapid user mental modelling at ebay: A case study
14	13	4 myths about taxonomies & dublin core: Examples from the field
15	14	Information visualisation: Failed experiment or future revolution?
16	15	Architecting time: Designing online events and other magic tricks
17	16	Fun with faceted browsing
18	17	An ethnographic study of how stockbrokers use a web-based tool
19	18	Recycle, reuse, and rebuild: Information architecture on a budget
20	19	Rebuilding trust in user centred design, wachovia.com investing
21	20	Bottom-up information architecture: Re-designing an enterprise
22	21	Stories from the field: Never consider yourself finished until you ca

Create labels

You do not need to create labels from the spreadsheet–this is just something I’ve found handy, especially when I need multiple packs of cards.

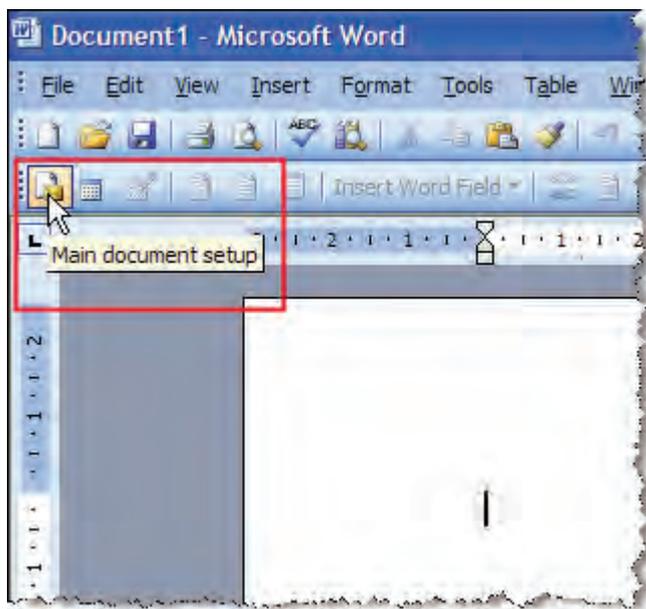
If you create cards by hand, write the number (from the first column of the spreadsheet) and the card name. It will be much easier to enter the data later.

If you do decide to print out mailing labels for index cards, follow on for instructions on how to use Excel and Word to do so.

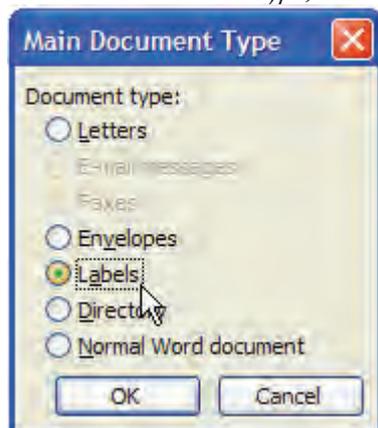
Microsoft Word

Make sure the mail merge toolbar is visible (*View>Toolbars>Mail Merge*)

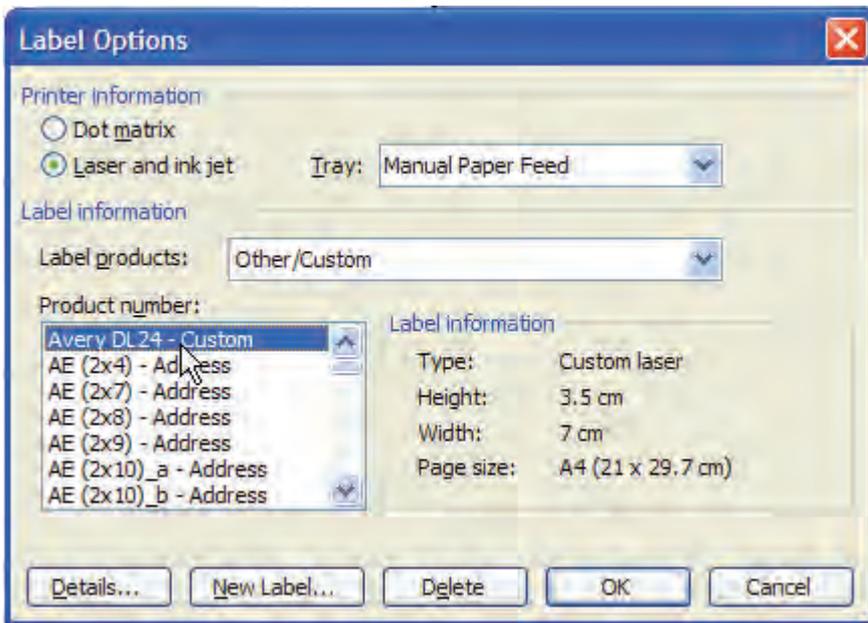
Choose ‘main document setup:



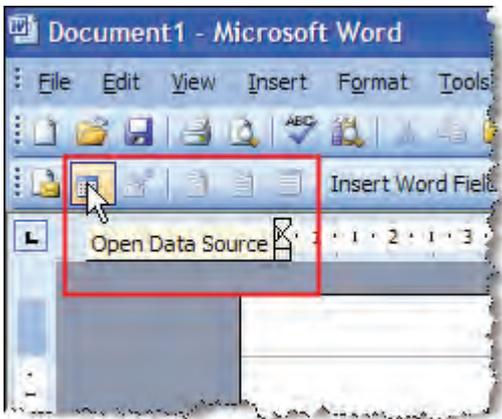
In *Main Document Type*, choose ‘labels’:



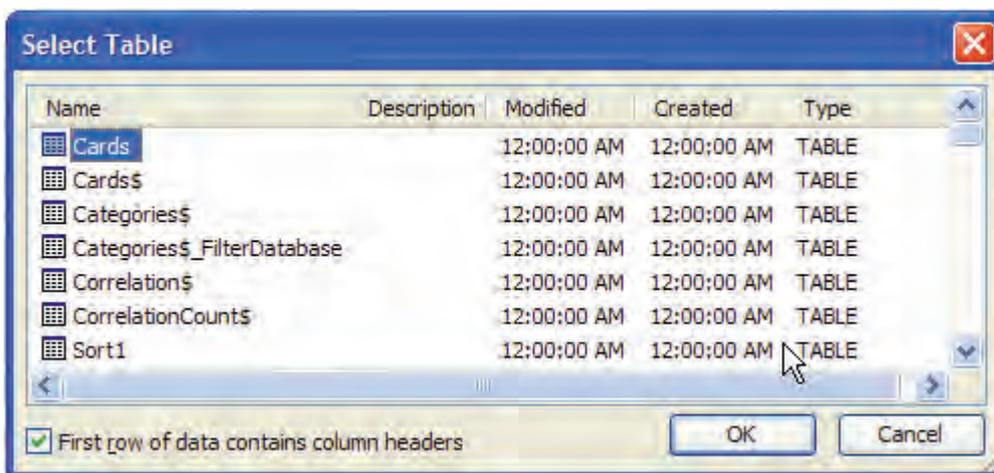
In Label Options, select the label you want to use (or create a custom one if you need):



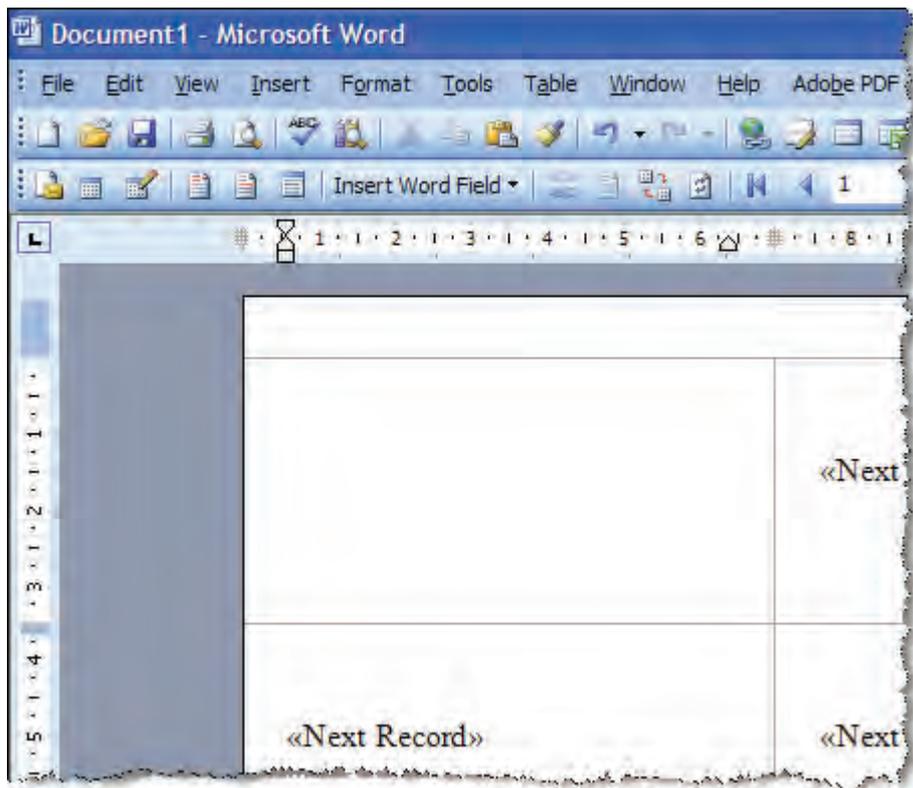
In the document, select *Open data source* and find the location of the analysis spreadsheet:



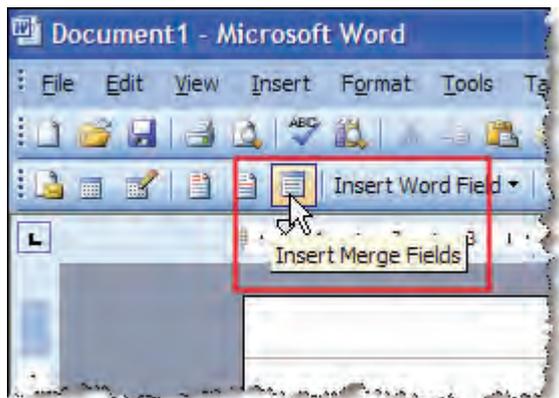
Select Table shows all the tabs and named ranges in the spreadsheet. Select the first 'Cards'—that is the tab (although selecting the named range would do the same thing):



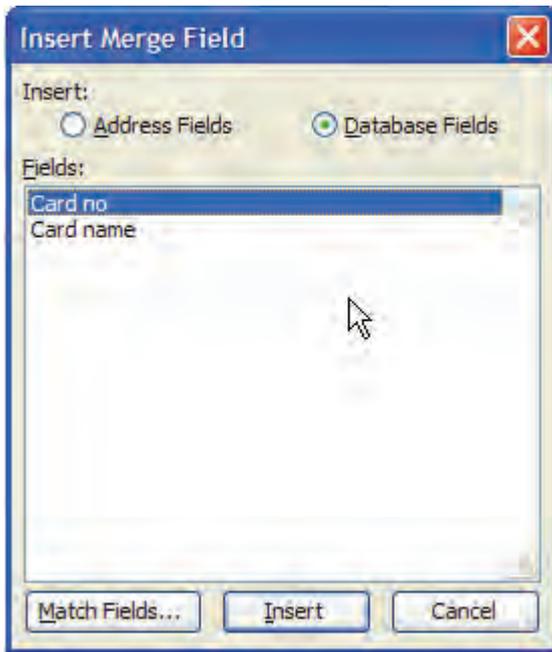
This will populate the spreadsheet with...nothing:



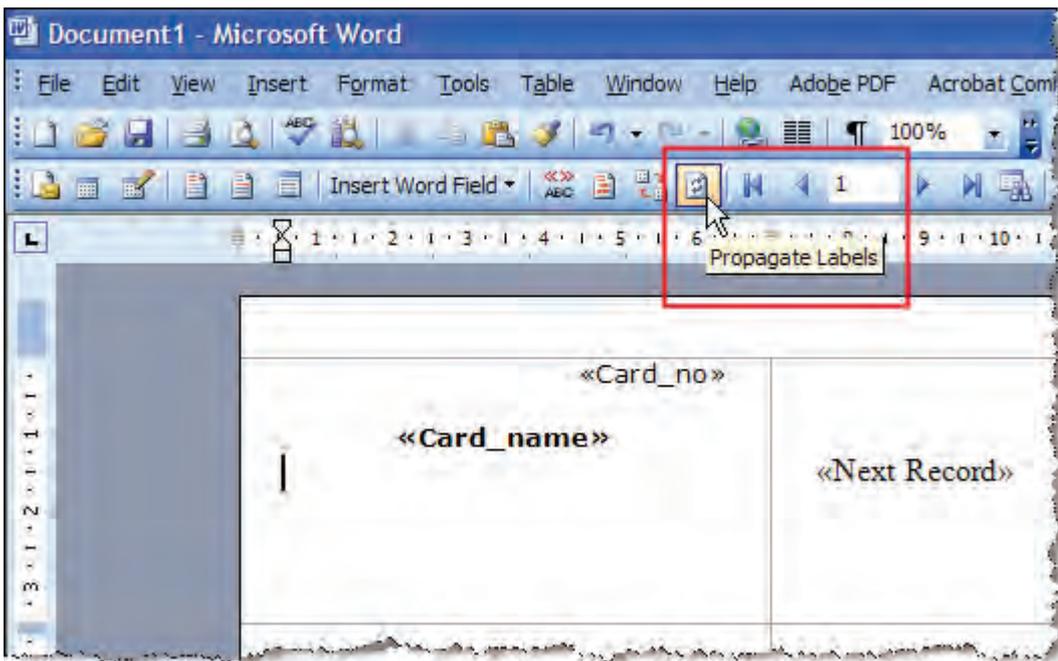
In the document, select *Insert Merge Fields*:



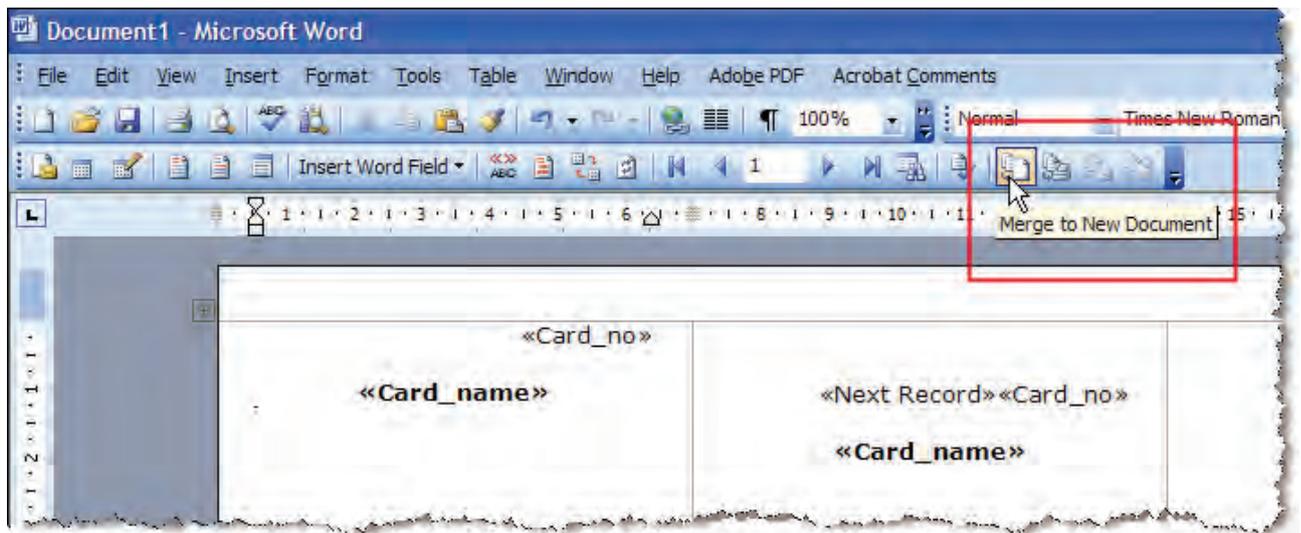
In the *Insert Merge Fields* dialog, click a field you want to include on the card and insert it, then repeat until the fields you want are included. I always add the card no. then the card name:



Format the label the way you want it to appear (I always put the card number in the top right hand corner, centre the card name and set it to 14 pt). Then select *Propagate Labels* (this copies the fields and formatting to all the other labels):



Select *Merge to New Document*. This creates a new document and pulls in the card names & numbers from the spreadsheet (if you are game, you can merge straight to the printer):



Here's our labels, ready for printing:

1	2	3
The aesthetic imperative: Four perspectives on aesthetics to impact the user experience.	Taxonomies, controlled vocabularies, and ontologies	Using facet analysis for improving information access to marginalized communities
4	5	6
Creating no-duh deliverables	Creating a consistent enterprise web navigation solution	XIA: Xtreme IA
7	8	9
Redesigning a digital video digital library	Making personas more powerful	Emerging content requirements for news products

Save the original file (the one you set up the labels)—if you want to create cards for another sort, you can use it again, just with a new data source.

Record outcomes

Record the outcomes from each card sorting session in the analysis spreadsheet. The spreadsheet caters for up to 20 participants.

This is a fast step as a set of formulas do most of the work.

Tab: Sort 1–Sort n

Enter the group name (the name the participant has given to a group of cards) in column B (*Group*) and the relevant card numbers in column A.

	A	B	C
1	Card no	Group	Card name
2	3	Facets	Using facet analysis for improving information
3	16	Facets	Fun with faceted browsing
4	37	Facets	Developing a faceted classification
5	59	Facets	The faceted interface: PC connection case
6	64	Facets	Faceted classification in the government of
7	65	Facets	Facets are fundamental: Rethinking informat
8	92	Facets	Tags and facets, tags and languages: A case
9	98	Facets	The strict faceted classification model: An e
10	8	User research	Making personas more powerful
11	12	User research	Rapid user mental modelling at ebay: A case

Do this for all groups and cards. Check that you have everything included (that you have arrived at the correct line in the spreadsheet).

Add the participant name and any comments in any of the blank cells from Column D onwards.

Tab: Summary

The results automatically populate the Summary tab:

	A	B	C	D	E	F
1	Card no	Card name	Sort1	Sort2	Sort3	Sort4
2	1	The aesthetic imperative: Four perspectives on aesthetics to impact the user experience.	Emotion & aesthetics	Nuts and Bolts	Interaction design	Emotion and aesthetics
3	2	Taxonomies, controlled vocabularies, and ontologies	CVs & taxonomies	Back to Basics	Taxonomy, tags and classification	Metadata
4	3	Using facet analysis for improving information access to marginalized communities	Facets	Global Issues	Taxonomy, tags and classification	Facets
5	4	Creating no-duh deliverables	Communication	The Business of IA	IA: Presentation and output	Deliverables
6	5	Creating a consistent enterprise web navigation solution	Enterprise IA	Nuts and Bolts	IA: Creating the architecture	Enterprise IA
7	6	XIA: Xtreme IA	Odd bits	Future Directions	Discussions	Methods

Tab: CatsRaw

Copy the categories for each sorter to the *Original Category* column in the *CatsRaw* tab.

	A	B	C
1	Sorter	Original category	Standardised category
2	Sort1	Facets	
3	Sort1	User research	
4	Sort1	Enterprise IA	
5	Sort1	Tagging	
6	Sort1	IA fun	
7	Sort1	Big & future ideas	
8	Sort1	International	
9	Sort1	Content management	
10	Sort1	Design theory & process	
11	Sort1	Rich internet applications	
12	Sort1	IA foundations	
13	Sort1	Communication	
14	Sort1	CVs & taxonomies	
15	Sort1	IA & business	
16	Sort1	Odd bits	
17	Sort1	Emotion & aesthetics	
18	Sort2	Back to Basics	
19	Sort2	Case Studies: Real World Examples	
20	Sort2	Global Issues	

Don't worry about the other tabs just yet—you'll fill those in after you do some initial analysis.

Explore the results

Before you go further with the spreadsheet, spend some time looking at the results. Use the 'Summary' tab and sort the data according to different participants—look at what was similar and different across the sorts. Get an idea of what groups people created and some of the similarities and differences in the data.

This will help you with the next step and also make sure you think about the data broadly before delving into statistics.

Standardise categories

The next step is to standardise categories—give those with similar names or concepts a consistent name. This will make analysis easier as you can combine groups where participants used the same basic concept but a slightly different label.

This is a tricky step and requires a lot of judgement. When working through it, consider:

- Do the obvious ones first—there will usually be a group of category names used by every participant.
- With the remainder, standardise the category name if you are confident the concept is the same. You may have to look at the sorter’s detailed data to check the concept.
- Don’t over-standardise—only create a standard category if you are sure two labels mean the same thing.
- When a user has created a combined category name (e.g. communication and business), you can use the combined group, choose the most likely one or consider amending the sort to break it into two groups (do the latter only if it is clear which cards belong to which group).
- Check what a participant has put into a category if you need to clarify what they may have meant with a label
- Be careful not to standardise different concepts just because different participants have grouped similar cards together under the same heading. Only standardise if the labels do represent the same concept.

(I copy the whole list into a separate spreadsheet for this step and sort it in alpha order to spot similarities—it is easier and less risky than doing it in the main spreadsheet.)

Tab: CatsRaw

Write the standardised category into the ‘Standardised Category’ column:

Sorter	Original category	Standardised category
Sort1	Facets	Facets
Sort1	User research	User research
Sort1	Enterprise IA	Enterprise IA
Sort1	Tagging	Tagging
Sort1	IA fun	Fun
Sort1	Big & future ideas	Future
Sort1	International	International
Sort1	Content management	Content management
Sort1	Design theory & process	Methods
Sort1	Rich internet applications	RIA
Sort1	IA foundations	Fundamentals
Sort1	Communication	Communication
Sort1	CVs & taxonomies	Taxonomies
Sort1	IA & business	Business
Sort1	Odd bits	Other
Sort1	Emotion & aesthetics	Emotion & aesthetics
Sort2	Back to Basics	Fundamentals
Sort2	Case Studies: Real World Examples	Case studies
Sort2	Global Issues	International
Sort2	Future Directions	Future

The StandardSummary tab will be automatically populated with the standardised categories:

	A	B	C	D	E	F
1	Card no	Card name	Sort1	Sort2	Sort3	Sort4
2	1	The aesthetic imperative: Four perspectives on aesthetics to impact the user experience.	Emotion & aesthetics	Tips & tricks	Interaction design	Emotion & aesthetics
3	2	Taxonomies, controlled vocabularies, and ontologies	Taxonomies	Fundamentals	Classification	Classification
4	3	Using facet analysis for improving information access to marginalized communities	Facets	International	Classification	Facets
5	4	Creating no-duh deliverables	Communication	Business	Communication	Deliverables
6	5	Creating a consistent enterprise web navigation solution	Enterprise IA	Tips & tricks	General IA	Enterprise IA
7	6	XIA: Xtreme IA	Other	Future	Discussions	Methods
8	7	Redesigning a digital video digital library	Fundamentals	Case studies	Case studies	Case studies
9	8	Making personas more powerful	User research	User centred	Interaction	Deliverables
10	9	Emerging content requirements for news products	Other	Content	Content management	Content management
11	10	Information search experience: Emotions in information seeking	Emotion & aesthetics	User centred design	Interaction design	Emotion & aesthetics
12	11	Blind leading the blind: Theorizing a web for the visually impaired	Future	Accessibility	Interaction design	Accessibility
13	12	Rapid user mental modelling at ebay: A case study	User research	Case studies	Case studies	Case studies
14	13	4 myths about taxonomies & dublin core: Examples from the	Taxonomies	Case studies	Classification	Classification

Tab: CatsSummary

In the *Standardised category* column, list each standardised category just once. The other columns will populate automatically (more about what these mean later).

	A	B	C	D	E
1	Standardised category	Sorters who used this	Total cards in this category	Unique cards	Agreement
2	Accessibility	5	10	2	1.00
3	Advanced IA	1	7	7	1.00
4	Advice	1	6	6	1.00
5	Beyond the web	2	5	5	0.50
6	Big picture	1	14	14	1.00
7	Boundaries	1	8	8	1.00
8	Business	6	55	20	0.46
9	Case studies	18	240	50	0.27
10	Classification	11	130	32	0.37
11	Communication	6	30	20	0.25
12	Community	2	5	4	0.63
13	Content	2	20	13	0.77
14	Content management	16	97	12	0.51
15	Deliverables	6	20	9	0.37
16	Design	5	47	21	0.45
17	Development/Testing	1	6	6	1.00

Reading the results

What do you do with this now? Below I describe what each tab includes and means. Spend time looking through the results and considering why they are like they are and what it means to you (I'm writing a long chapter in the book about analysis—too long to tell you everything here).

Tab: CatsSummary

	A	B	C	D	E	F
1	Standardised category	Sorters who used this	Total cards in this category	Unique cards	Agreement	
2	Case studies	18	240	50	0.27	
3	Content management	16	97	12	0.51	
4	Interaction design	14	117	42	0.20	
5	Methods	12	124	57	0.18	
6	Classification	11	130	32	0.37	
7	Other	11	57	26	0.20	
8	International	9	42	8	0.58	
9	Enterprise IA	9	59	15	0.44	
10	General IA	9	107	55	0.22	
11	Tagging	8	43	11	0.49	
12	RIA	7	34	13	0.37	
13	Business	6	55	20	0.46	
14	Deliverables	6	20	9	0.37	
15	User research	6	49	23	0.36	
16	Communication	6	30	20	0.25	
17	Accessibility	5	10	2	1.00	
18	Facets	5	30	8	0.75	
19	Region	5	47	21		

- Sorters who used this: this shows the number of participants who used this category (remember this is a standardised category—check the Original Category column for exact labelling)
- Total cards in this category: this is the total number of cards, from all participants, using this category.
- Unique cards: this is the number of individual cards in this category.
- Agreement: this is a measure of how much agreement there was between participant results for that category. It is a bit obscure, but very useful when you get your head around it.

As an example, for the category of ‘content management’, sixteen participants used the category of ‘content management’. Between them, participants put 97 cards into the category (an average of 6 cards per participant) and used twelve different cards. It has an agreement number of 0.51—a number which has little meaning in itself, but much meaning when compared to other categories.

Compare it to the category of ‘accessibility’. Five participants used that category and between them used ten cards in total were included in it (avg of 2 per participant). Only two unique cards were used and it’s agreement is 1 – every participant who created a category of accessibility put the same two (and only two) cards in it.

Tab: Summary & StandardSummary

	A	B	C	D	E	F
1	Card no	Card name	Sort1	Sort2	Sort3	Sort4
2	1	The aesthetic imperative: Four perspectives on aesthetics to impact the user experience.	Emotion & aesthetics	Nuts and Bolts	Interaction design	Emotion and aesthetics
3	2	Taxonomies, controlled vocabularies, and ontologies	CVs & taxonomies	Back to Basics	Taxonomy, tags and classification	Metadata
4	3	Using facet analysis for improving information access to marginalized communities	Facets	Global Issues	Taxonomy, tags and classification	Facets
5	4	Creating no-duh deliverables	Communication	The Business of IA	IA: Presentation and output	Deliverables
6	5	Creating a consistent enterprise web navigation solution	Enterprise IA	Nuts and Bolts	IA: Creating the architecture	Enterprise IA
7	6	XIA: Xtreme IA	Odd bits	Future Directions	Discussions	Methods

	A	B	C	D	E	F
1	Card no	Card name	Sort1	Sort2	Sort3	Sort4
2	1	The aesthetic imperative: Four perspectives on aesthetics to impact the user experience.	Emotion & aesthetics	Tips & tricks	Interaction design	Emotion & aesthetics
3	2	Taxonomies, controlled vocabularies, and ontologies	Taxonomies	Fundamentals	Classification	Classification
4	3	Using facet analysis for improving information access to marginalized communities	Facets	International	Classification	Facets
5	4	Creating no-duh deliverables	Communication	Business	Communication	Deliverables
6	5	Creating a consistent enterprise web navigation solution	Enterprise IA	Tips & tricks	General IA	Enterprise IA
7	6	XIA: Xtreme IA	Other	Future	Discussions	Methods
8	7	Redesigning a digital video digital library	Fundamentals	Case studies	Case studies	Case studies
9	8	Making personas more powerful	User research	User centred	Interaction	Deliverables
10	9	Emerging content requirements for news products	Other	Content	Content management	Content management
11	10	Information search experience: Emotions in information seeking	Emotion & aesthetics	User centred design	Interaction design	Emotion & aesthetics
12	11	Blind leading the blind: Theorizing a web for the visually impaired	Future	Accessibility	Interaction design	Accessibility
13	12	Rapid user mental modelling at ebay: A case study	User research	Case studies	Case studies	Case studies
14	13	4 myths about taxonomies & dublin core: Examples from the information visualis	Taxonomies	Case studies	Classification	Classification

The Summary tab shows the raw results for all participants in a giant matrix; the StandardSummary shows the same using your standardised categories.

I find these useful to look along each row—seeing what category each participant used for each card. I also sort the sheets according to the results of an individual participant and compare. Sorting in different ways allows you to see different patterns.

[Tip: there are many dependent formulas across tabs. I'm sometimes scared that sorting will make a huge mess. Save before you sort or back-up your original data]

Tab: Correlation

	A	B	C	D	E	F	G	H
1	Card no	Card name	Case studies	Classification	Methods	Interaction design	General IA	Content management
2	1	The aesthetic imperative: Four perspectives on		5%		26%	5%	
3	2	Taxonomies, controlled vocabularies, and ontologies		37%	5%			
4	3	Using facet analysis for improving information access	16%	21%				
5	4	Creating no-duh deliverables	5%		16%		5%	
6	5	Creating a consistent enterprise web navigation	5%		11%		11%	
7	6	XIA: Xtreme IA			16%		21%	
8	7	Redesigning a digital video digital library	79%		5%	5%		
9	8	Making personas more powerful			32%	5%		
10	9	Emerging content requirements for news products	11%			5%		53%
11	10	Information search experience: Emotions in information			5%	11%	5%	
12	11	Blind leading the blind: Theorizing a web for the	16%			5%	11%	
13	12	Rapid user mental modelling at ebay: A case study	79%		5%			
14	13	4 myths about taxonomies & dublin core: Examples	26%	37%				
15	14	Information visualisation: Failed experiment or future	11%		5%	5%	11%	
16	15	Architecting time: Designing online events and	16%		11%	32%	11%	
17	16	Fun with faceted browsing		26%	5%	11%		
18	17	An ethnographic study of how stockbrokers use	63%		5%			
19	18	Recycle, reuse, and rebuild: Information architecture	11%		26%		11%	
20	19	Rebuilding user personas			5%			

This tab visually shows the relationship between cards, categories and participants. Reading across a row, you can see how often a card was put into a category—‘Redesigning a digital video library’ was put into a category of ‘case studies’ by 79% of participants.

Reading down a column shows which cards were placed into the category.

	A	B	C	D	E	F	G	H
1	Card no	Card name	Case studies	Content management	Interaction design	Methods	Classification	General IA
94	93	Sorting in an age of tagging: How information architecture			5%	16%		
95	94	Selling IA: Getting execs to say yes	11%					
96	95	A room of our own: Starting IA locals and bringing	16%			11%		
97	96	Bringing more science to persona creation			5%	32%		
98	97	Exploring patterns in website content structure		26%		5%		
99	98	The strict faceted classification model: An effective				5%		
100	99	Emotion, arousal, attention and flow: Chaining			42%			
101								
102		Cards in this category	50	12	42	57		
103		Cards with high agreement (>75%)	4	2	0	0		
104		Cards with medium agreement	13	6	9	7		
105		Cards with low agreement (<25%)	33	4	33	50		
106								

There are some statistics at the bottom of each column—this shows similar information to the ‘Agreement’ column in the CatsSummary tab:

- Cards in this category: a count of how many individual cards were placed in this category
- Cards with high agreement: a count of cards with a correlation of 75% or over (i.e. 75% of participants or more used this category for the card)
- Cards with medium agreement: a count of cards with a correlation of 25%–50%
- Cards with low agreement: a count of cards with a correlation of 25% or less (i.e. 25%

participants or fewer used this category)

	A	B	BF	BG	BH	BI	BJ	BK
			Usability	User centred design	Categories for this card	Categories with high agreement	Categories with medium agreement	Categories with low agreement
1	Card no	Card name						
2	1	The aesthetic imperative: Four perspectives on			9	0	1	8
3	2	Taxonomies, controlled vocabularies, and ontologies			8	0	3	5
4	3	Using facet analysis for improving information access			9	0	2	7
5	4	Creating no-duh deliverables			9	0	1	8
6	5	Creating a consistent enterprise web navigation			10	0	1	9
7	6	XIA: Xtreme IA			9	0	0	9
8	7	Redesigning a digital video digital library			5	1	0	4
9	8	Making personas more powerful	5%	5%	9	0	3	6
10	9	Emerging content requirements for news products			8	0	1	7
11	10	Information search experience: Emotions in information		5%	14	0	2	12
12	11	Blind leading the blind: Theorizing a web for the visually			11	0	1	10
13	12	Rapid user mental modelling at ebay: A case study			3	1	0	2
14	13	4 myths about taxonomies & dublin core: Examples			6	0	3	3
15	14	Information visualisation: Failed experiment or future			14	0	2	12
16	15	Architecting time: Designing online events and online			9	0	1	8
17	16	Fun with faceted browsing			11	0	2	9
18	17	An ethnographic study of how stockbrokers use			4	0	1	3

There are some statistics at the right of each row (I don't really use these but may find them useful one day):

- Categories for this card: a count of how many categories were used for this card
- Categories with high agreement: a count of cards with a correlation of 75% or over (i.e. 75% of participants or more put this card in a consistent category)
- Cards with medium agreement: a count of categories with a correlation of 25%–50%
- Cards with low agreement: a count of categories with a correlation of 25% or less (i.e. 25% participants or fewer used any consistent category)