

VISUALIZATION DESIGN PROCESS SKETCHING

Petra Isenberg

SKETCHING

Introduction to

SKETCHES ARE...

- quick, freehand drawings
- can include labels or captions
- don't need to be pretty

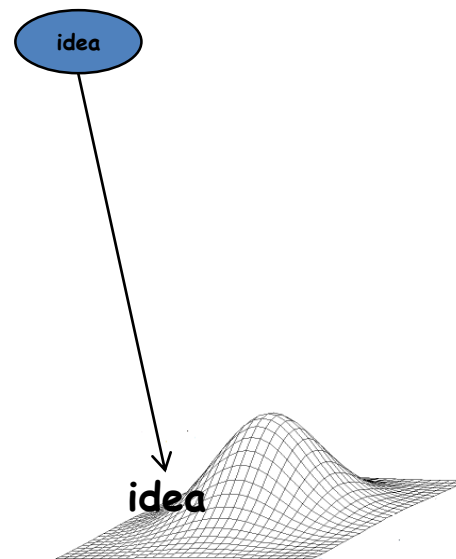
- goal:
 - for communication
 - for brainstorming

try to communicate ideas with as few lines (as little "ink") as possible!

WHY

getting the design right

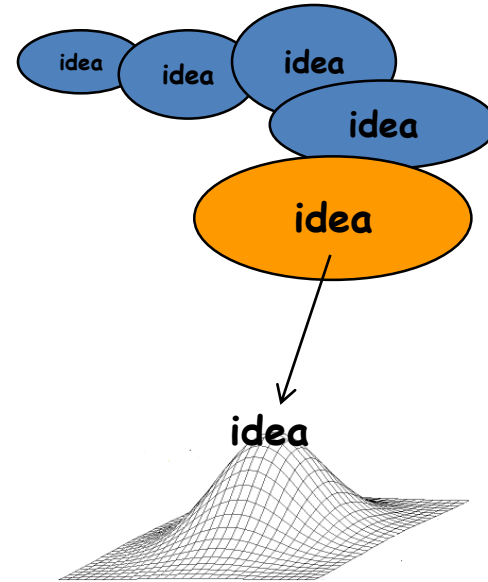
- generate an idea



WHY SKETCH?

getting the design right

- generate an idea
- iterate and develop it



but is it the best idea?

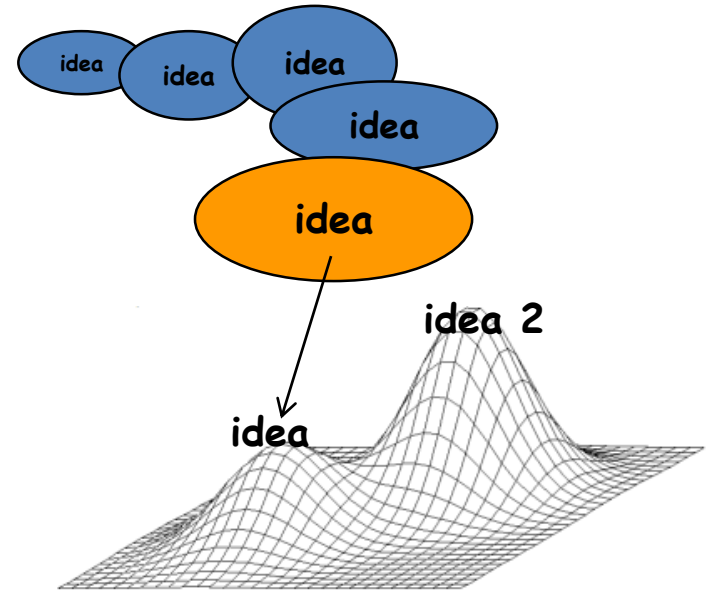
WHY SKETCH?

getting the design right

- generate an idea
- iterate and develop it

The problem

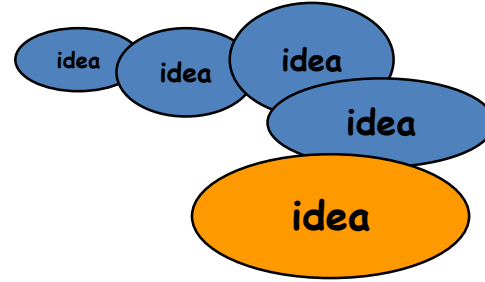
- other better solutions may be available in different ideas
- local *vs.* global maxima (local hill climbing)
- often results from fixating on a single idea



WHY SKETCHES?

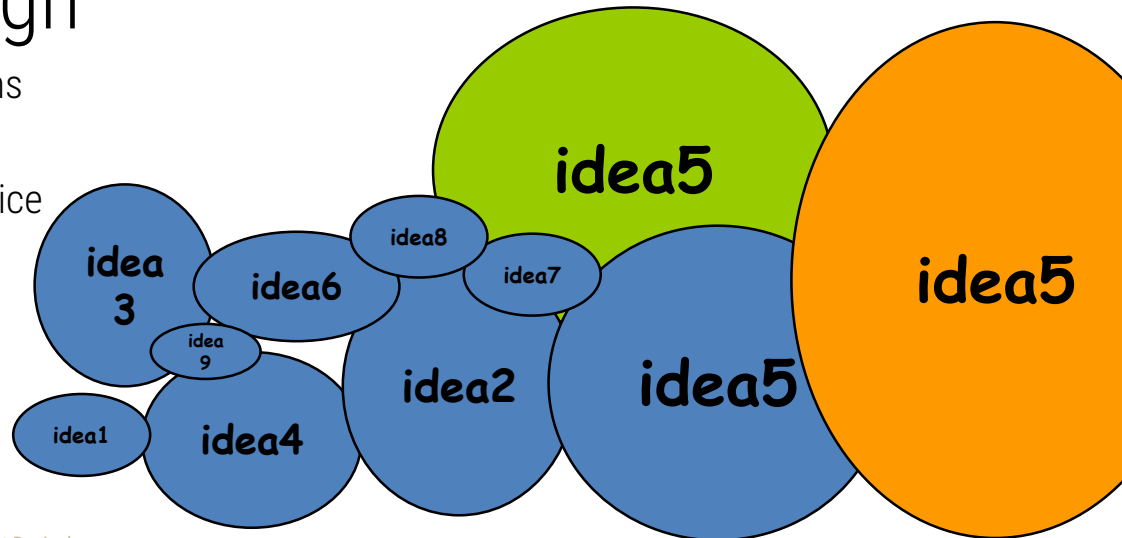
getting the design right

- generate an idea
- iterate and develop it

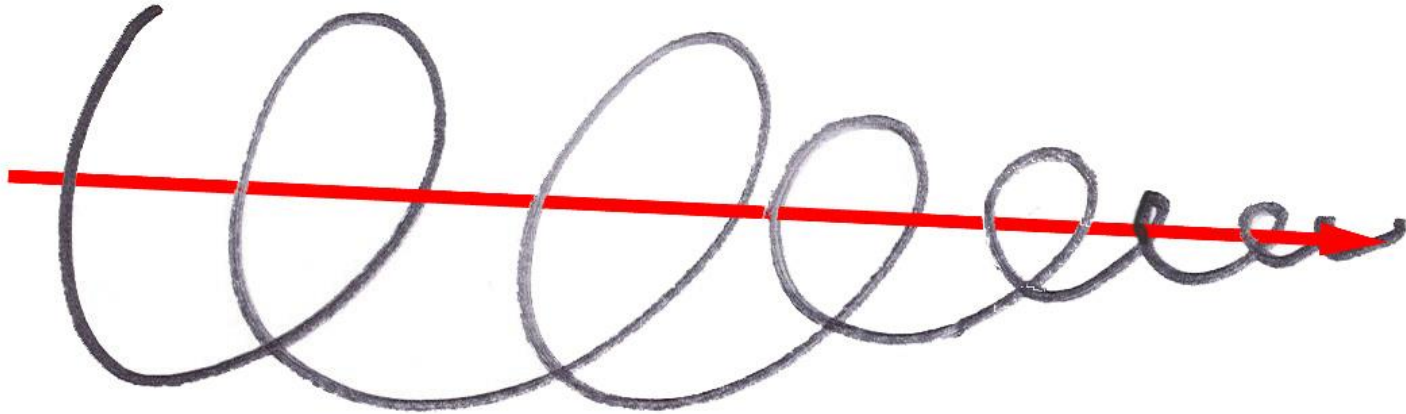


getting the right design

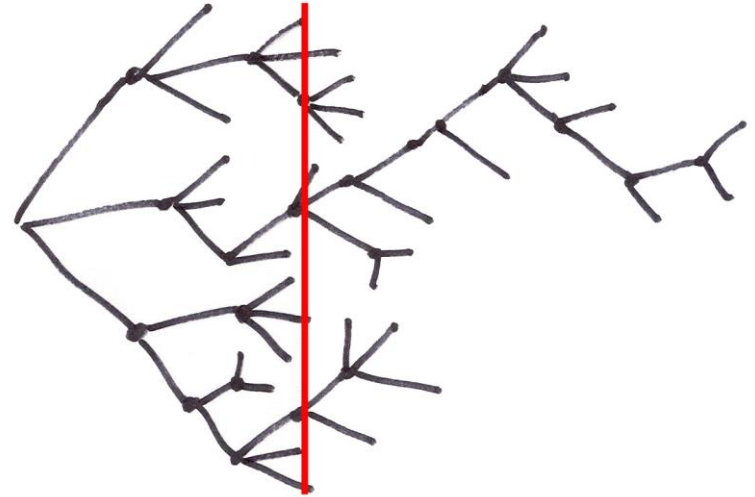
- generate many ideas and variations
- reflect and choose
- *then* iterate and develop your choice



EXPLORATION OF A SINGLE IDEA



EXPLORATION OF



... a designer that pitched three ideas would probably be fired. I'd say 5 is an entry point for an early formal review (distilled from 100's) ... if you are pushing one you will be found out, and also fired ... it is about open mindedness, humility, discovery, and learning. If you aren't authentically dedicated to that approach you are just doing it wrong! [Alistair Hamilton](#)

VP Design
Symbol Technologies

THE ATTRIBUTES OF SKETCHES

quick

- to make

timely

- provided when needed

disposable

- investment in the concept, not the execution

plentiful

- they make sense in a collection or series of ideas

clear vocabulary

- rendering & style indicates it's a sketch, not an implementation

constrained resolution

- no higher than required to capture its concept

consistency with state

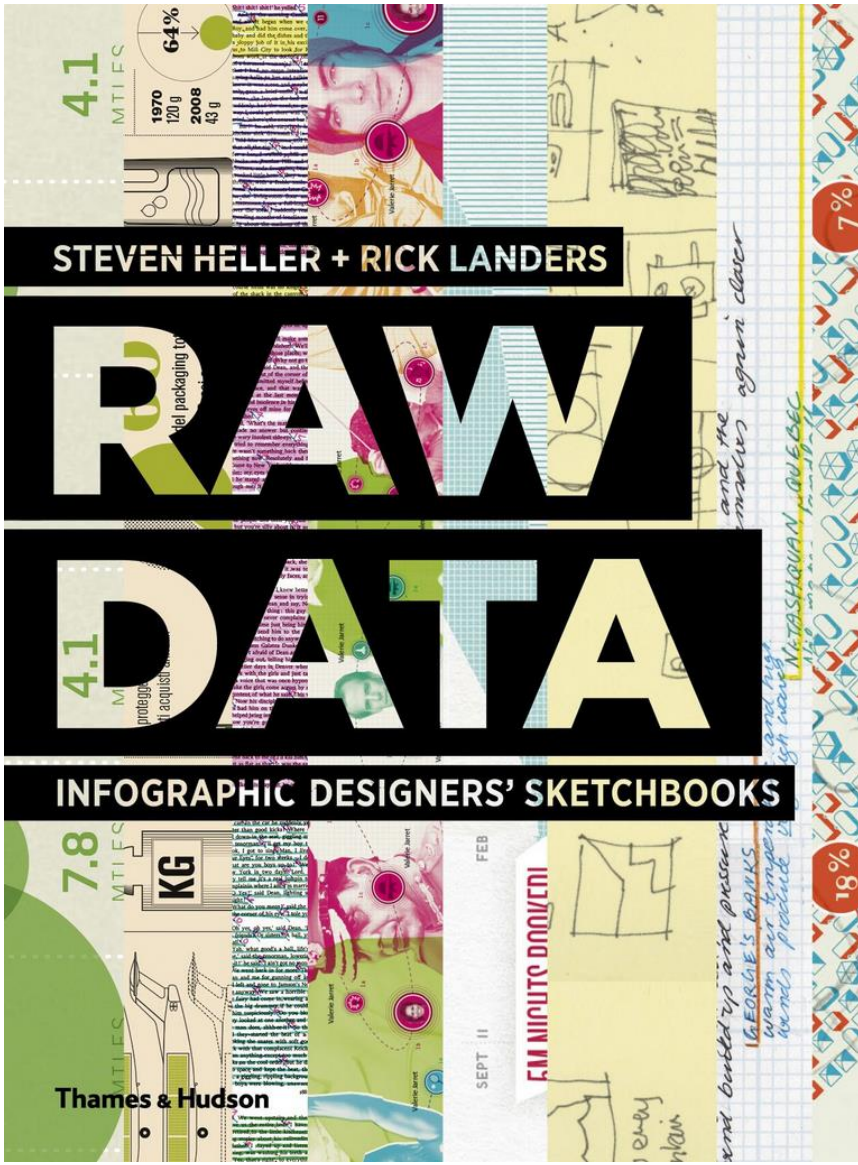
- refinement of rendering matches the actual state of development of the concept

suggest & explore rather than confirm

- value lies in suggesting and provoking what could be i.e., they are the catalyst to conversation and interaction

a catalyst

- evokes conversations and discussion



STEVEN HELLER + RICK LANDERS

RAW

DATA

INFOGRAPHIC DESIGNERS' SKETCHBOOKS

Thames & Hudson

and the market again closer

METASHIAN, QUEBEC

7%

18%

FEB

SEPT II

EM NIPUTO DOQ/ENI

and bubbled up a red presence
GEORGE'S BANKS
warm and tinged
wonder produce

'Drawing plays an important role in the production and communication of knowledge, and in the genesis of new ideas,' says design director Giorgia Lupi, founder of Accurat, an information design agency with offices in Milan and New York. 'In addition, the act of drawing and the fact we choose to stop and draw focuses the attention. When I'm sketching, I always try to find a way to interpret both the single visual elements and the overall composition.'

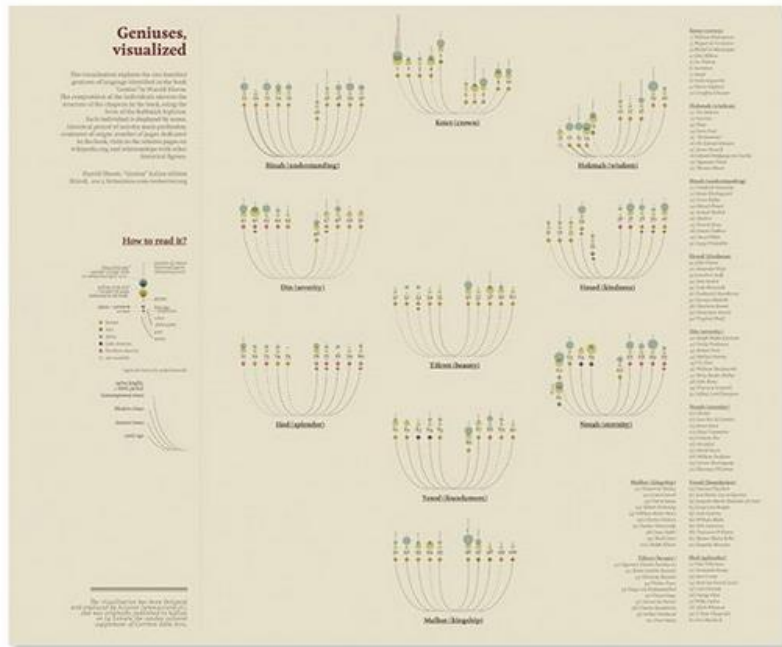
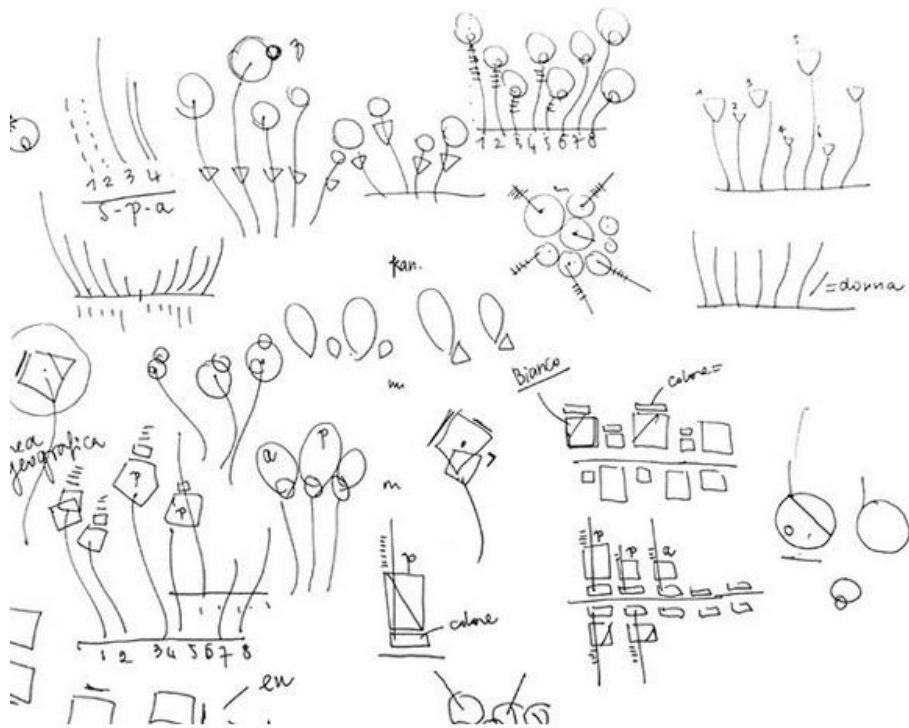
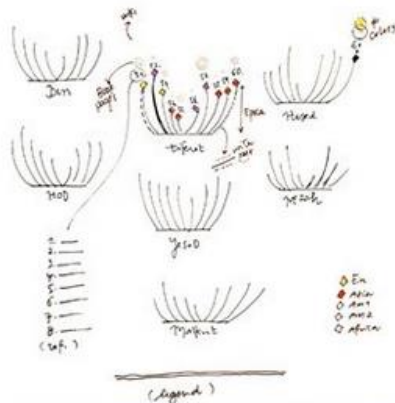
Lupi draws on white paper with Muji black-ink pens. Drawing is her primary expression, a 'functional tool for capturing

and exploring thoughts and exploring ideas towards the production of the final piece'. Her team approaches problems in the way that journalists would, rather than as data analysts, understanding in which contexts they must interpret their data.

When describing *Geniuses, Visualized*, the company's project for *La Lettura*, a magazine supplement in the Italian newspaper *Corriere dello Sera*, Lupi says: 'We aim to deliver rich visual narratives, able to maintain the complexity of the data but still making this complexity more accessible and understandable through the visualization.'

They also provide several layers of exploration on the data set being analysed. 'We call it "non-linear storytelling"', Lupi says, 'where people can get lost in singular elements, minor tales and "last-mile" textual elements within the greater visualization.'

Lupi and her team regularly push the boundaries on how to 'compose' data-visualizations that achieve aesthetic beauty and elegance through new visual metaphors, intentionally avoiding the more usual and already tested styles of representation.



Geniuses, Visualized

La Lettura, 2012

This infographic looked at the 100 'esemplary creative minds' identified in literary critic Harold Bloom's book *Genius*. Flaying off Bloom's use of the Sefirah, the ten emanations of the Kabbalah, to organize the taxonomy of his chosen 'geniuses' of language - from Shakespeare to Lewis Carroll - the visualization depicts the geographic origin, time period and field of each genius, correlated with number of Wikipedia hits and connection to related historical figures.

BIG TITLE

GUEST NIGHTS BOOKED

LISTINGS ON AIRBNB

THE AIRCORN

HOSTS

3-4 HOST INCOME FACTORS GO HERE

HOSTS

Handwritten notes and sketches including a line graph, a map of the world, and various diagrams related to Airbnb's business model and market analysis.

PROFESSOR JOHN - FEBRUARY 2012

GUEST NIGHTS BOOKED

5 MILLION NIGHTS BOOKED (peak)

500%

2011

19,000+

192

UK 748% FRANCE 425% ITALY SPAIN 845% 725%

JUST LAST YEAR

RIGHT NOW

AIRBNB TRAVELLER NETWORK

2012

NETWORK EFFECTS

AND THE EXPOSURE GAIN

Infographic showing growth metrics, global maps, and network diagrams for Airbnb's 2012 performance.

Longest consecutive reservation

91 nights

Hand-drawn infographic featuring a map of Europe with travel routes, a line graph showing reservation trends, and handwritten annotations such as 'Can expect advice to help create better places??', 'Architects is always busy??', and 'Pebbles'.

A SHAPSHOT from FEBRUARY 2012

GUEST NIGHTS BOOKED

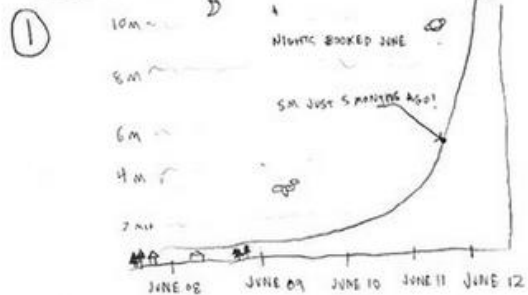
5M NIGHTS BOOKED!

2011

LISTINGS ON AIRBNB

Official infographic from Airbnb showing a 50% increase in guest nights booked and a 25% increase in listings on the platform in February 2012 compared to the same month in 2011.

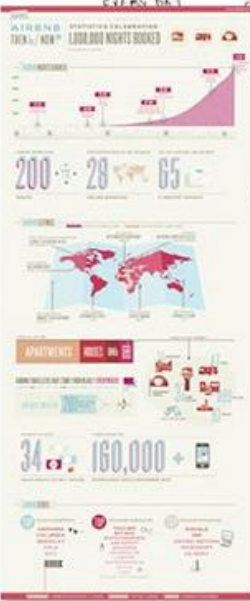
AIRBNB BRINGING THE WORLD TOGETHER



10 MILLION GUEST NIGHTS BOOKED

② A NIGHT ON AIRBNB IS BOOKED...

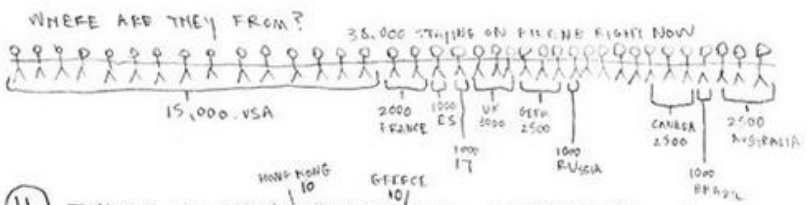
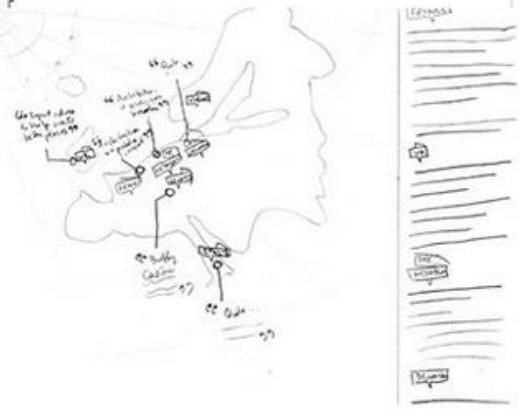
2008: EVERY DAY
2009: EVERY FIVE MINUTES
2010: EVERY MINUTE
2011: EVERY 10 SECONDS
2012: EVERY 2 SECONDS



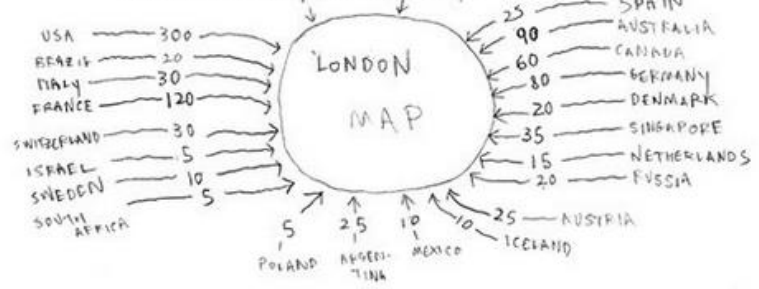
TOOK YOU TO READ THIS, SOMEONE BOOKED A WEEK'S AIRBNB. IN FACT, IT WAS THIS GUY:

HE'S GOING TO _____ (ONLY BASED ON ROUTING)

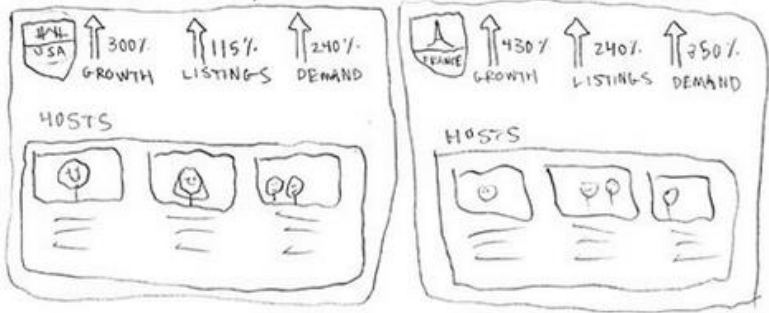
READ THIS, 38,000 PEOPLE ARE STAYING ON AIRBNB. ANYING?



④ TONIGHT, IN LONDON, 1200 PEOPLE WILL BE STAYING ON AIRBNB. WHERE ARE THEY COMING FROM?



⑤ INTERNATIONAL GROWTH - IN THE LAST YEAR, THE AIRBNB COMMUNITY HAS GROWN...



ONE-CLICK COUNTRIES

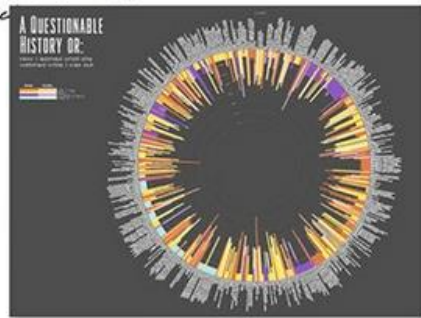
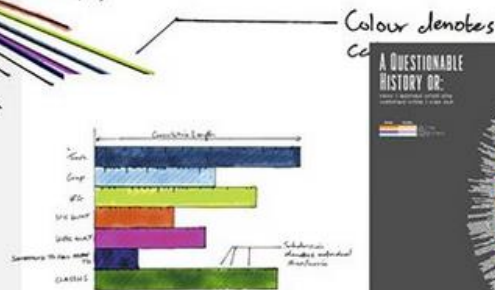
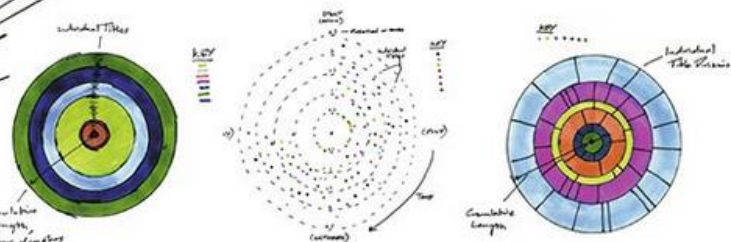
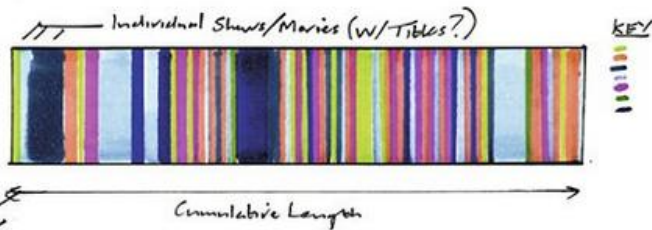
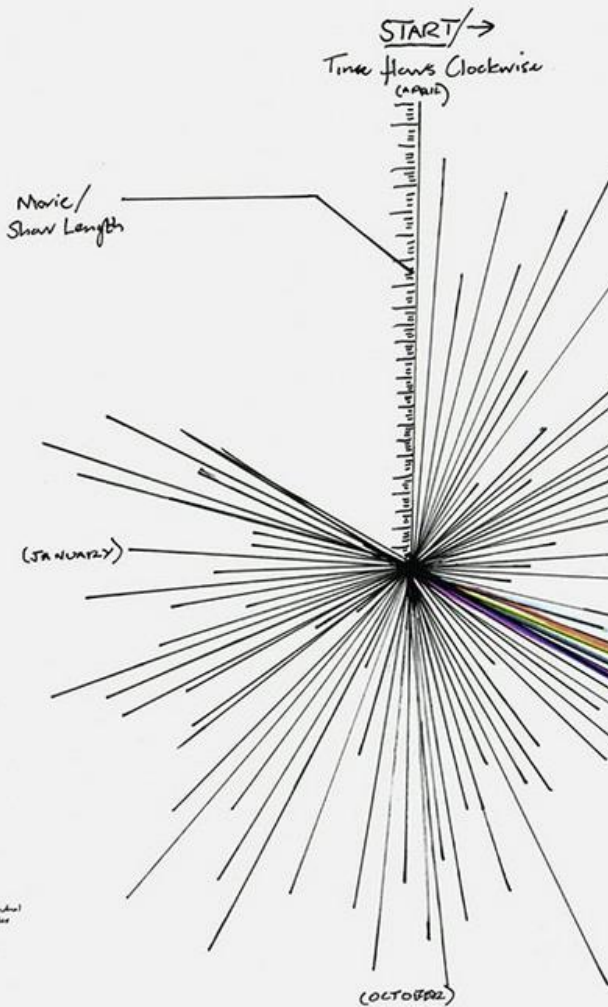
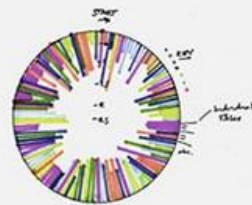
Tim Hucklesby

Charting his own movie viewing over a year

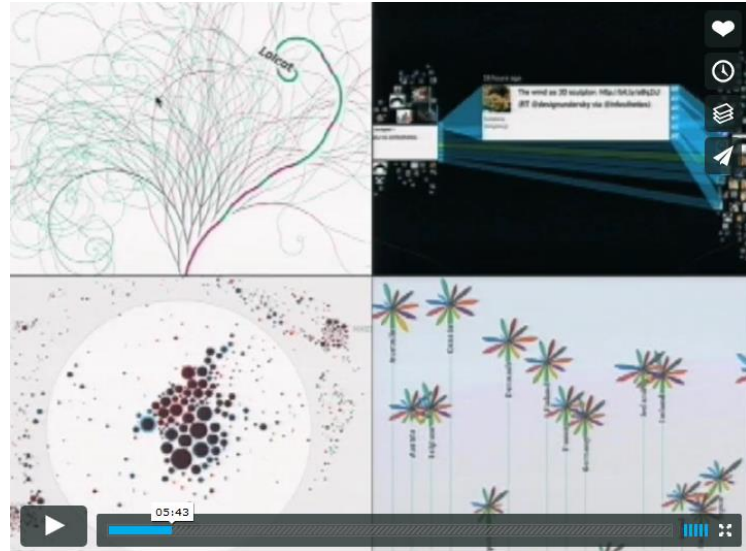
British-born Tim Hucklesby, now a designer at Doyle Partners in New York, first began designing infographics a few years ago, when he wanted to round out his portfolio before applying to the MFA Design programme at the School of Visual Arts. 'I kept designing them because I wasn't happy with the first one, and discovered that they were, in fact, pretty tough to make,' he admits. 'I always want the core idea to be a quick read, as well as encouraging the viewer to keep digging. I tend to slip up on at least one of these criteria, so will keep trying.'

Hucklesby always embarks on a project by sketching in pen or pencil, whatever is to hand. 'I want get the concept pinned down before moving to the computer,' he says. 'I've found going straight to the machine tends to pull me down certain avenues, using techniques that I've used in the past. If I start on paper, I worry far less about how I'm going to make the finished piece and aim for something a bit more ambitious as a result.'

Of the visualization of his Netflix streaming consumption, *A Questionable History* (these pages), Hucklesby says: 'In the process of sorting the data, I found a great number of movie titles I didn't recognize, which turned out to be what my wife was watching while I was out. She was catching up on TV and films I wouldn't watch with her. In the end, the project was a public shaming of both of us and our viewing habits. It also served as a wake-up call to get out more.'



Watch this video at home



<https://vimeo.com/28443920>

SKETCHING

Workshop

GETTING STARTED: SOME BEST PRACTICES

imitate sketching styles you like

add date, time (+context)

sketching with fast, long strokes

keep mistakes

analog before digital

3D is not necessary (most of the time)

SKETCHING

- sketch a number of different things
- *DO NOT* put your name on your sketches
 - One page per sketch
- we will then tape these sketches up together, explore them, and discuss

BUT: “I CAN’T DRAW...”

SOME PRINCIPLES FOR SKETCHING

- use as few lines as you can
- communicate the essence of the idea
- details only if they are important
- choose the detail you put in deliberately
- one piece of paper per sketch!!!!

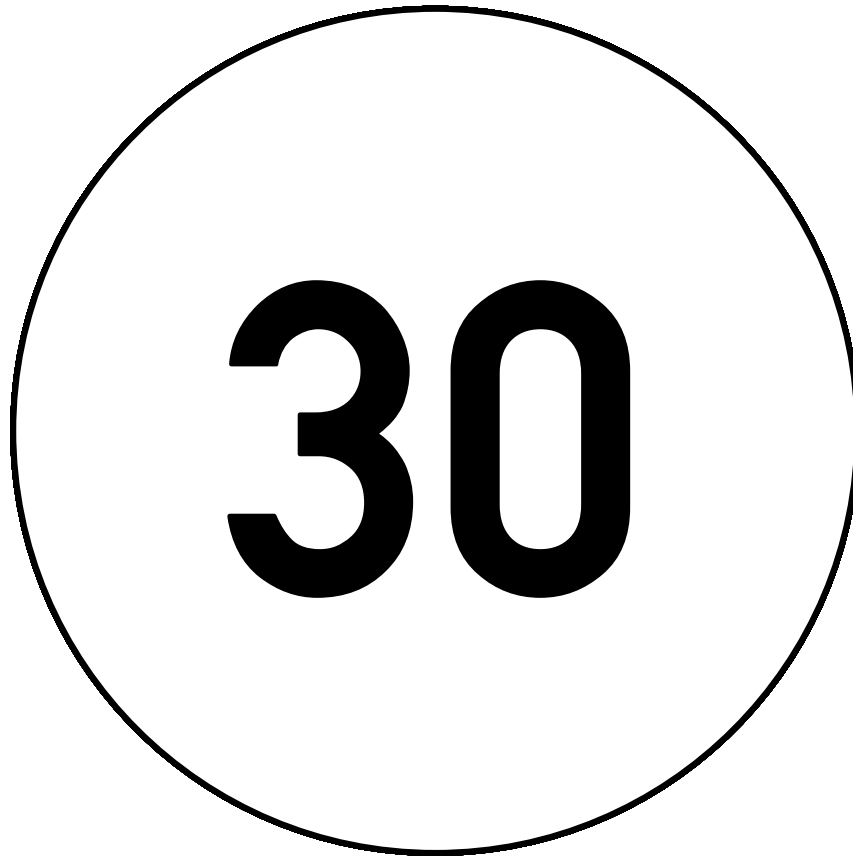
SKETCHING

Principles

- Use as few lines as you can
- Communicate the essence of the idea
- Details only if they are important
- Choose the detail you put in deliberately
- One piece of paper per sketch!!!!

Exercise

Sketch a
cellphone
(30s)



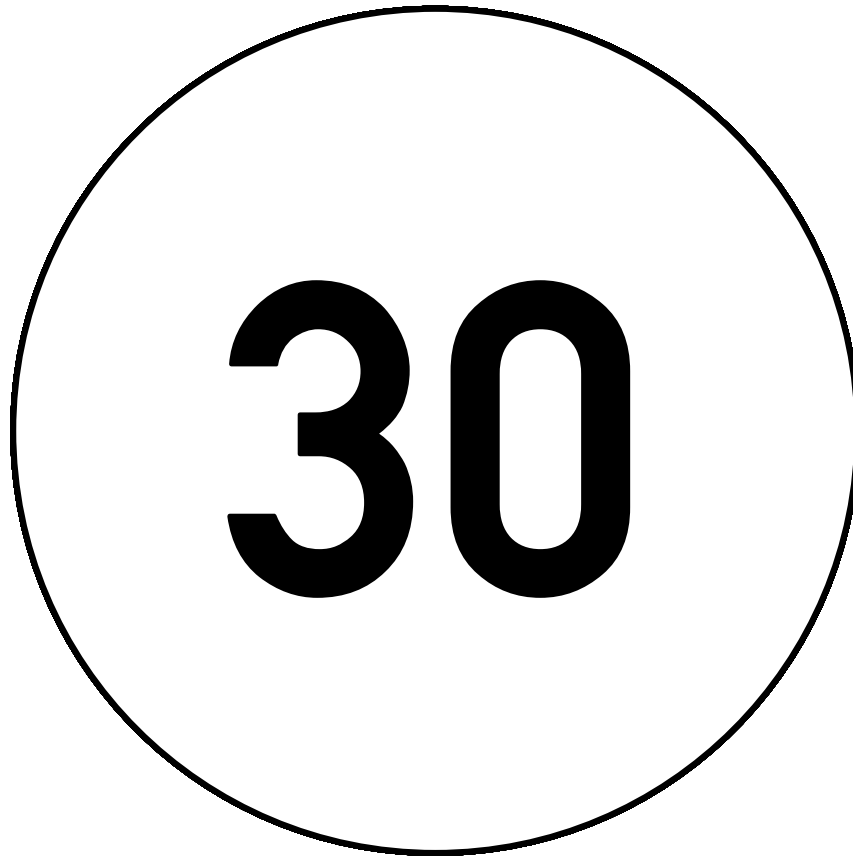
SKETCHING

Principles

- Use as few lines as you can
- Communicate the essence of the idea
- Details only if they are important
- Choose the detail you put in deliberately
- One piece of paper per sketch!!!!

Exercise

Paris (30s)



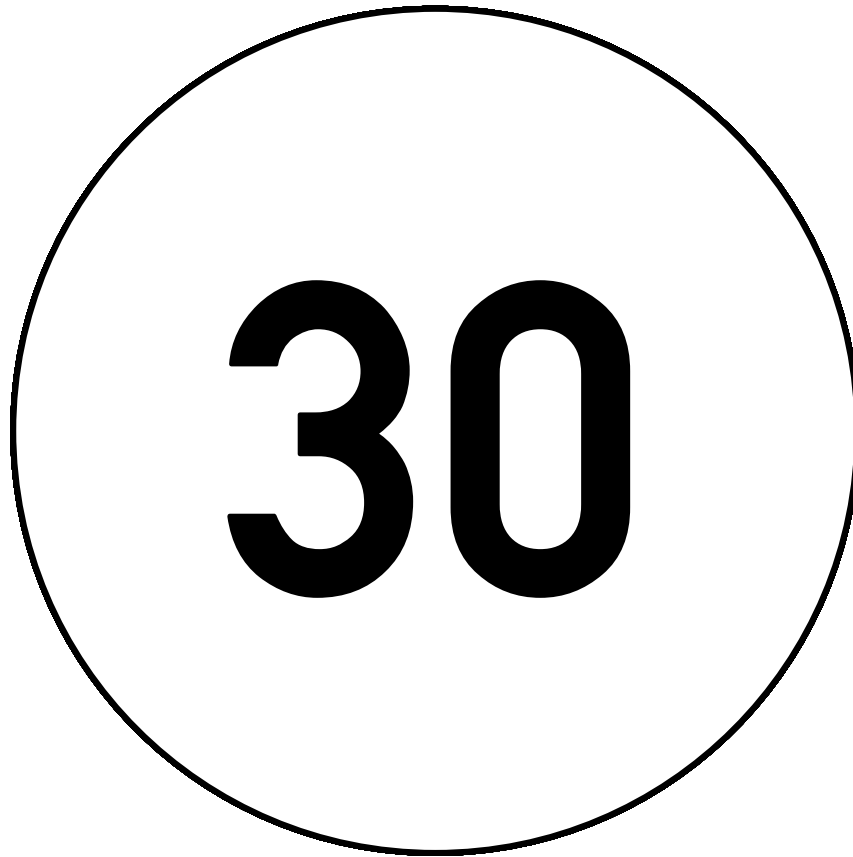
SKETCHING

Principles

- Use as few lines as you can
- Communicate the essence of the idea
- Details only if they are important
- Choose the detail you put in deliberately
- One piece of paper per sketch!!!!

Exercise

Computer
(30s)



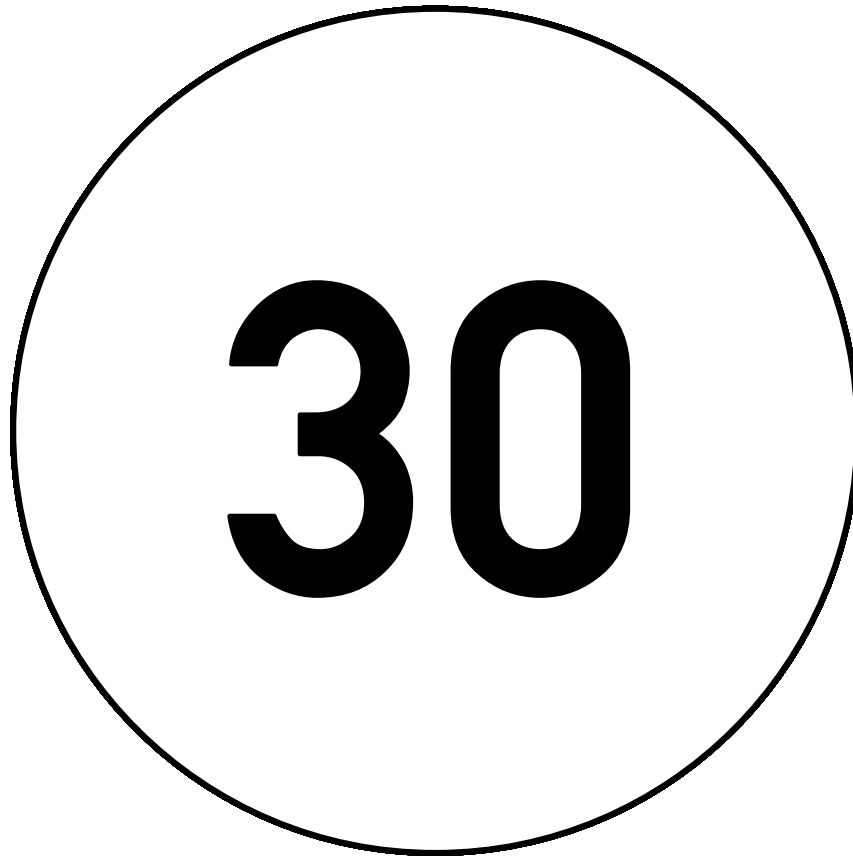
SKETCHING

Principles

- Use as few lines as you can
- Communicate the essence of the idea
- Details only if they are important
- Choose the detail you put in deliberately
- One piece of paper per sketch!!!!

Exercise

Gas station
(30s)



DISCUSSION (10-15 MINS)

- post up your sketches
- what worked well?
- what didn't work well?
- what things were important to communicate the idea?
- what wasn't important to communicate the idea?

- Note: DO NOT “defend” your sketch (better yet: don't identify it is yours). Remember that your peers are the “users” of your sketch. If they find something incomprehensible, this is telling you something.

SKETCHING DATA

FIND A PARTNER

Form groups of 2

SKETCH THE RELATIONSHIP BETWEEN TWO NUMBERS

(10 MINUTES)

75

37

(there are at least 45 different ways)

<http://www.scribblelive.com/blog/2012/07/27/45-ways-to-communicate-two-quantities/>

SKETCH THIS DATASET (20 MINUTES)

Social network #1

0 - self
1 knows
2 likes
3 dislikes
4 loves
5 does not know

no self loops

```
      m  j  p  s  b  l  j  f  l  t
      a  o  a  u  e  y  a  r  o  e
      r  e  u  e  t  n  c  e  r  r
      y          l      t      k  d  I  r
                       y
      1  2  3  4  5  6  7  8  9  10
```

	1	2	3	4	5	6	7	8	9	10
1-mary	0	1	2	1	5	3	5	4	1	1
2-joe	2	0	1	5	1	4	1	3	1	2
3-paul	2	2	0	2	5	2	2	2	2	2
4-sue	1	5	1	0	1	1	1	1	1	5
5-betty	5	1	5	1	0	2	2	1	3	1
6-lyn	1	4	1	2	1	0	2	2	5	1
7-jack	5	1	2	1	3	1	0	1	3	1
8-fred	2	3	1	2	1	2	1	0	5	5
9-lori	2	1	2	1	3	1	4	1	0	1
10-terra	2	2	1	5	1	4	1	2	1	0

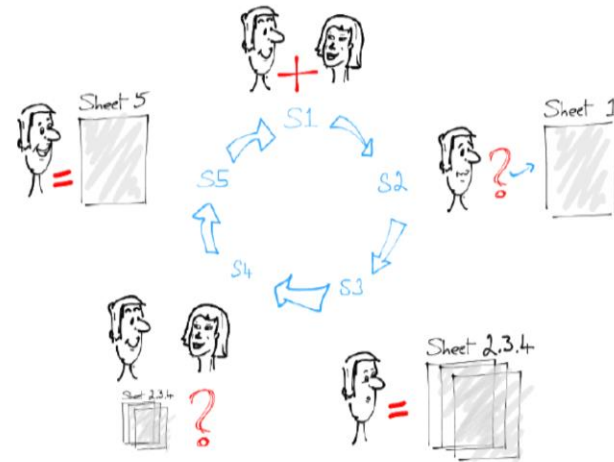
END OF PART 1

GENERAL ADVICE

Get to know your data first

- what attributes are included? How do the attributes relate to each other?
- what are the types of attributes included?
- can I derive new attributes from the existing attributes?
- what questions does the data trigger in you? Write them down

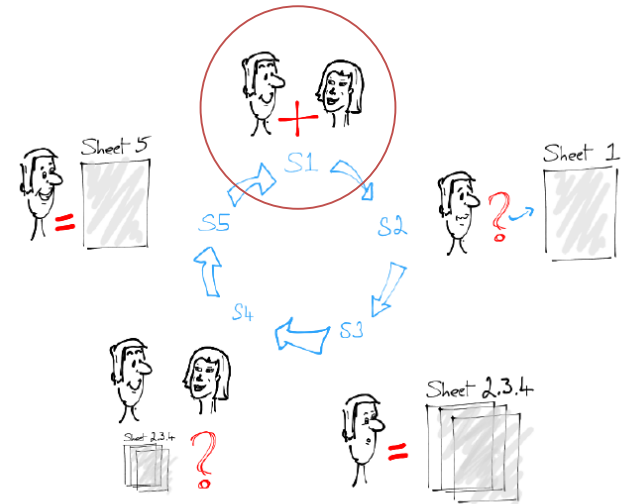
THE 5 DESIGN SHEET METHODOLOGY



<http://fds.design>

STAGE 1

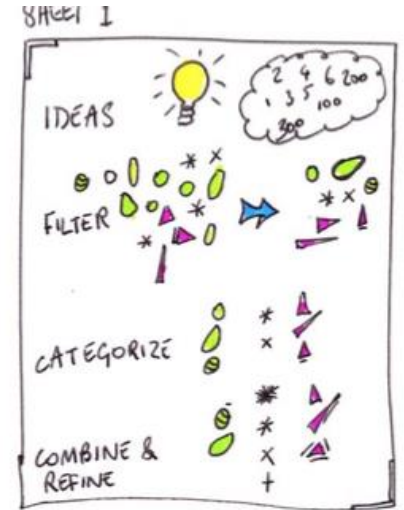
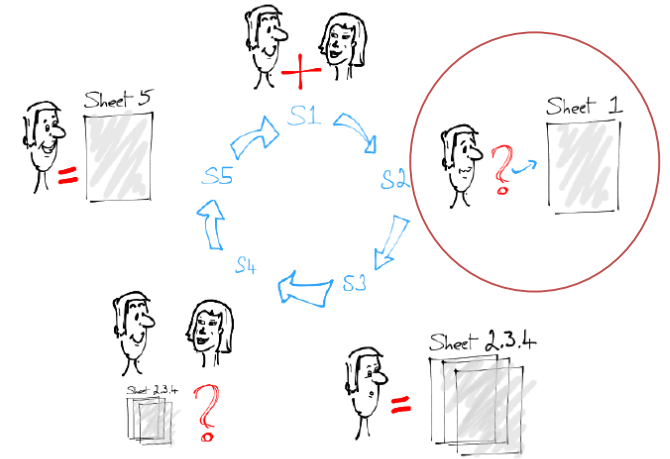
- Consider the task
 - if you have a client – meet them
 - try to understand the tasks
- Understand the data
 - meaning of attributes
 - types of attributes
 - static/dynamic properties
 - range & distribution
- Start to come up with possible questions the vis should answer



STAGE 2

Brainstorm

- **Generate** (mini) ideas, sketch
- **Filter**: remove ideas that are too similar
- **Categorize**: put similar ideas together
- **Combine & Refine**: organize mini-ideas into bigger solutions
- **Question**: question your solutions

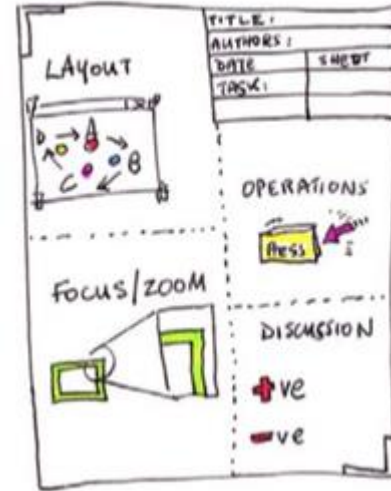


STAGE 3

Create 3 alternative designs which contain

- layout of the design
- focus: show the key vis techniques
- operations: how do people use your vis?
- discussion: advantages & disadvantages
- meta-info: your name, title, date, sheet number, task

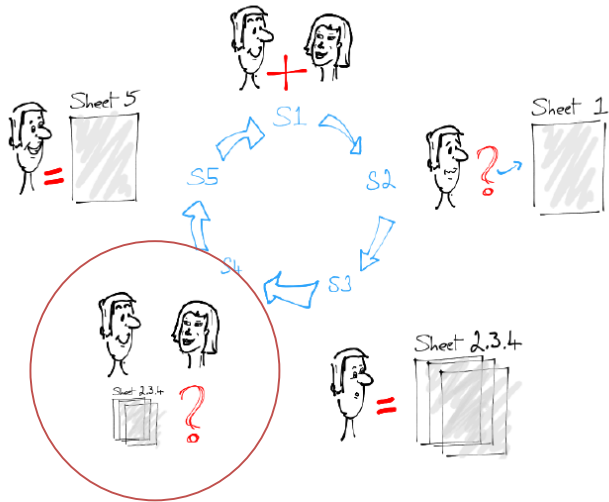
SHEET 2,3,4



STAGE 4

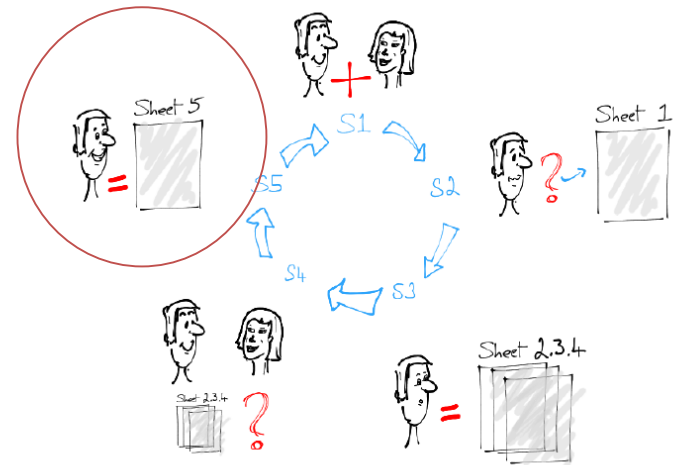
Consider the created designs

- reflect (go back to your tasks & data)
- discuss with client / end users (if you can)



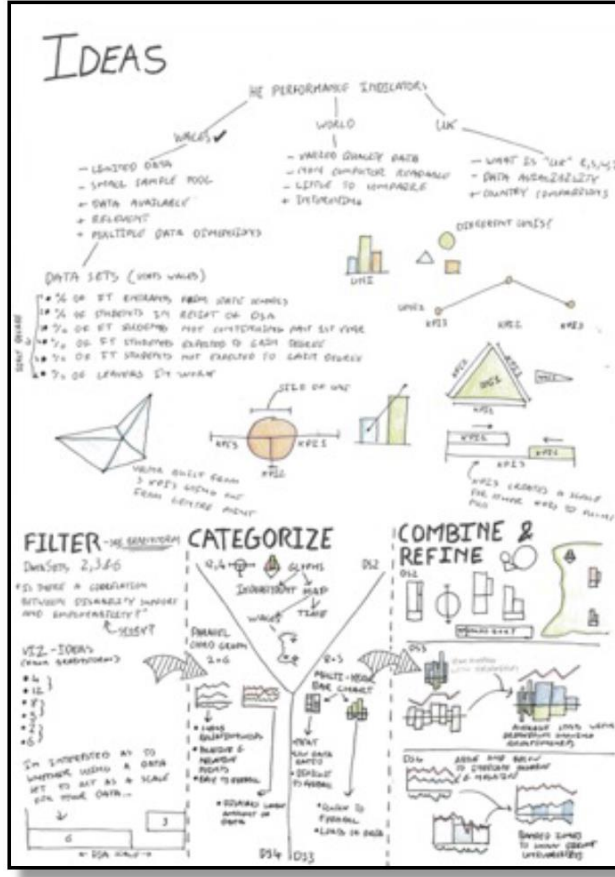
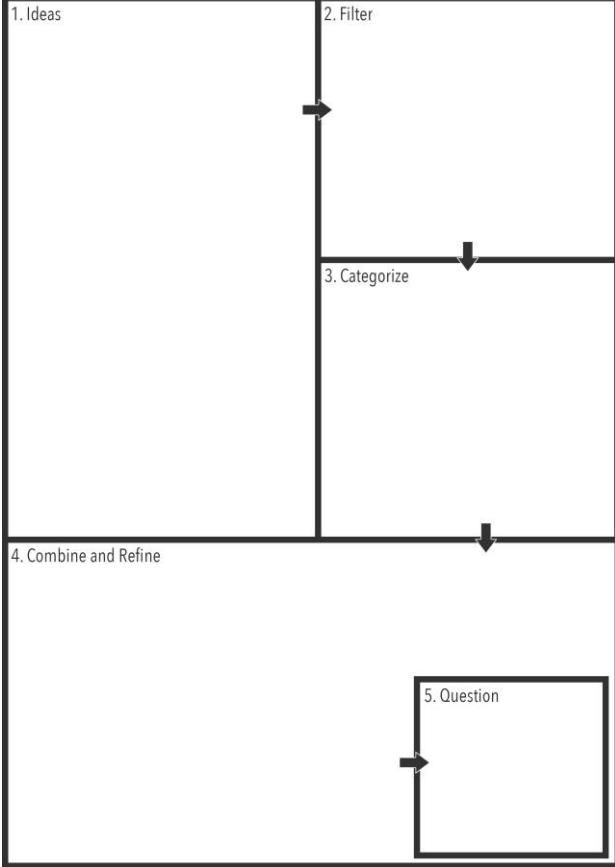
STAGE 5

Refine and merge ideas into final design



EXAMPLES

SHEET 1: IDEATION



Rules of Brainstorming

1. Don't criticize
2. Don't evaluate.
3. Generate-generate-generate.
4. Ideate the whole design space.

SHEET 2, 3, 4

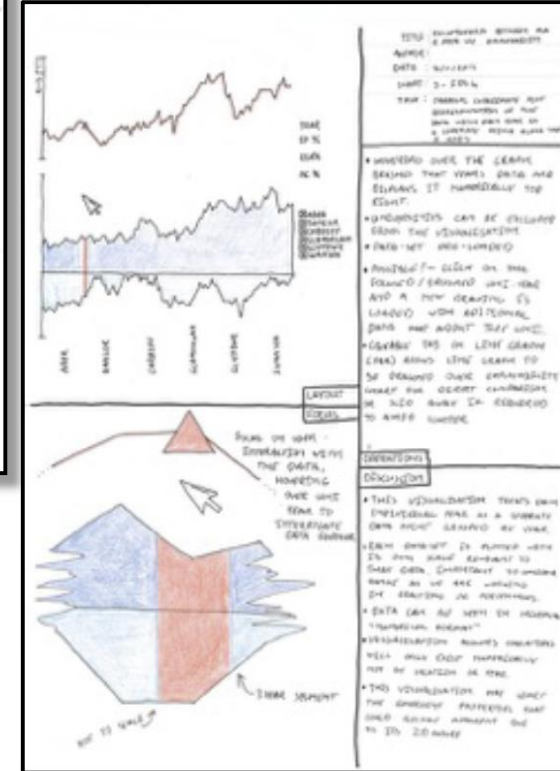
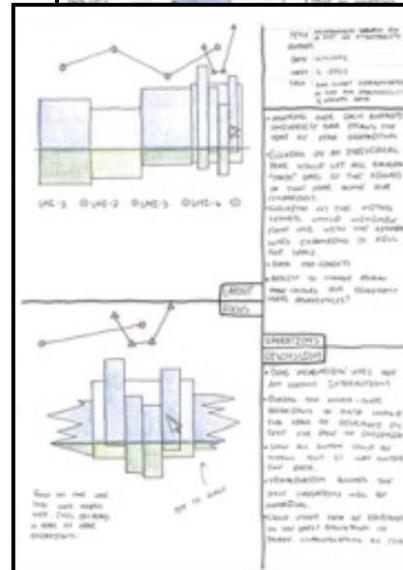
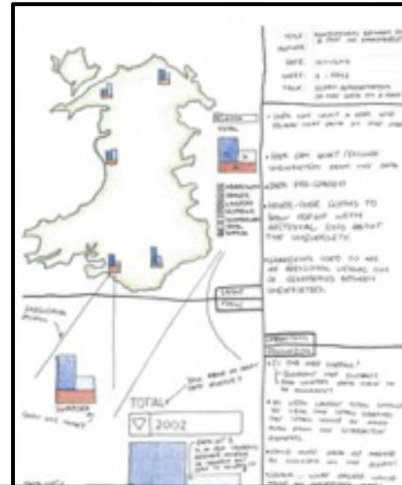
Layout

Title:
Author:
Date:
Sheet:
Task:

Operations

Focus

Discussion



Sheets 2,3,4

SHEET 5

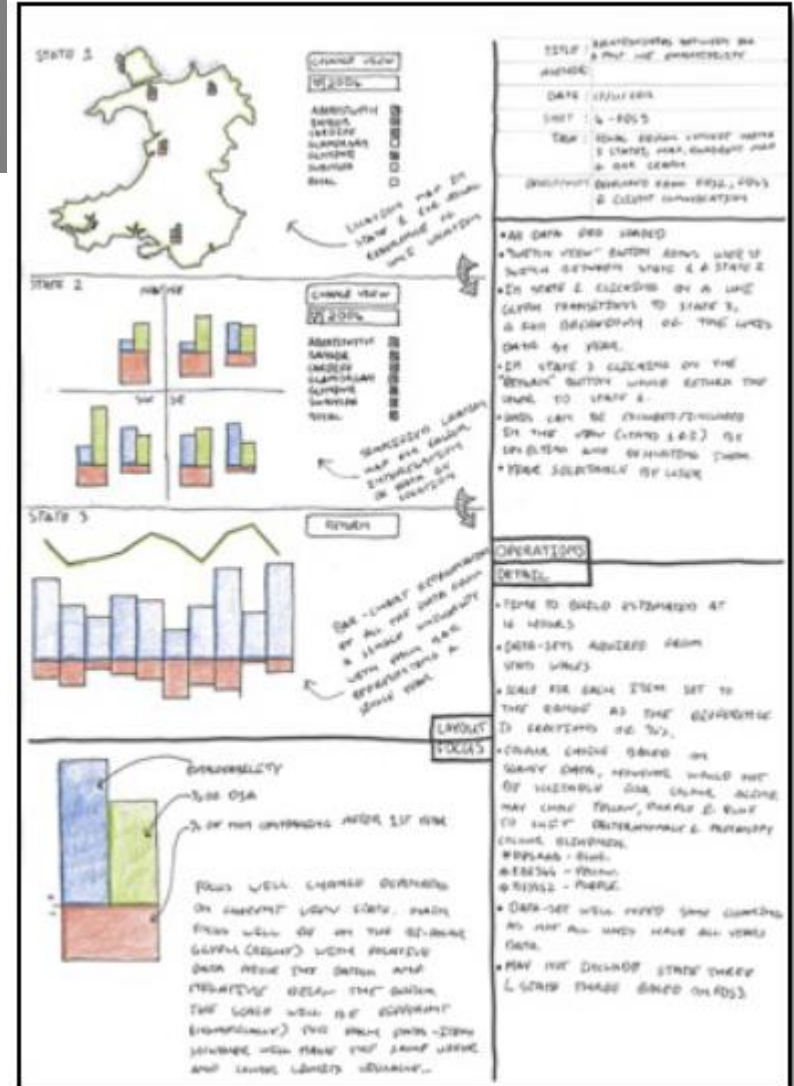
Layout

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Task:

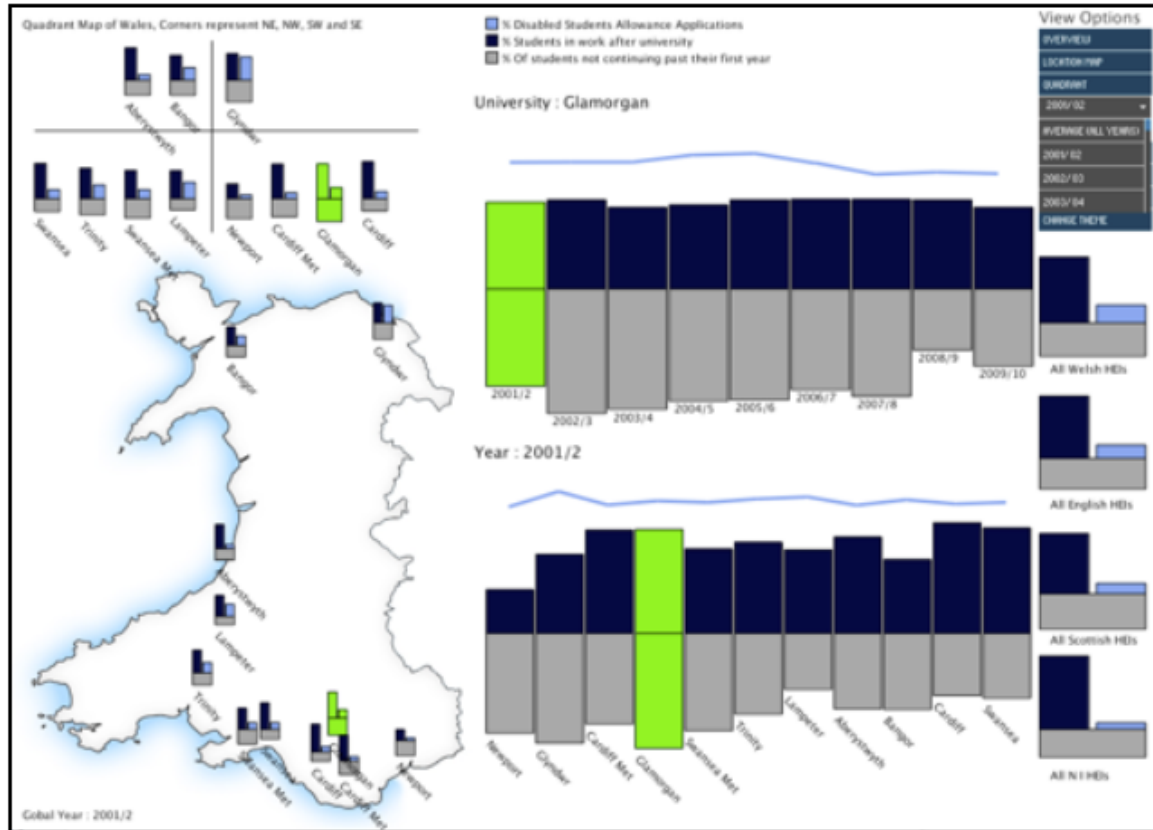
Operations

Focus

Detail



FINAL IMPLEMENTATION



ACKNOWLEDGEMENTS

Slides in were inspired and adapted from slides by

- Nicolai Marquardt (University College London)
- Uta Hinrichs (University of St. Andrews)
- Saul Greenberg (University of Calgary)