VISUALIZATION DESIGN PROCESS

SKETCHING

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informatics mathematics
Inria

SKETCHING

Introduction to

SKETCHES ARE…

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

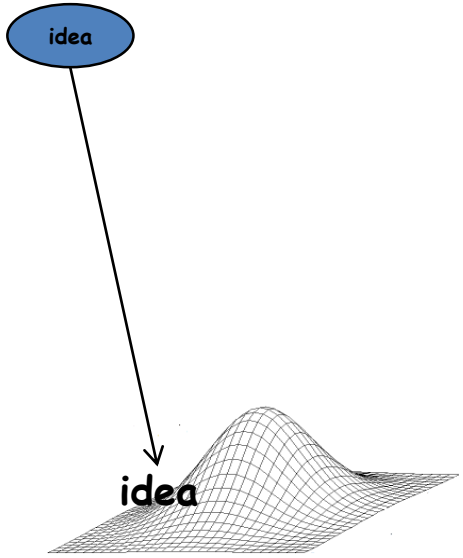
- goal:
  - for communication
  - for brainstorming

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

WHY

getting the design right

- generate an idea

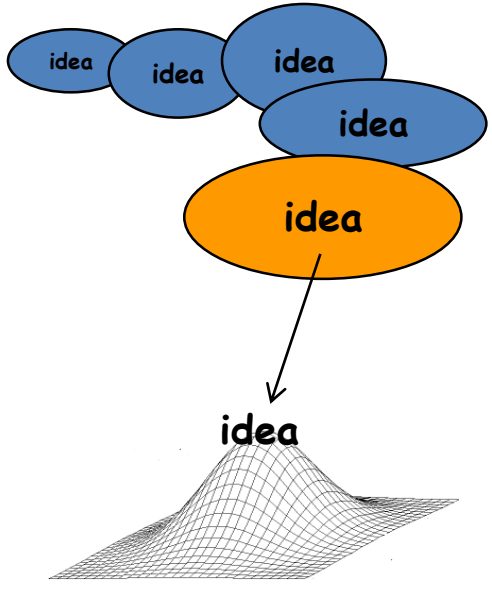


Graphs on the next few slides were modified from images found in the Sept. 2009 Wikipedia entry: *hill climbing*

WHY SKETCH?

getting the design right

- generate an idea
- iterate and develop it

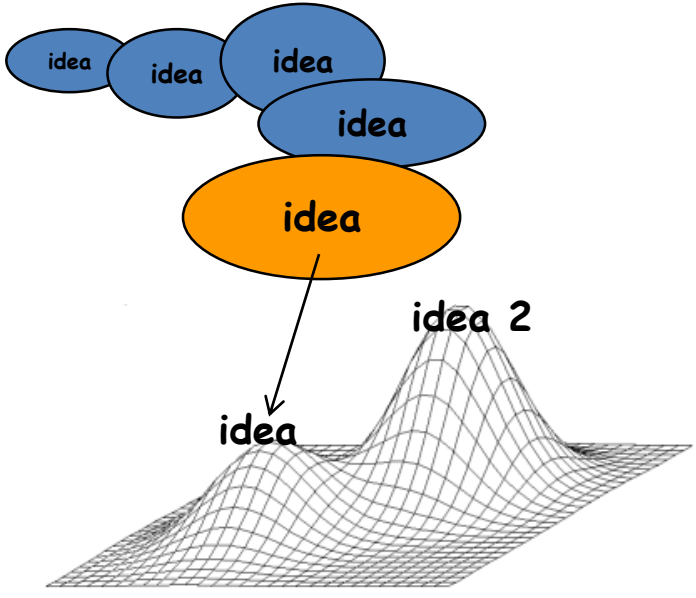


but is it the best idea?

WHY SKETCH?

getting the design right

- generate an idea
- iterate and develop it



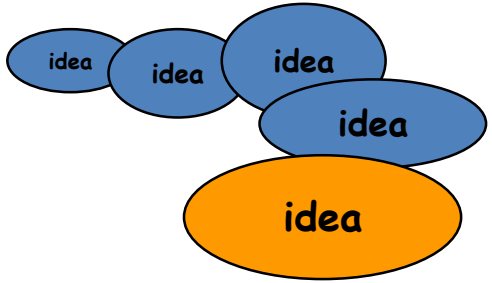
The problem

- 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?

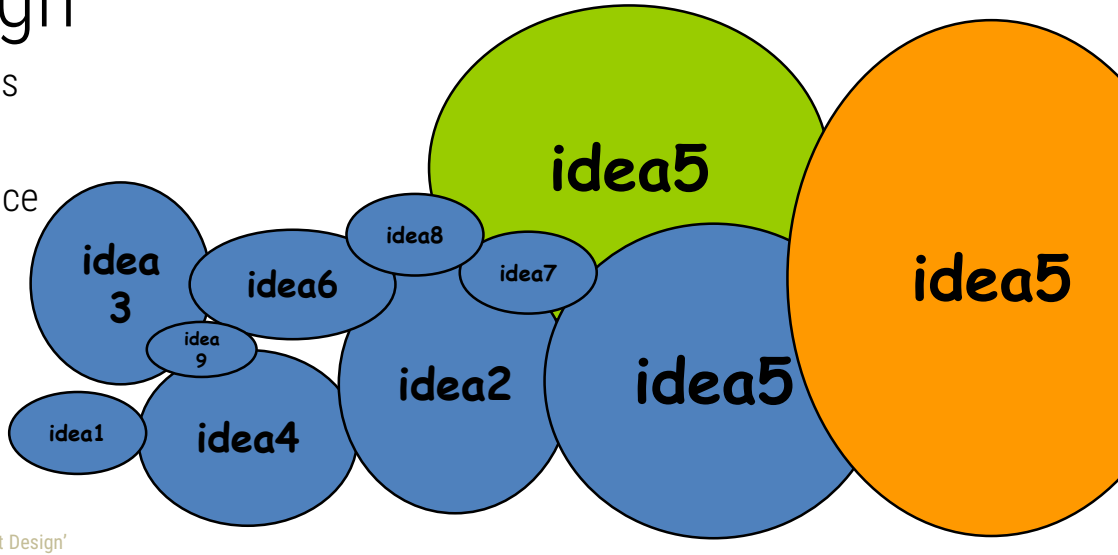
getting the design right

- generate an idea
- iterate and develop it



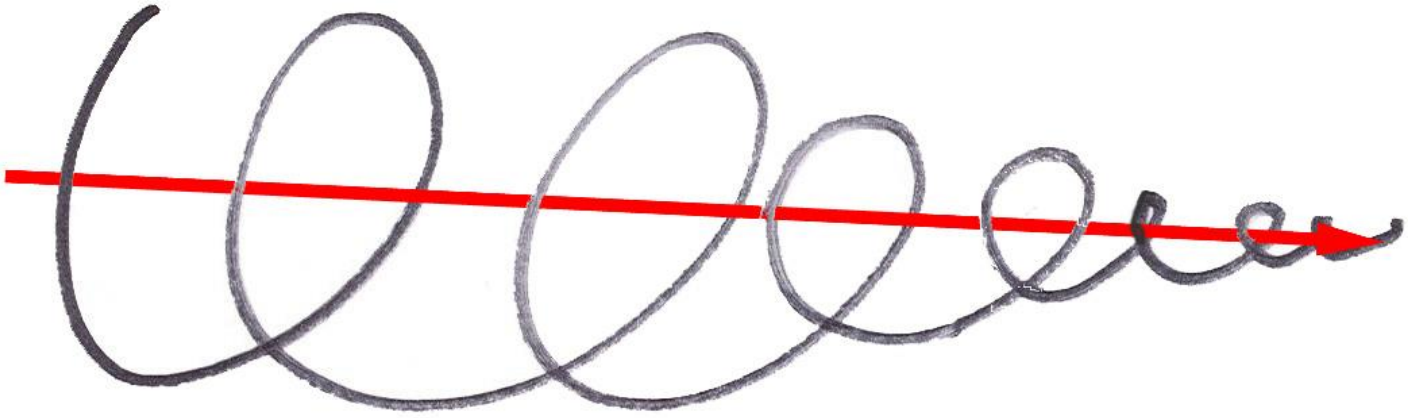
getting the right design

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



Bill Buxton coined the expression 'Getting the Design Right *vs.* Getting the Right Design'

EXPLORATION OF A SINGLE IDEA



Slide contributed by Bill Buxton

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

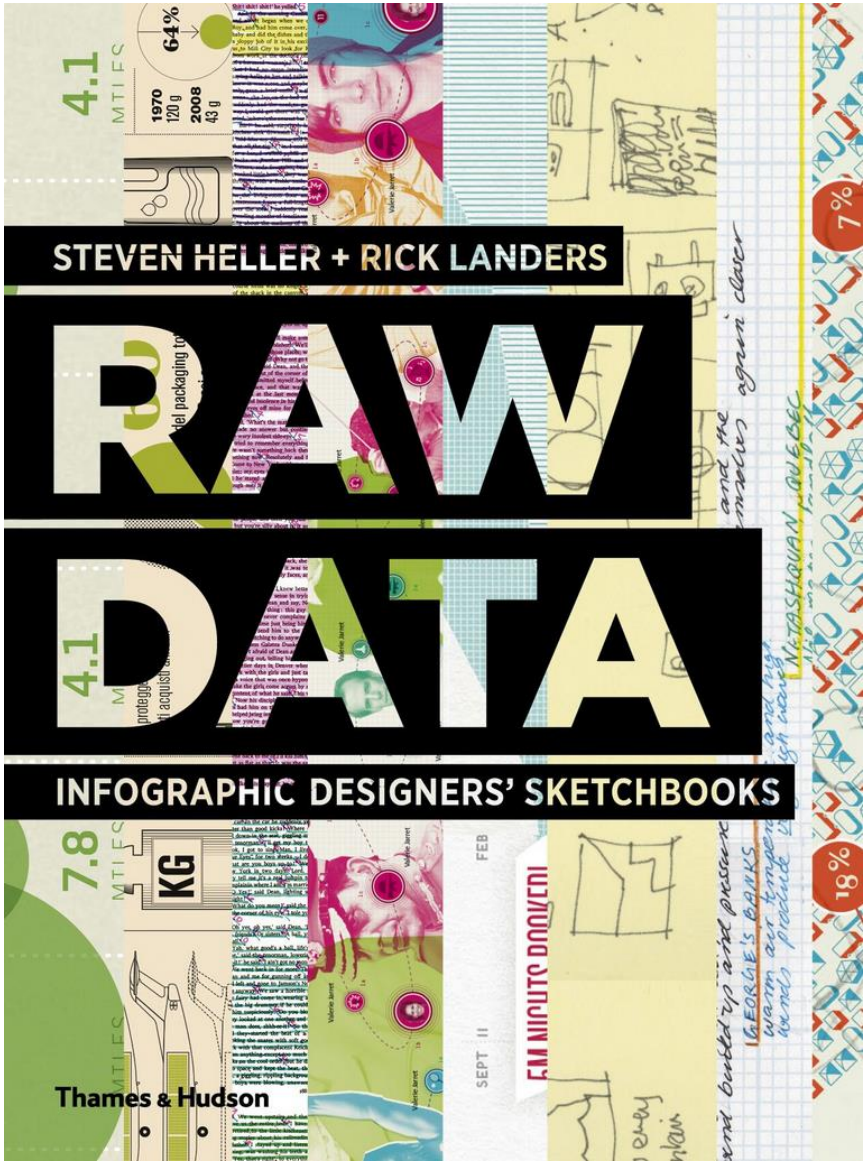
suggest & explore rather than confirm

- 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

Concepts from Bill Buxton's Book Sketching User Experiences (2007) Morgan Kaufmann


STEVEN HELLER + RICK LANDERS
RAW
DATA
INFOGRAPHIC DESIGNERS' SKETCHBOOKS
Thames & Hudson

Accurat | Giorgia Lupi

Exploring the phenomenon of geniuses and the brain drain

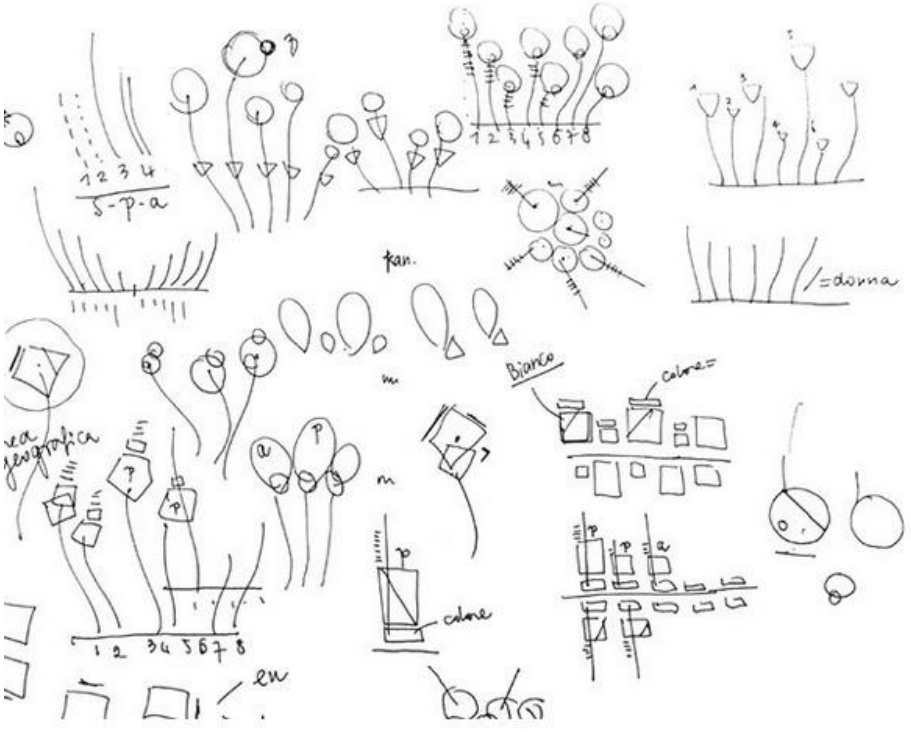
'Drawing plays an important role in the production and communication of knowledge, and in the genesis of new ideas,' says design director Giorgia Lupi, founder of Accurat, an information design agency with offices in Milan and New York. 'In addition, the act of drawing and the fact we choose to stop 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.'

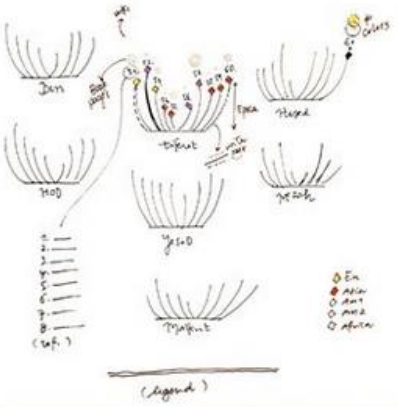
Lupi draws on white paper with Muji black-ink pens. Drawing is her primary expression, a 'functional tool for capturing and exploring thoughts and exploring ideas towards the production of the final piece'. Her team approaches problems in the way that journalists would, rather than as data analysts, 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 della 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.

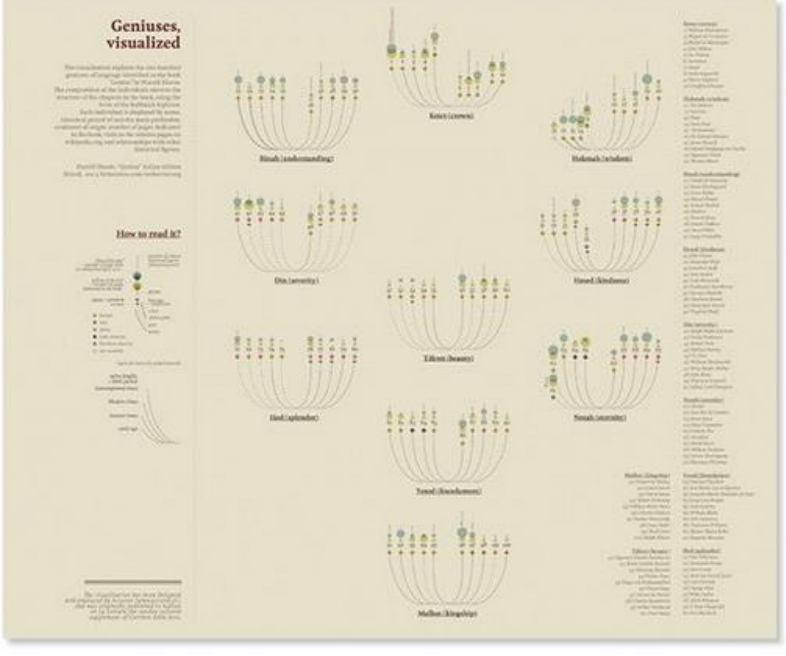




Geniuses, Visualized

***La Lettura*, 2012**

This infographic looked at the 100 'exemplary creative minds' identified in literary critic Harold Bloom's book Genius. Playing off Bloom's use of the Sefirot, 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 AIRCORPS
3-4 HOST INCOME FACTOIDS GO HERE
HOSTS
GUEST NIGHTS BOOKED
5 MILLION NIGHTS BOOKED
500%
2011
19,000+
192
UK 748%
FRANCE 425%
ITALY 945%
SPAIN 710%
JUST LAST YEAR...
RIGHT NOW...
NETWORK EFFECTS
AIRBNB TRAVELER NETWORK
2012
Longest consecutive reservation
91 nights
THEN
2008
2009
2010
2011
A SNAPSHOT from FEBRUARY 2012
GUEST NIGHTS BOOKED
5M NIGHTS BOOKED!
2011
LISTINGS ON AIRBNB

AIRBNB

BRINGING THE WORLD TOGETHER

1

10M
8M
6M
4M
2 MIL

NIGHTS BOOKED JUNE

5M JUST 5 MONTHS AGO!

JUNE 08 JUNE 09 JUNE 10 JUNE 11 JUNE 12

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

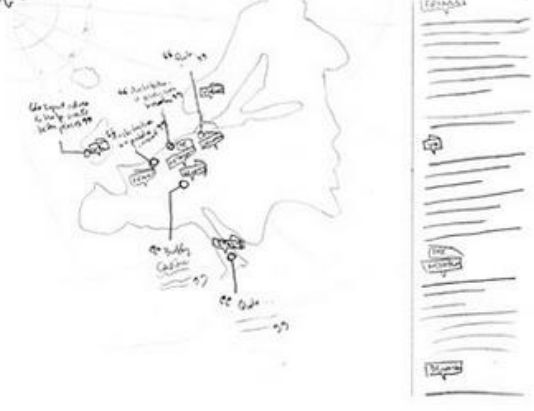
2012: EVERY 2 SECONDS

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

HE'S GOING TO (CITY BASED ON COUNTRY)

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

AYING?



WHERE ARE THEY FROM?

38,000 STAYING ON AIRBNB RIGHT NOW

15,000 USA

2000 FRANCE

1000 ES

1000 IT

UK 2000

GERM 2500

1000 RUSSIA

CANADA 2500

1000 BRAZIL

2500 AUSTRALIA

4 TONIGHT, IN LONDON, 1200 PEOPLE WILL BE STAYING ON AIRBNB.

WHERE ARE THEY COMING FROM?

HONG KONG 10

GREECE 10

LONDON MAP

USA 300
BRAZIL 20
ITALY 30
FRANCE 120
SWITZERLAND 30
ISRAEL 5
SWEDEN 10
SOUTH AFRICA 5

POLAND 5
ARGENTINA 25
MEXICO 10
ICELAND 10
AUSTRIA 25

SPAIN 25
AUSTRALIA 90
CANADA 60
GERMANY 80
DENMARK 20
SINGAPORE 35
NETHERLANDS 15
RUSSIA 20

5 INTERNATIONAL GROWTH -

IN THE LAST YEAR, THE AIRBNB COMMUNITY HAS GROWN...

USA
300% GROWTH
115% LISTINGS
240% DEMAND
HOSTS

FRANCE
430% GROWTH
240% LISTINGS
750% DEMAND
HOSTS

OTHER COUNTRIES

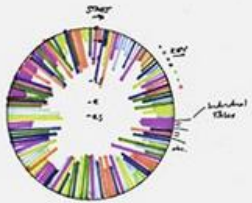
Tim Hucklesby

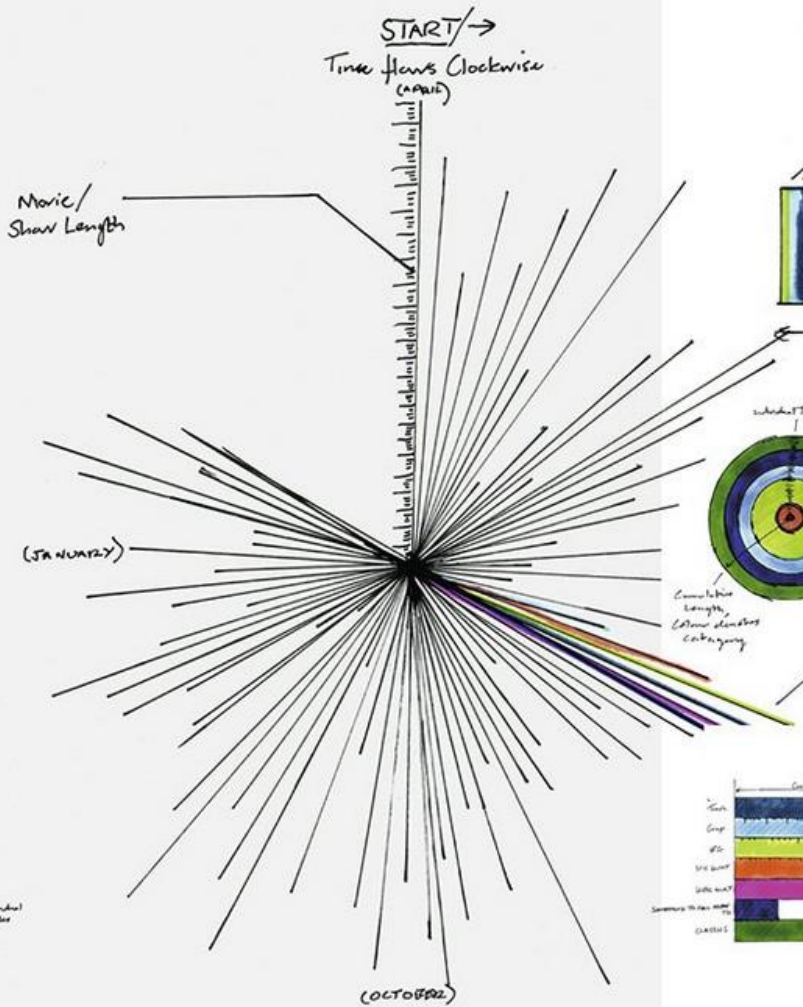
Charting his own movie viewing over a year

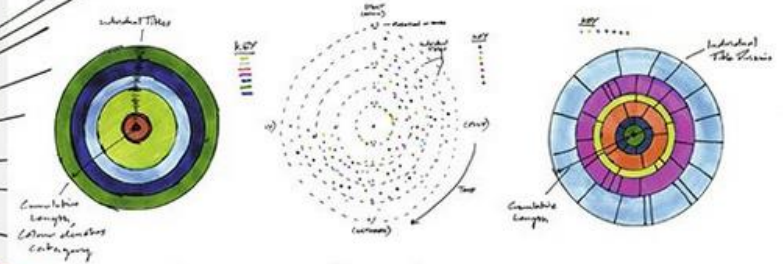
British-born Tim Hucklesby, now a designer at Doyle Partners in New York, first began designing infographics a few years ago, when he wanted to round out his portfolio before applying to the MFA Design programme at the School of Visual Arts. 'I kept designing them because I wasn't happy with the first 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.'

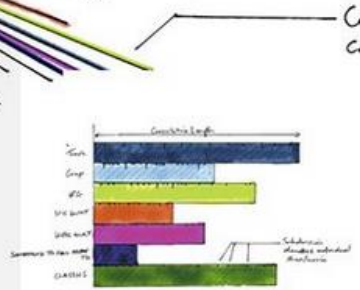
Hucklesby always embarks on a project by sketching in pen or pencil, whatever is to hand. 'I want get the concept pinned down before moving to the computer,' he says. 'I've found going straight to the machine tends to pull me down certain avenues, using techniques that I've used in the past. If I start 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.'

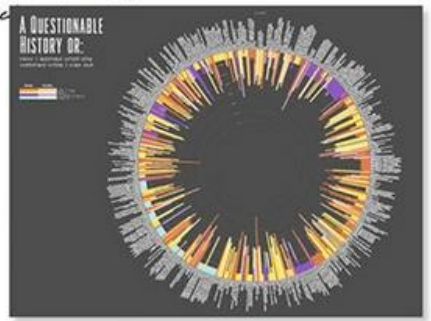
Of the visualization of his Netflix streaming consumption, A Questionable History (these pages), Hucklesby says: 'In the process of sorting the data, I found a great number of movie titles I didn't recognize, which turned out to be what my wife was watching while I was out. She was catching up on TV 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.'



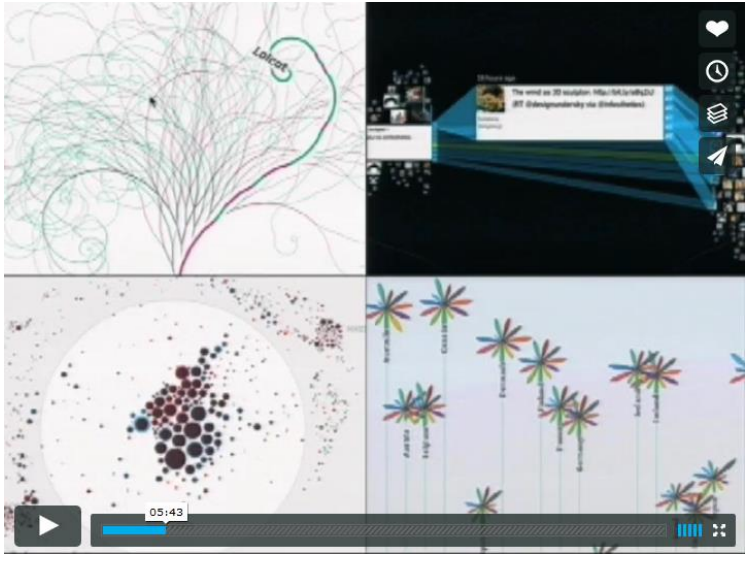








Watch this video at home



https://vimeo.com/28443920

SKETCHING

Workshop

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!!!!!

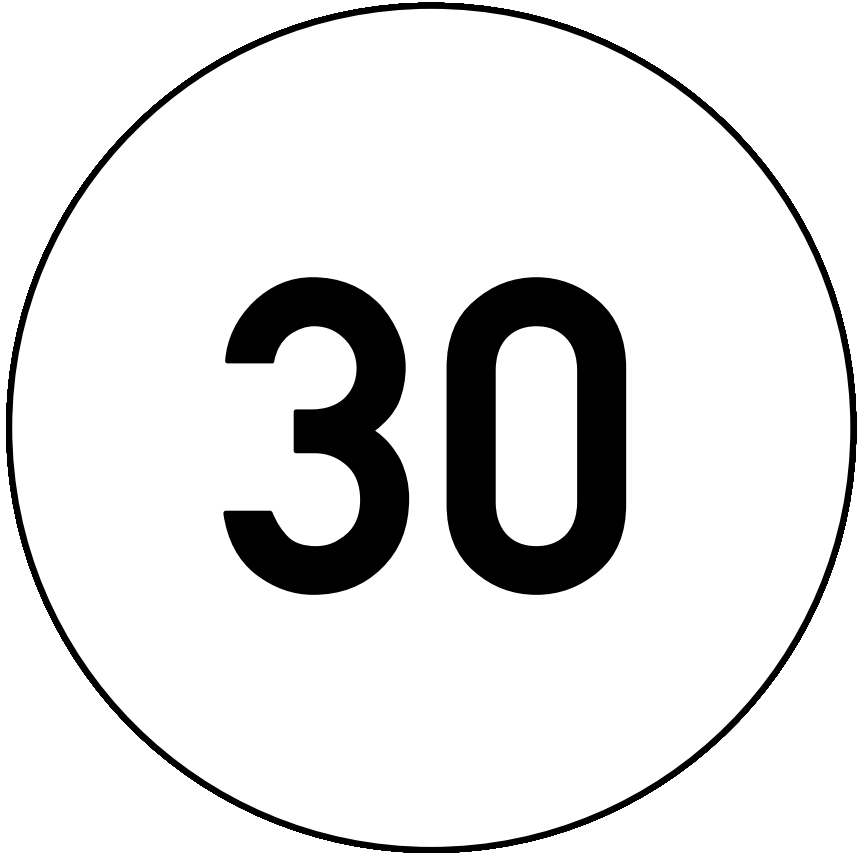
SKETCHING

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)


30

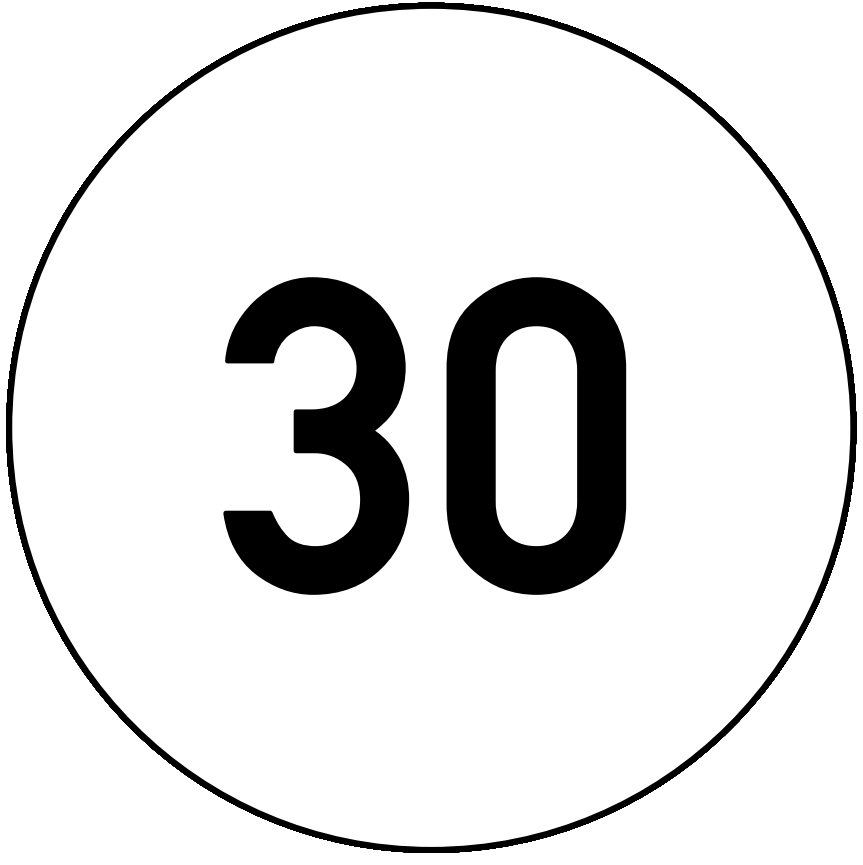
SKETCHING

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)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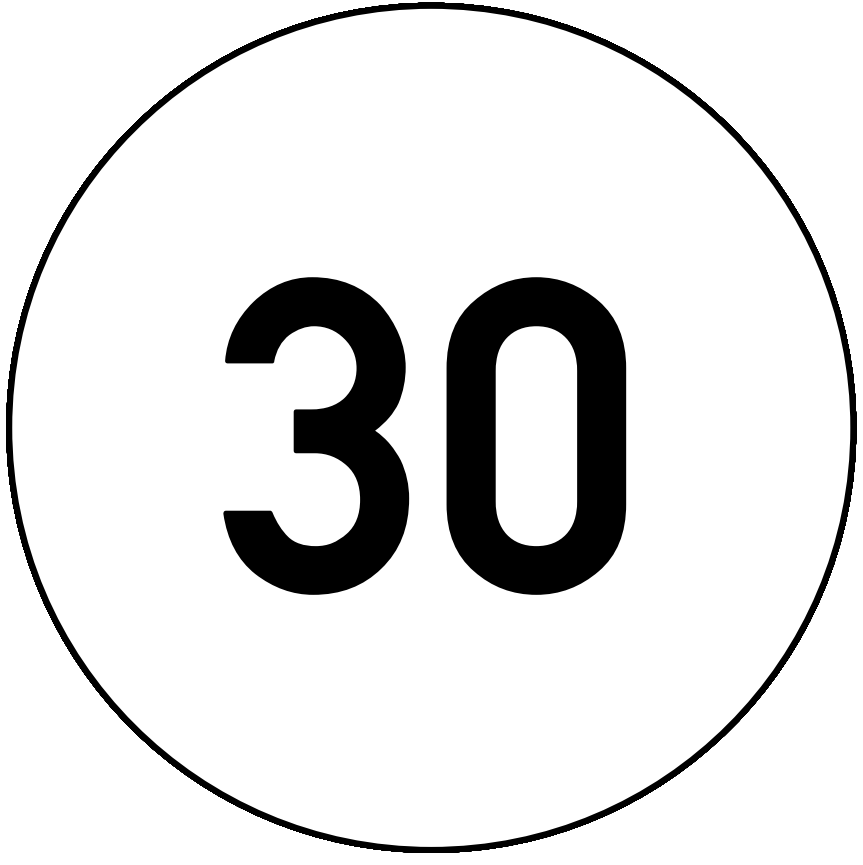
SKETCHING

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)


30

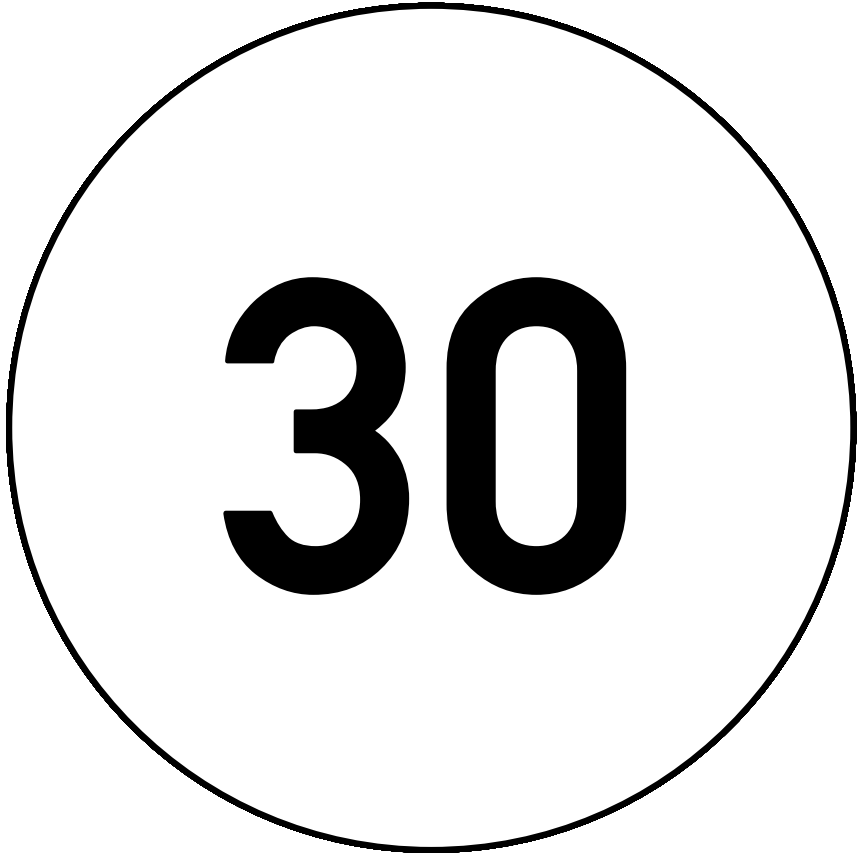
SKETCHING

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)


30

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)

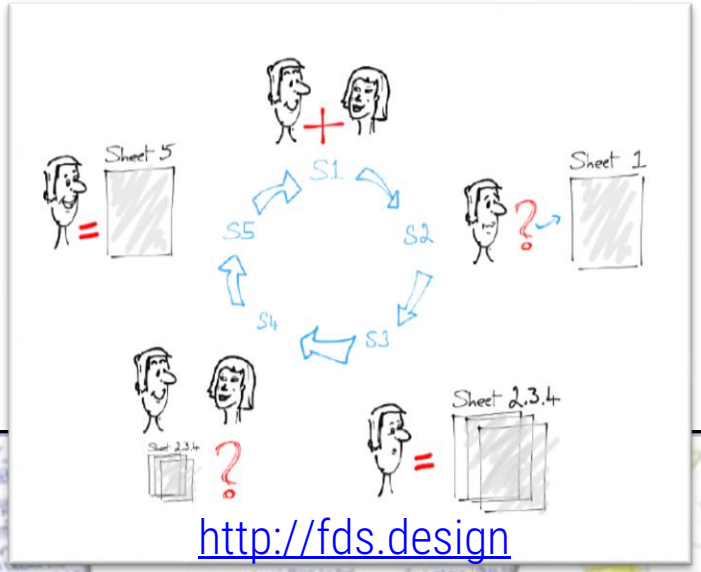
http://www.scribblelive.com/blog/2012/07/27/45-ways-to-communicate-two-quantities/

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

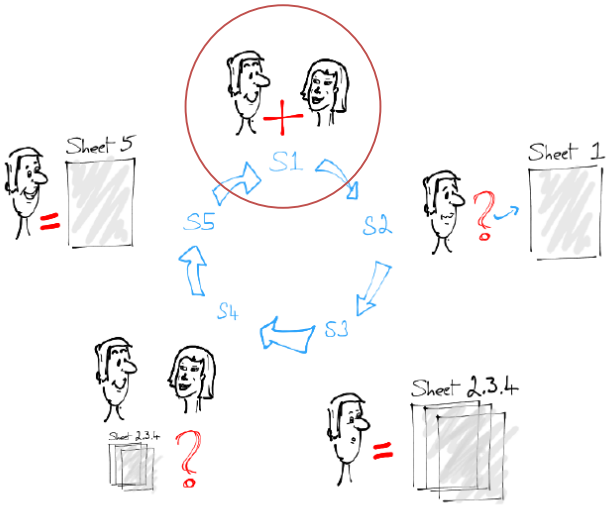
THE 5 DESIGN SHEET METHODOLOGY



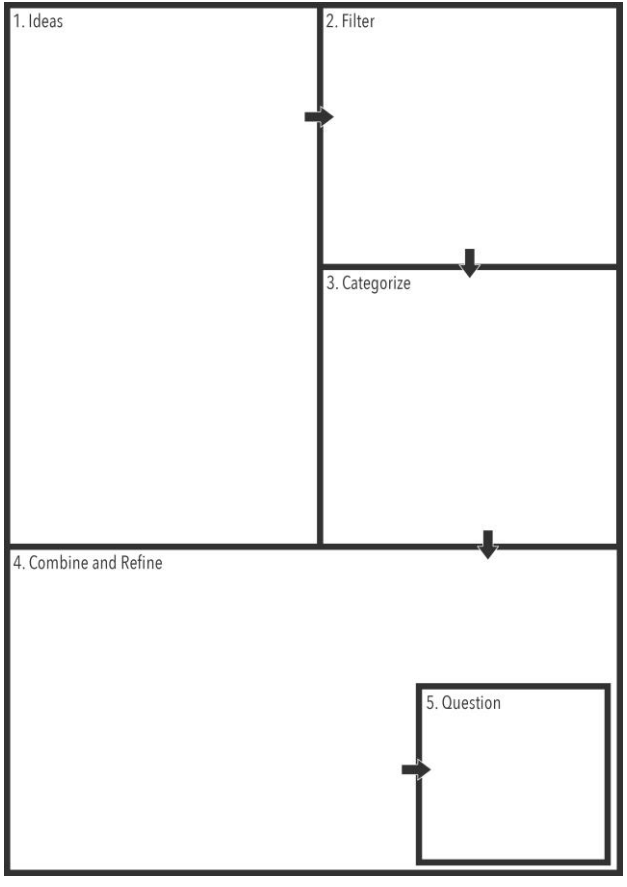
http://fds.design

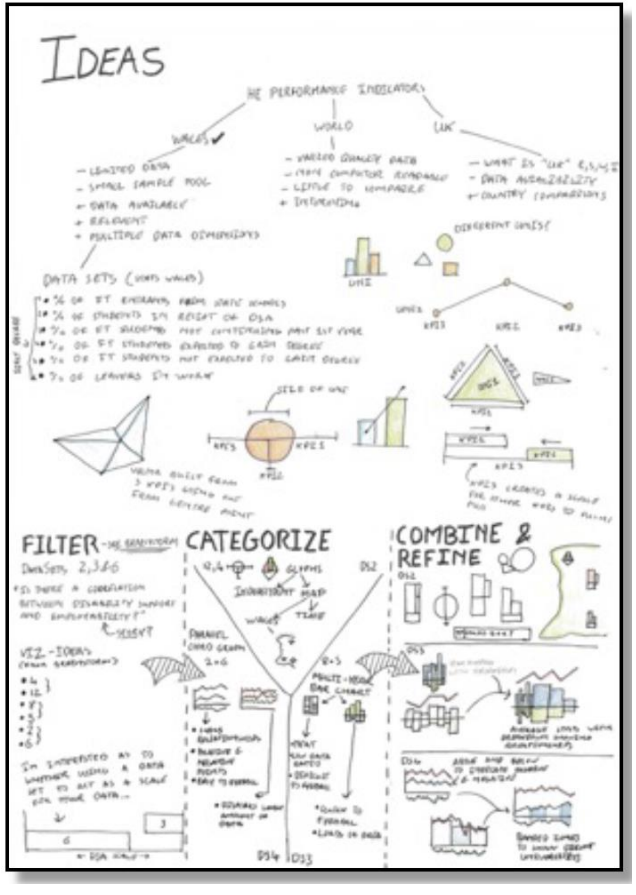
STAGE 1

- 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



SHEET 1: IDEATION





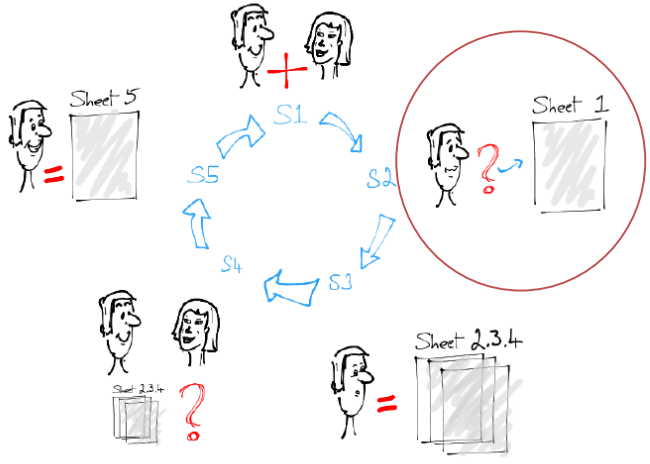
Rules of Brainstorming

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

YOUR NEXT ASSIGNMENT

starts here: Stage 2

STAGE 2



Brainstorm

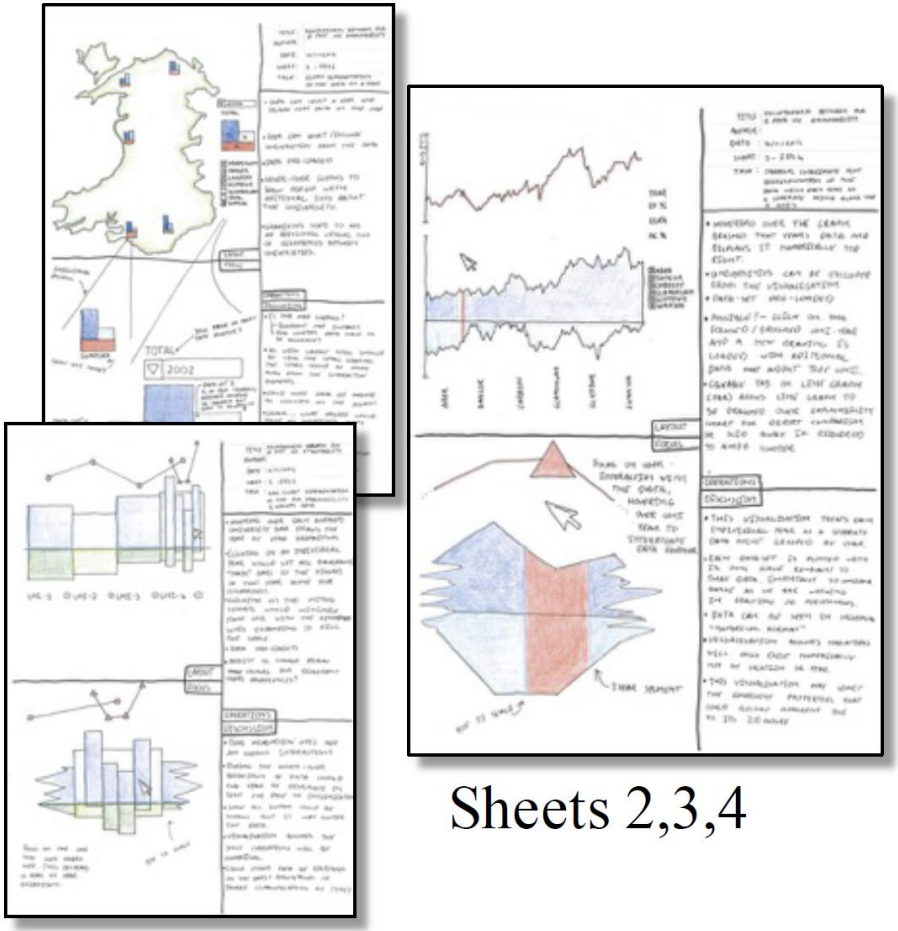
- **Generate** (mini) ideas, sketch
- **Filter**: remove ideas that are too similar
- **Categorize**: put similar ideas together
- **Combine & Refine**: organize mini-ideas into bigger solutions
- **Question**: question your solutions

YOUR NEXT ASSIGNMENT DELIVERABLES

start here: Stage 3 & 4

STAGE 3 - SHEET 2, 3, 4

Layout	Title: Auther: Date: Sheet: Task:
	Operations
Focus	Discussion

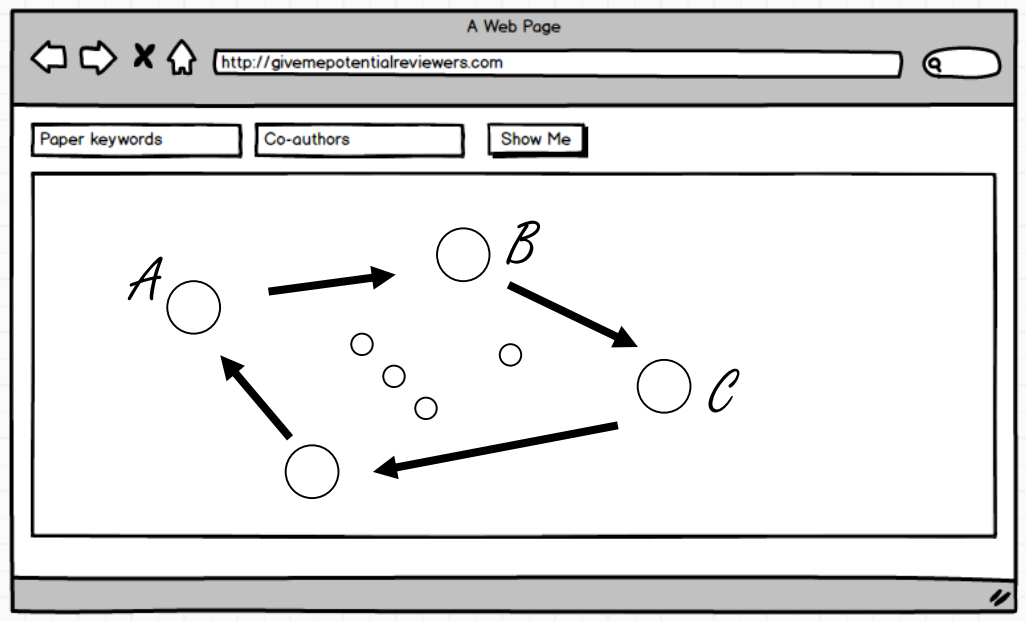


Sheets 2,3,4

STAGE 3

Create 3 alternative designs which contain:

- layout of the design

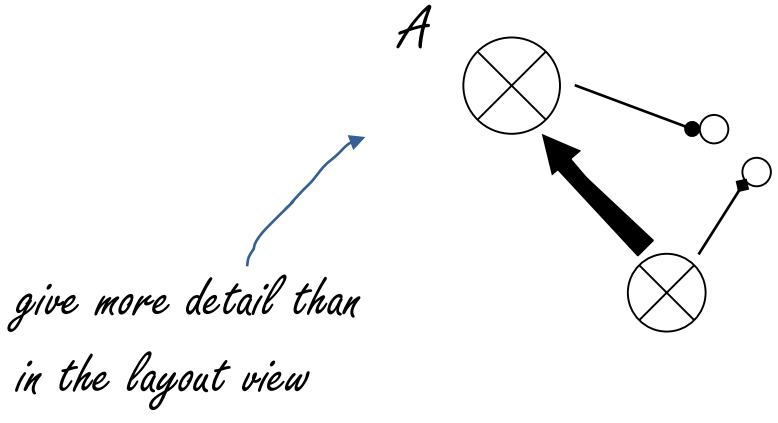


can but doesn't have to be hand-drawn

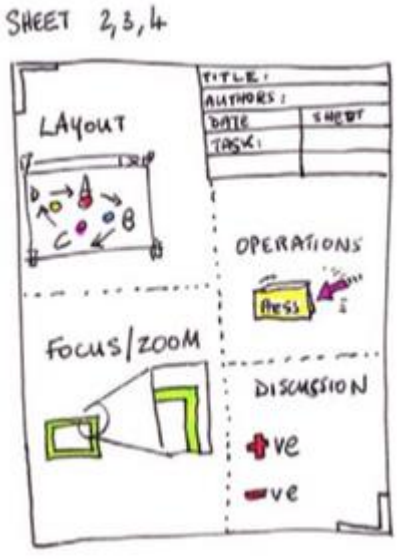
STAGE 3

Create 3 alternative designs which contain:

- focus: show the key vis techniques
  - add labels to explain where necessary

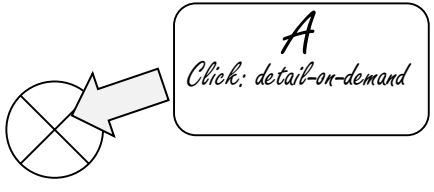


STAGE 3



Create 3 alternative designs which contain

- operations: how do people use your vis?
  - draw or describe

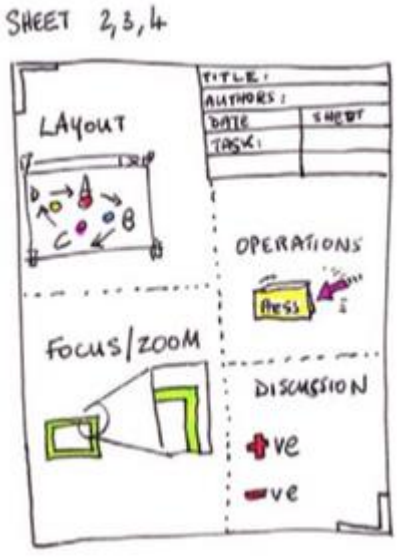


STAGE 3

Create 3 alternative designs which contain

- discussion: advantages & disadvantages

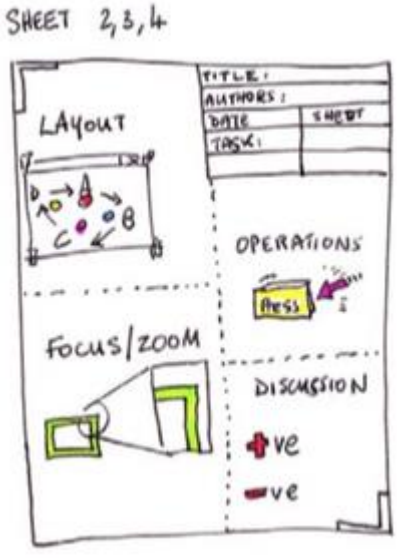
  — *write down some pros and cons of this particular design*



STAGE 3

Create 3 alternative designs which contain

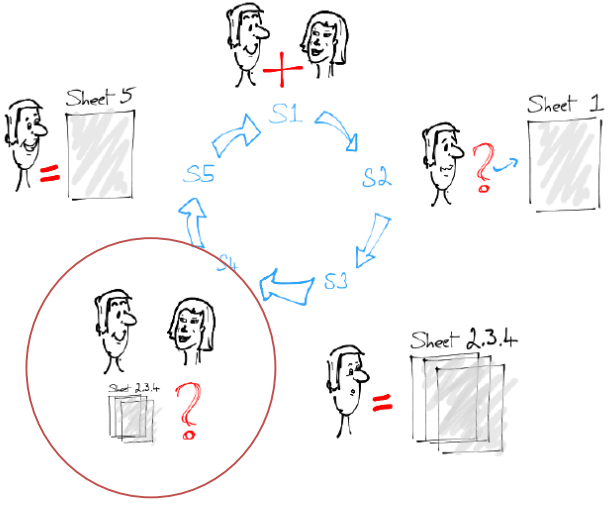
- meta-info
  - your name,
  - title
  - date
  - sheet number
  - task



STAGE 4

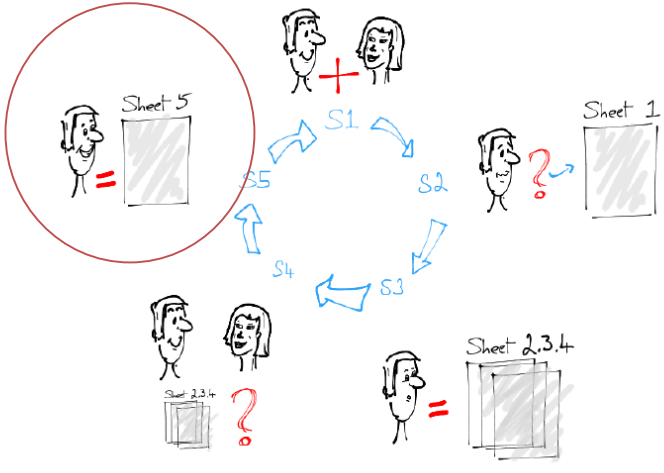
Consider the created designs

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



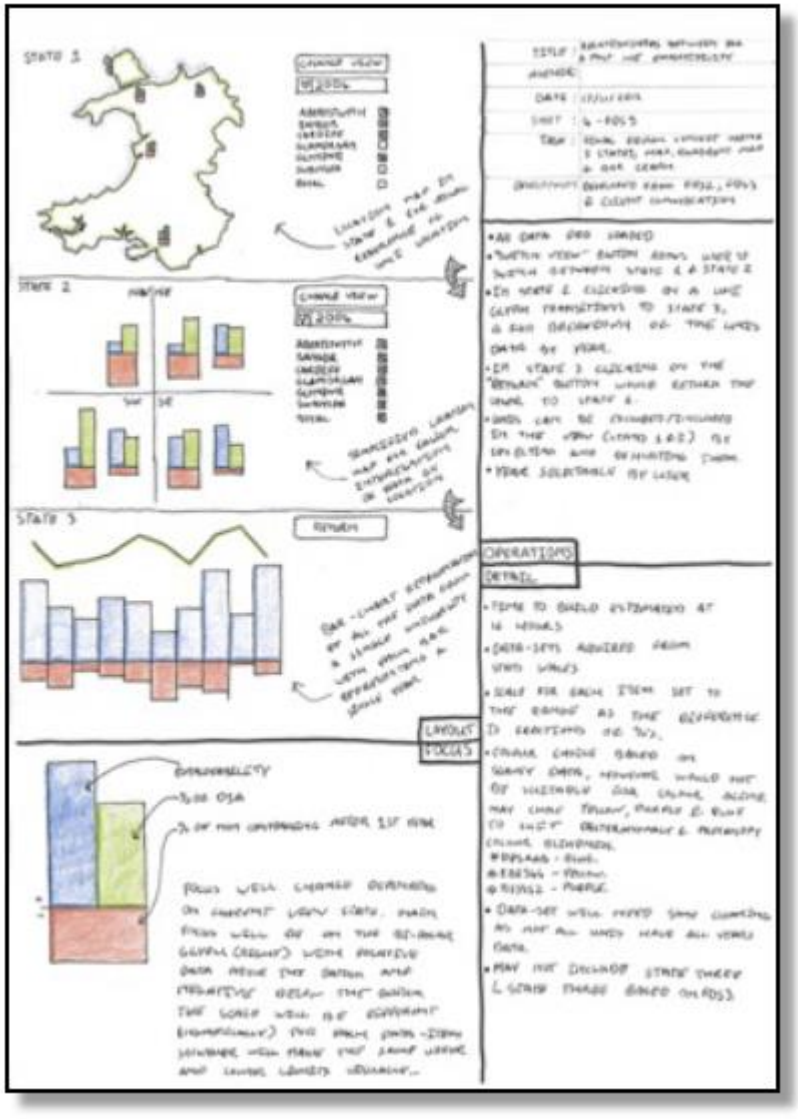
STAGE 5

Refine and merge ideas into final design



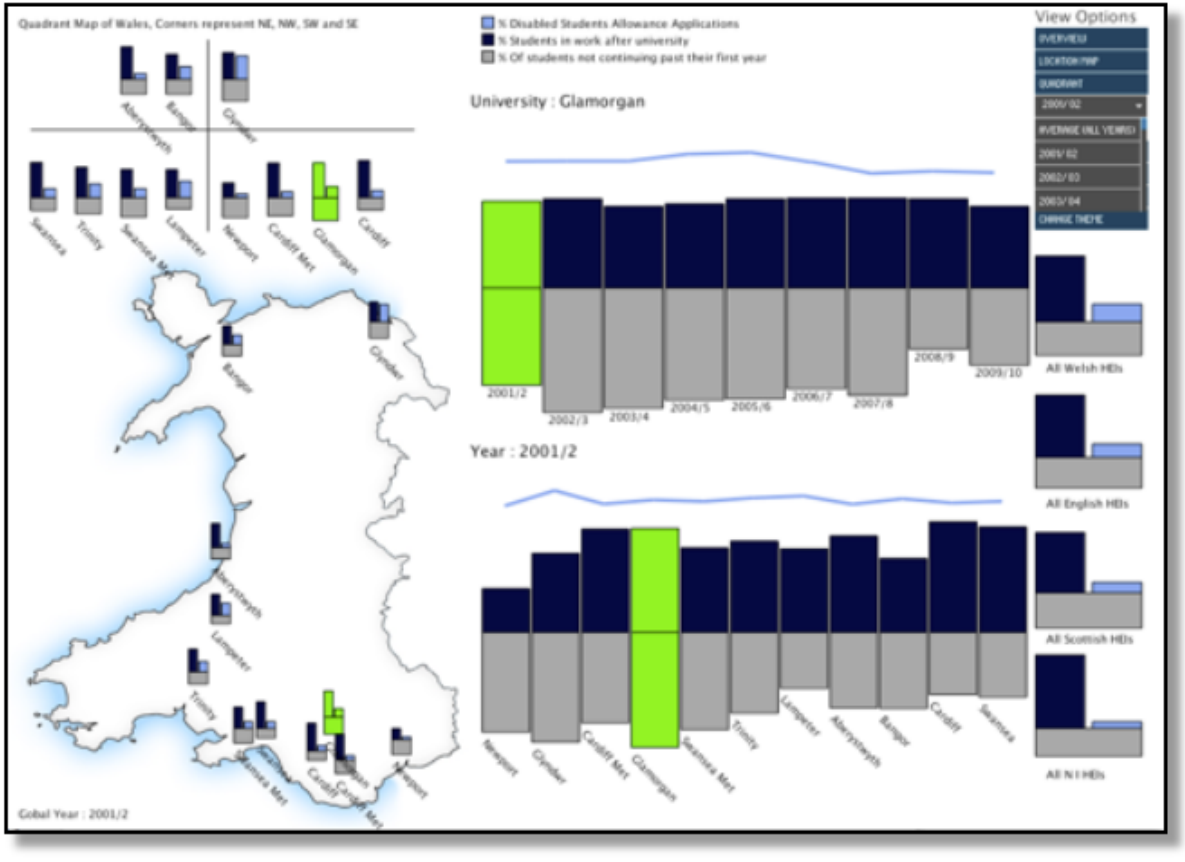
SHEET 5

Layout	Title: Auther: Date: Sheet: Task:
	Operations
Focus	Detail



NOT PART OF THIS ASSIGNMENT

FINAL IMPLEMENTATION



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