



Graphical abstracts

Visual impact for your research

Koen Van den Eeckhout - Baryon

All the slides and all the links:

baryon.be/graphical-abstracts

Introductions

2004 - 09

Engineering physics (UGent)

2009 - 13

PhD in physics (UGent)

2013 - 15

Post-doctoral researcher

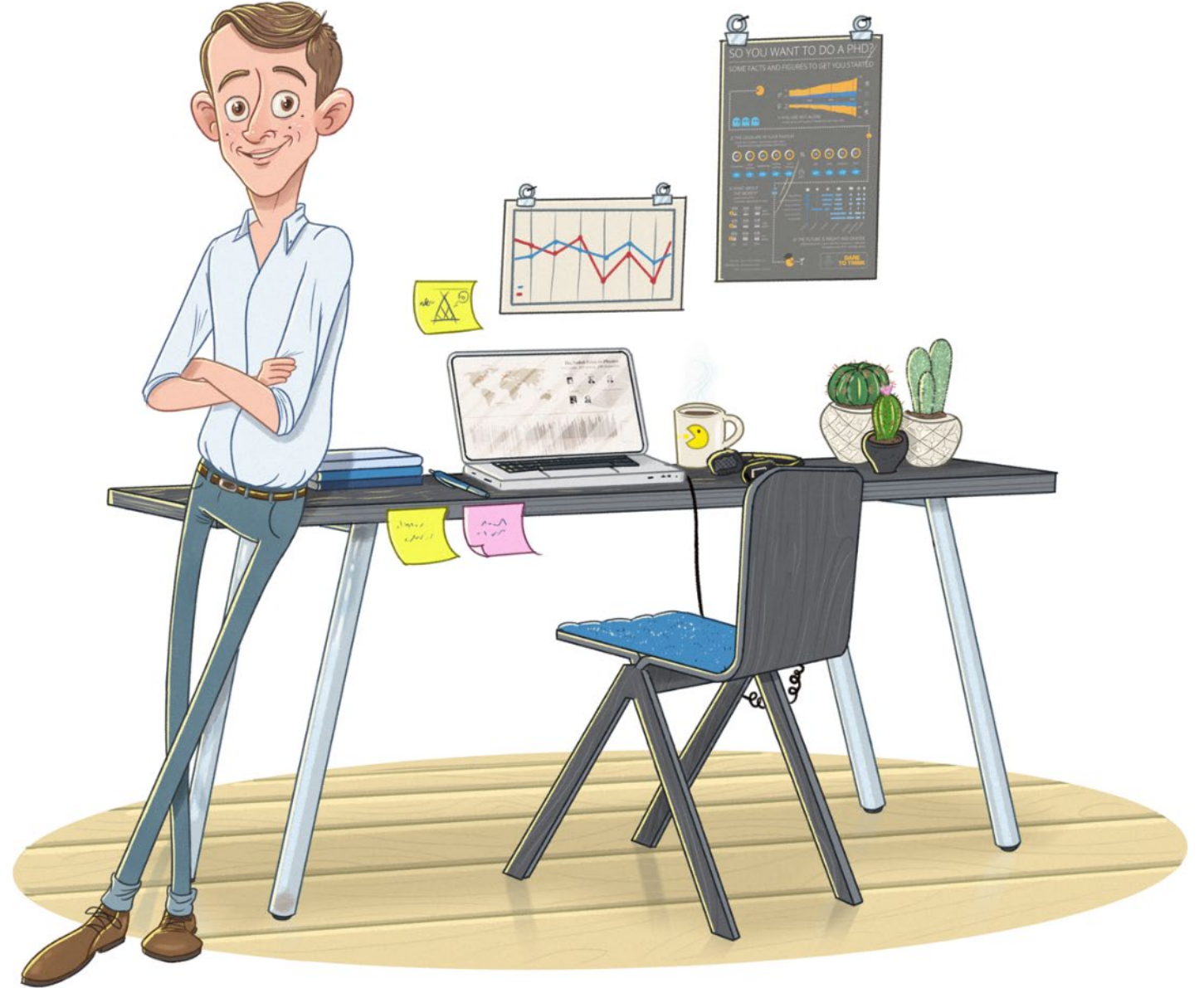
2015 - 18

Consultant grants & incentives
Founded [Baryon](#)

2019 - now

Full-time information designer
at Baryon

koen@baryon.be



Graphical abstracts

What is a graphical abstract?

General guidelines

Workflow

Available tools

Available resources

Further exploration


Q&A




What is a graphical abstract?



Graphical abstract

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Home > Authors > Tools and resources > Graphical abstract

Graphical abstracts

A graphical abstract is a **single, concise, pictorial and visual summary** of the main findings of the article. This could either be the concluding figure from the article or a figure that is specially designed for the purpose, which captures the content of the article for readers at a single glance. Please see examples below.

The graphical abstract will be displayed in online search result lists, the online contents list and the online article, but will not (yet) appear in the article PDF file or print.

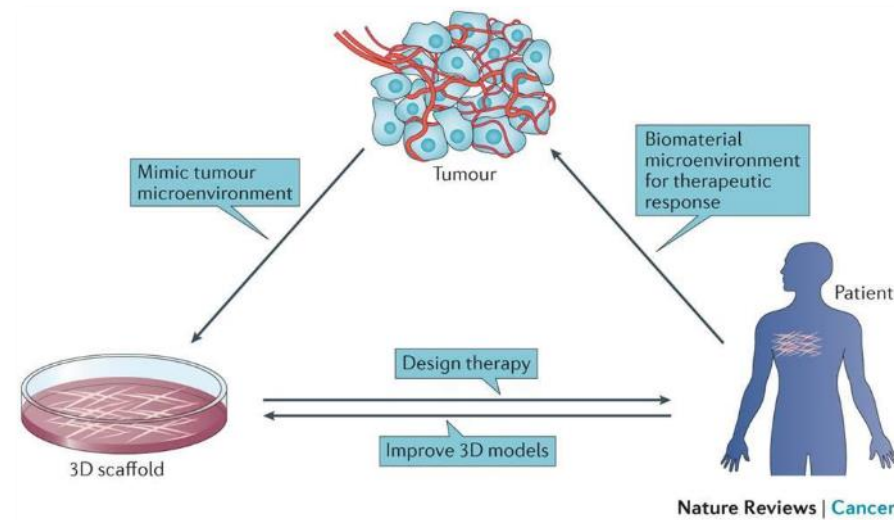
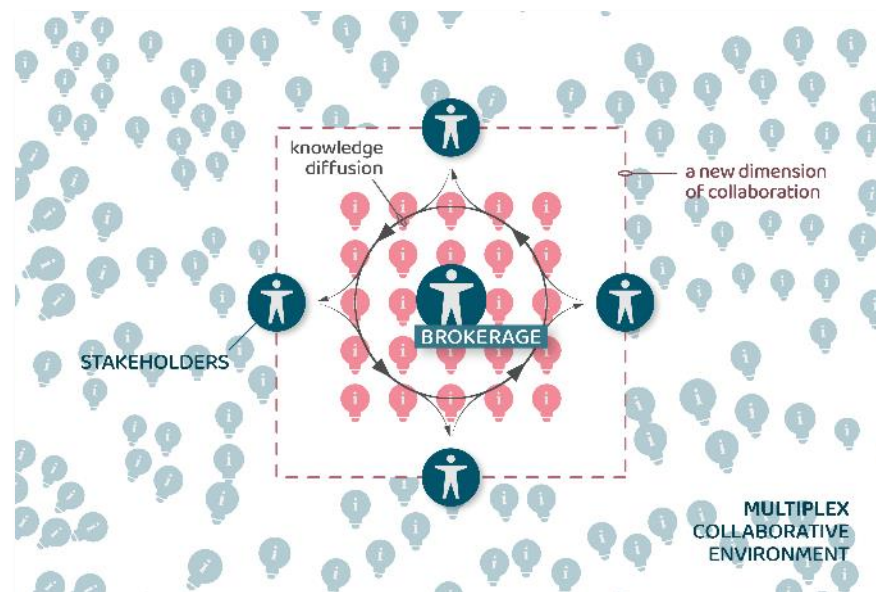
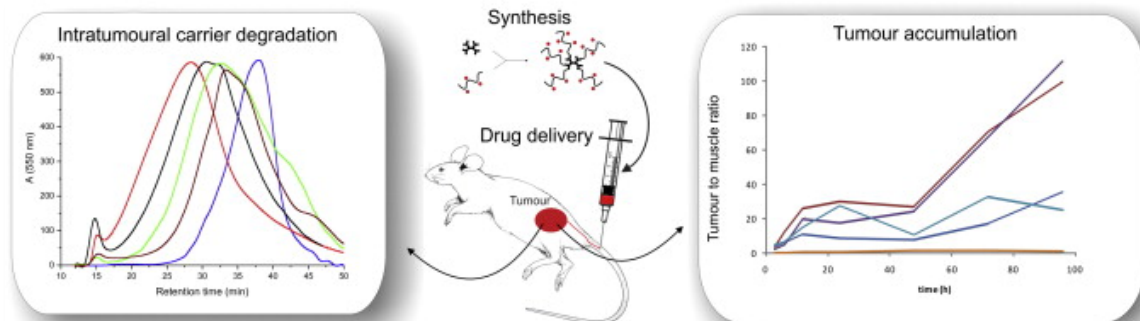
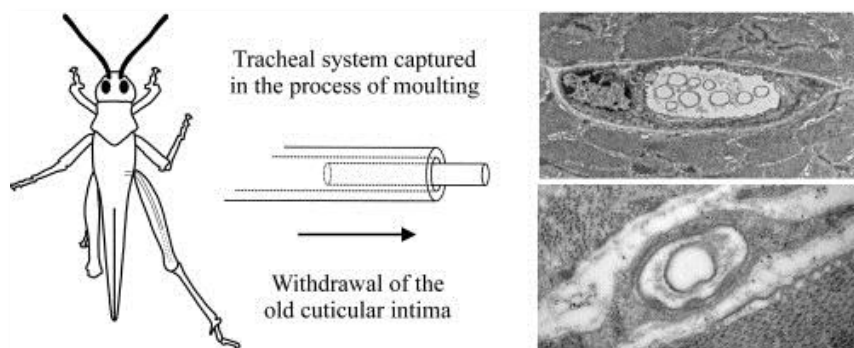
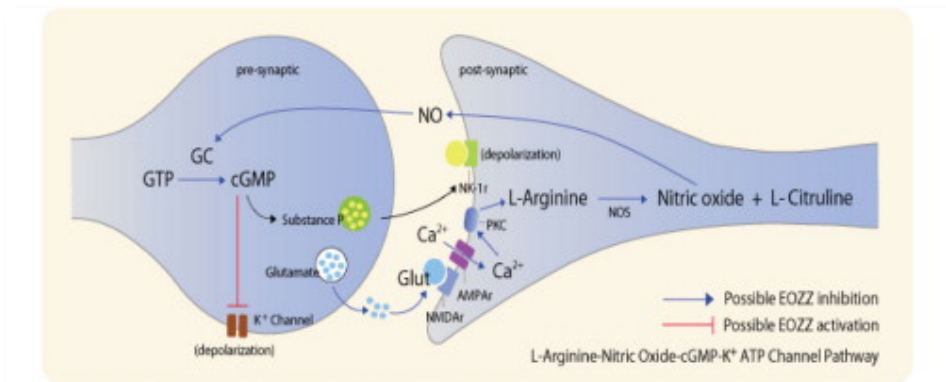
Author instructions

A graphical abstract should allow readers to quickly gain an understanding of the main take-home message of the paper and is intended to encourage browsing, promote interdisciplinary scholarship, and help readers identify more quickly which papers are most relevant to their research interests.

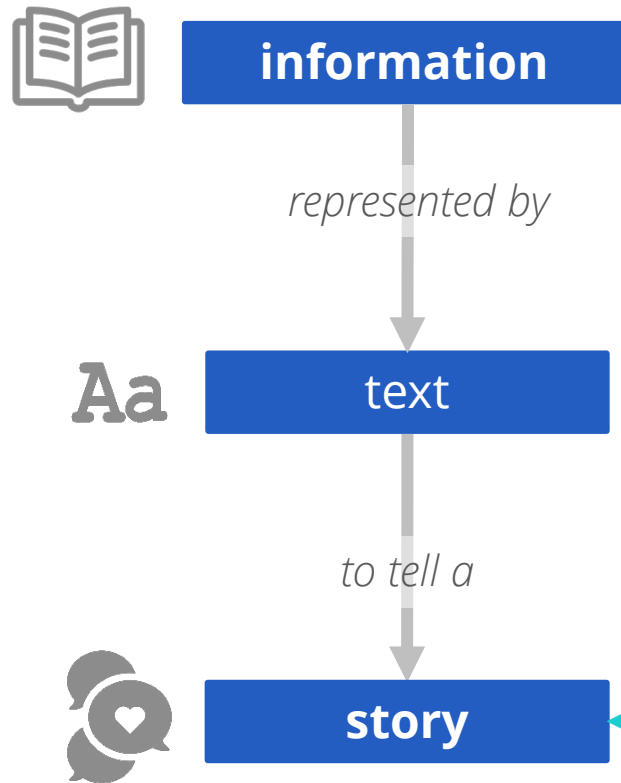
Authors must provide an image that clearly represents the work described in the paper. A key figure from the original paper, summarising the content can also be submitted as a graphical abstract. Graphical abstracts should be submitted as a separate file in the submission system by selecting “graphical abstracts” from the drop-down list when uploading files.

Specifications:

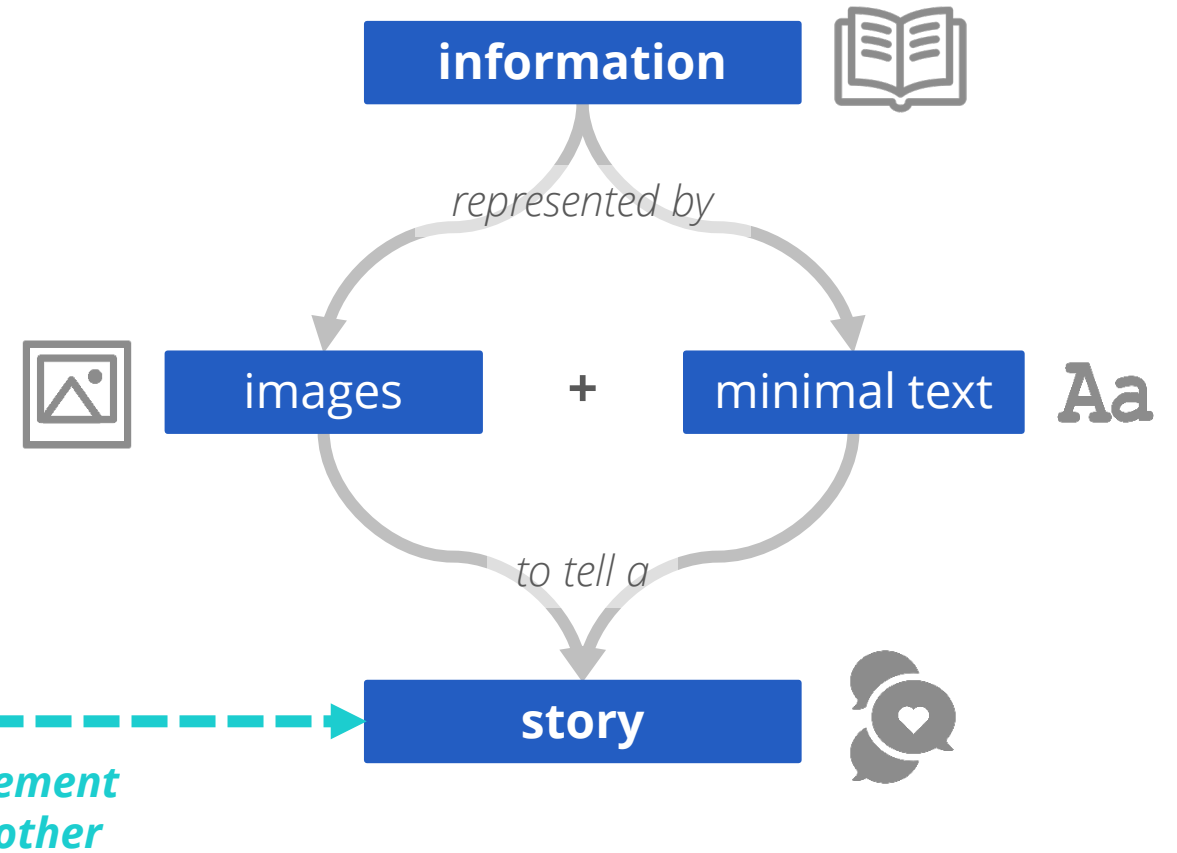
A graphical abstract should be a one-image file and should visualize one process or make one point clear. For ease of

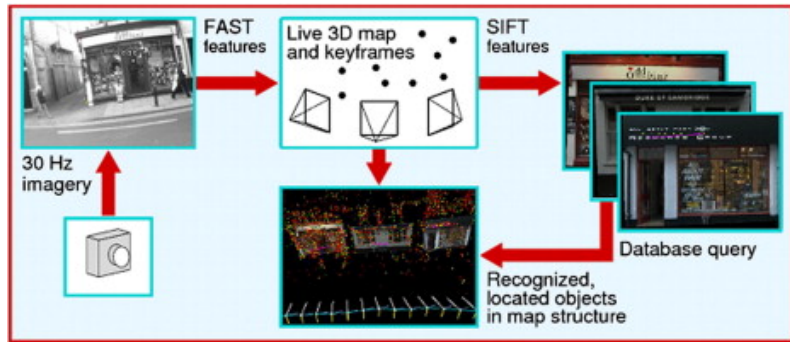


'normal' abstract



graphical abstract



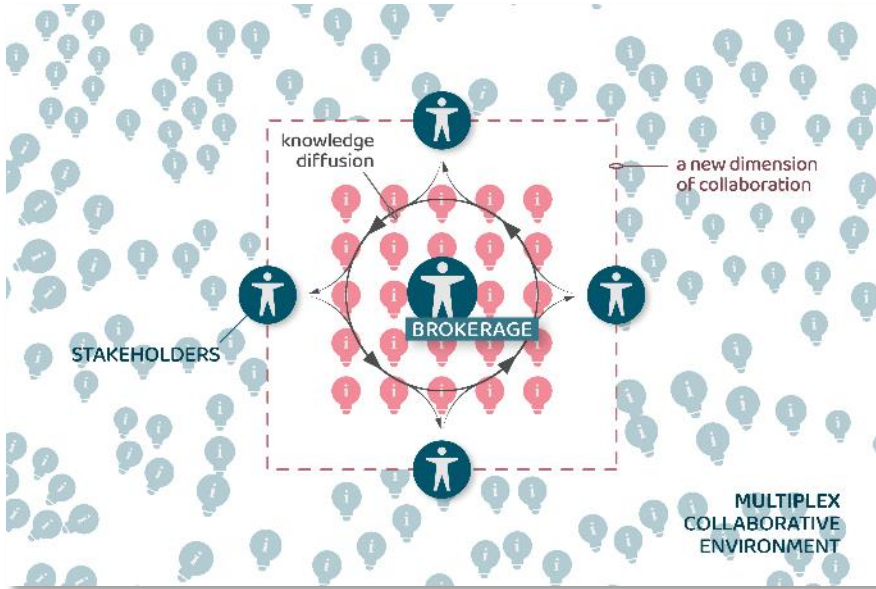


Common graphical abstracts

flowchart of the process

visual representation of the model

key visual with additional labels

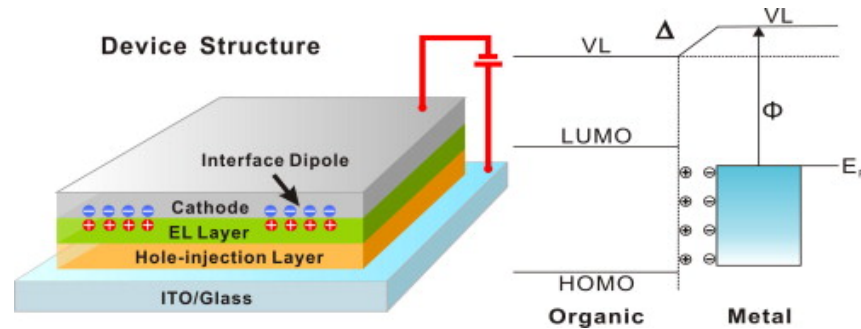


Common graphical abstracts

flowchart of the process

visual representation of the model

key visual with additional labels



Common graphical abstracts

flowchart of the process

visual representation of the model

key visual with additional labels



General guidelines

General guidelines

identify your story

maximize the signal-to-noise ratio

use color with intention

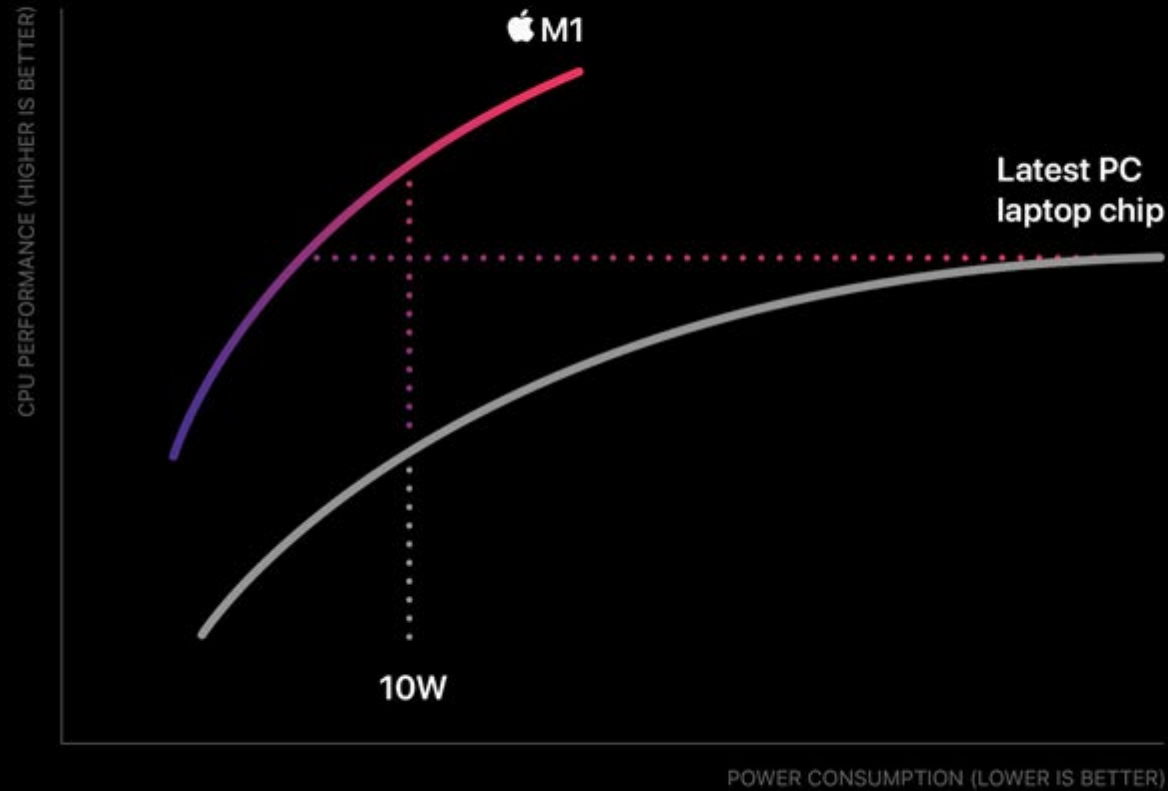
use text sparingly

use enough white space



GPS

CPU performance vs. power



Up to

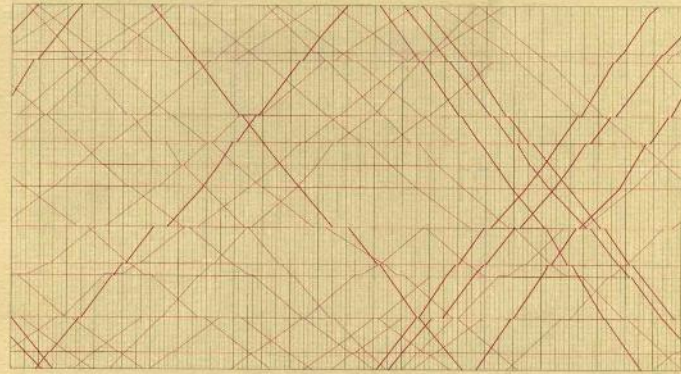
2x

faster CPU
performance¹

Matches peak PC
performance using

25%

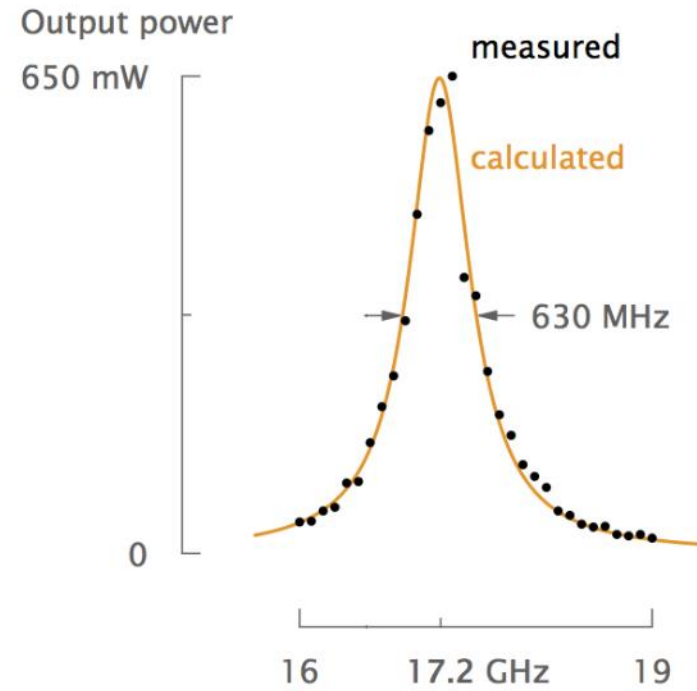
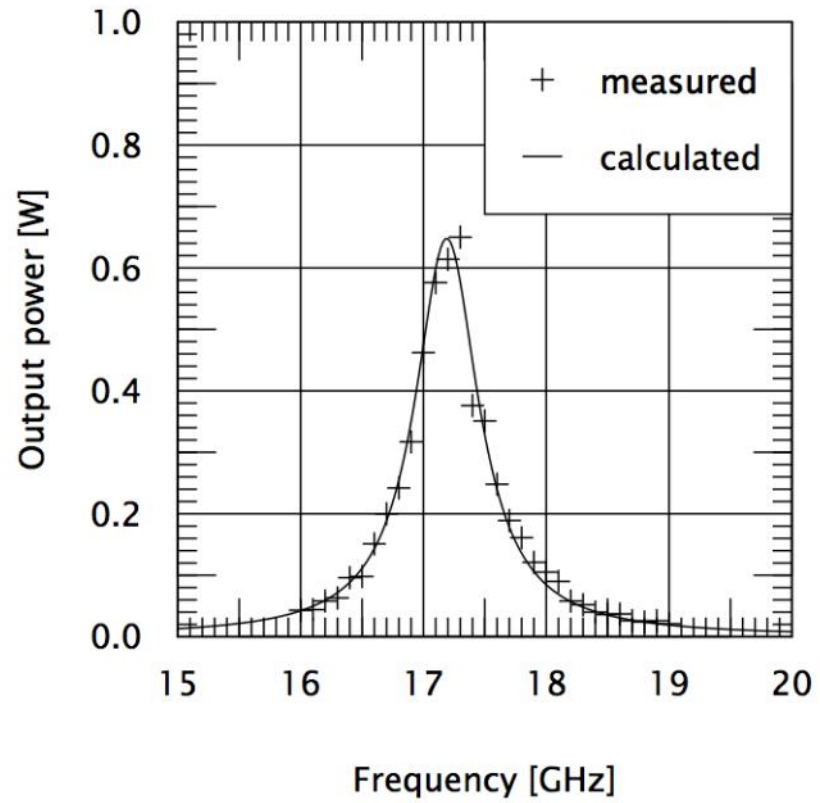
of the power¹



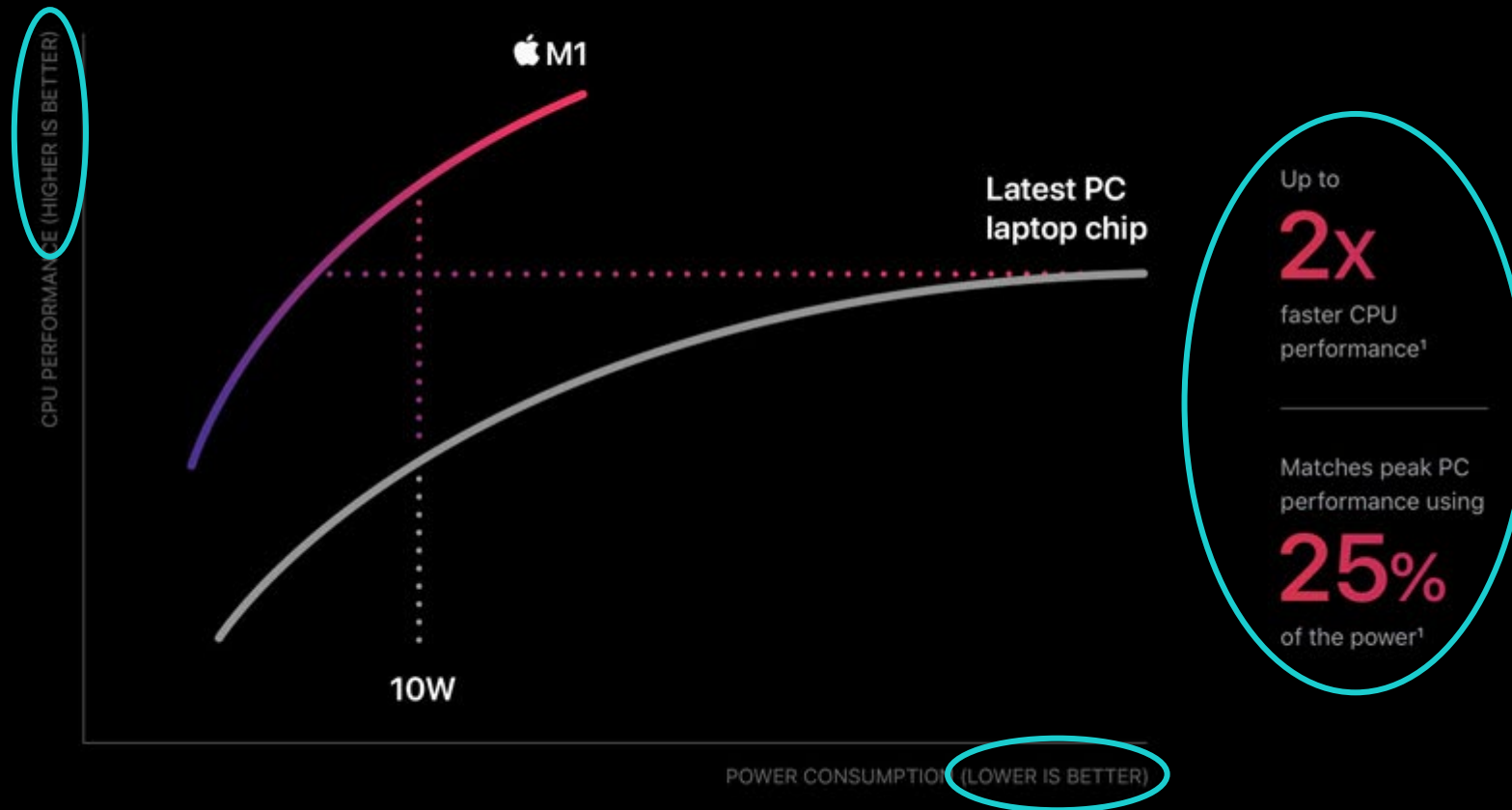
The Visual Display
of Quantitative Information

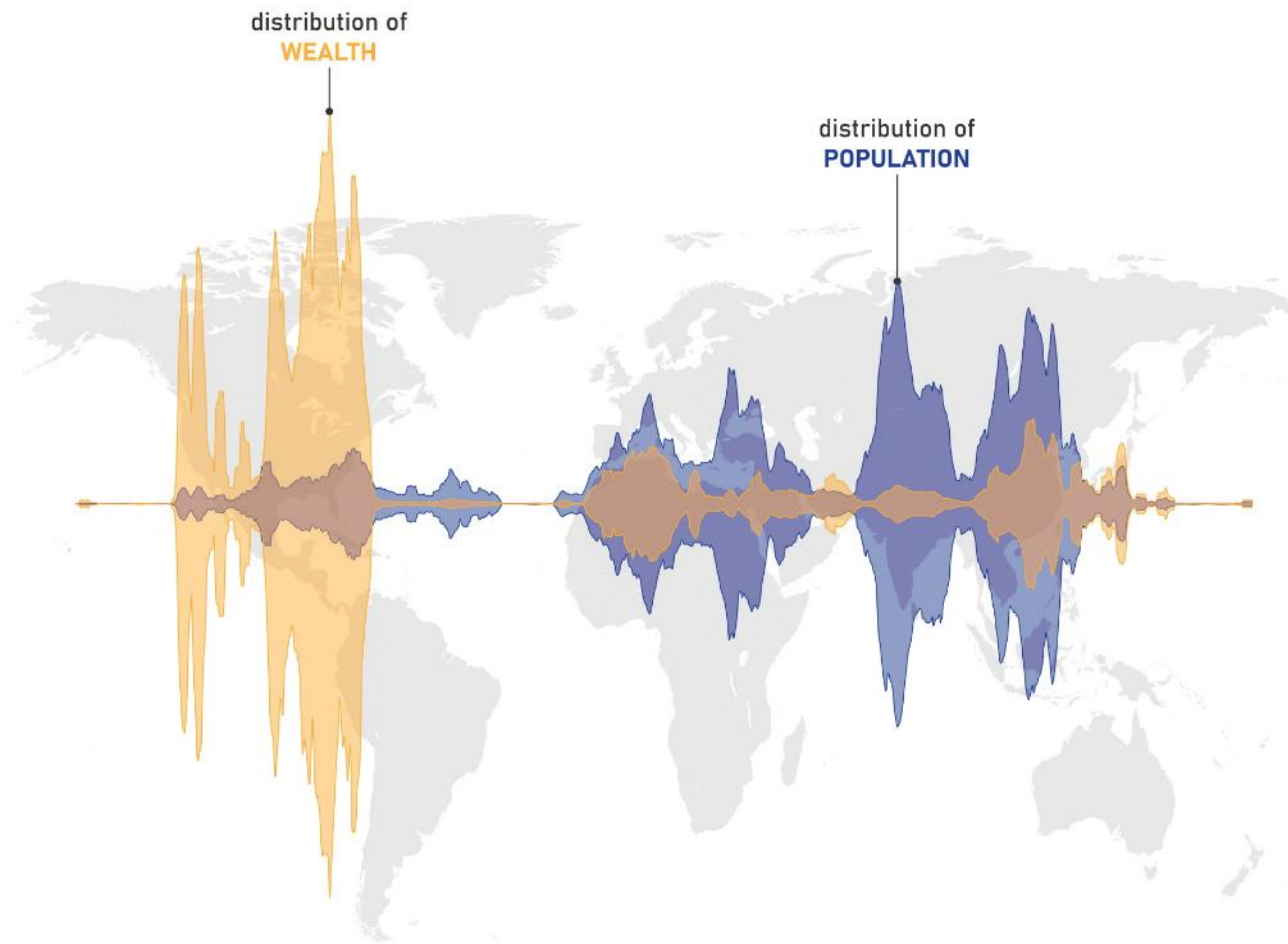
EDWARD R. TUFTE

“Maximize the **data-ink ratio**”



CPU performance vs. power





The Wealthy West

Inequality is not just limited to North versus South

Source: Credit Suisse Global Wealth Report 2019; Socioeconomic Data and Applications Center - Gridded Population of the World v.11

A #MakeoverMonday visualization
by **Koen Van den Eeckhout** (@koen_vde)

ankleat13 3 points · 14 days ago
↑
↓ Seriously how does this have so many awards it's doesn't even make sense.

Reply Give Award Share Report Save

Craigmm114 680 points · 14 days ago
↑
↓ Am I reading this wrong or is this a terrible representation? Europe is completely skewed since it is right above Africa which would definitely mess it up.

Reply Give Award Share Report Save

willjoke4food 256 points · 14 days ago
↑
↓ This is extremely useless visualisation

Reply Give Award Share Report Save

d80hunter 35 points · 14 days ago
↑
↓ You wasn't supposed to look that hard and notice the fine details, it is a reactionary click bait graph. The keywords "wealth inequality" and "west" with the data shown sure make it seem that way.

Reply Give Award Share Report Save

Speciale 36 points · 14 days ago
↑
↓ I cannot read the graph, it's either that I'm graphically illiterate or this is a terribly made graph

Reply Give Award Share Report Save

BillyBuckets 17 points · 14 days ago
↑
↓ The second one.

Reply Give Award Share Report Save

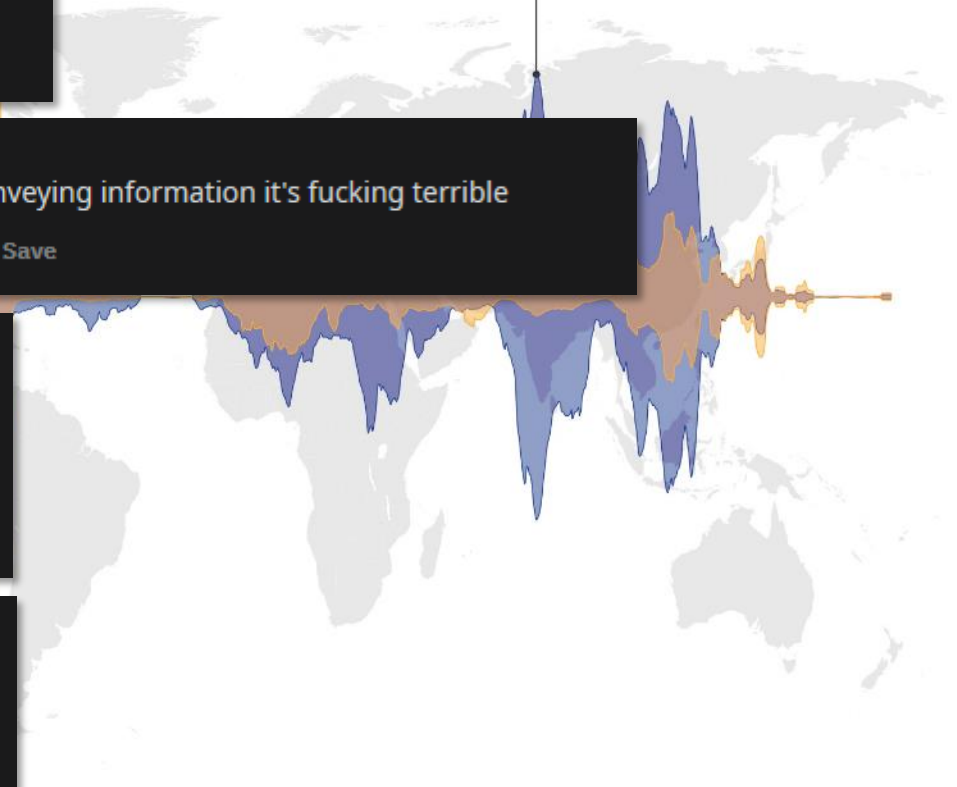
Pikesmakker 8 points · 14 days ago
↑
↓ This presentation is fucking terrible

Reply Give Award Share Report Save

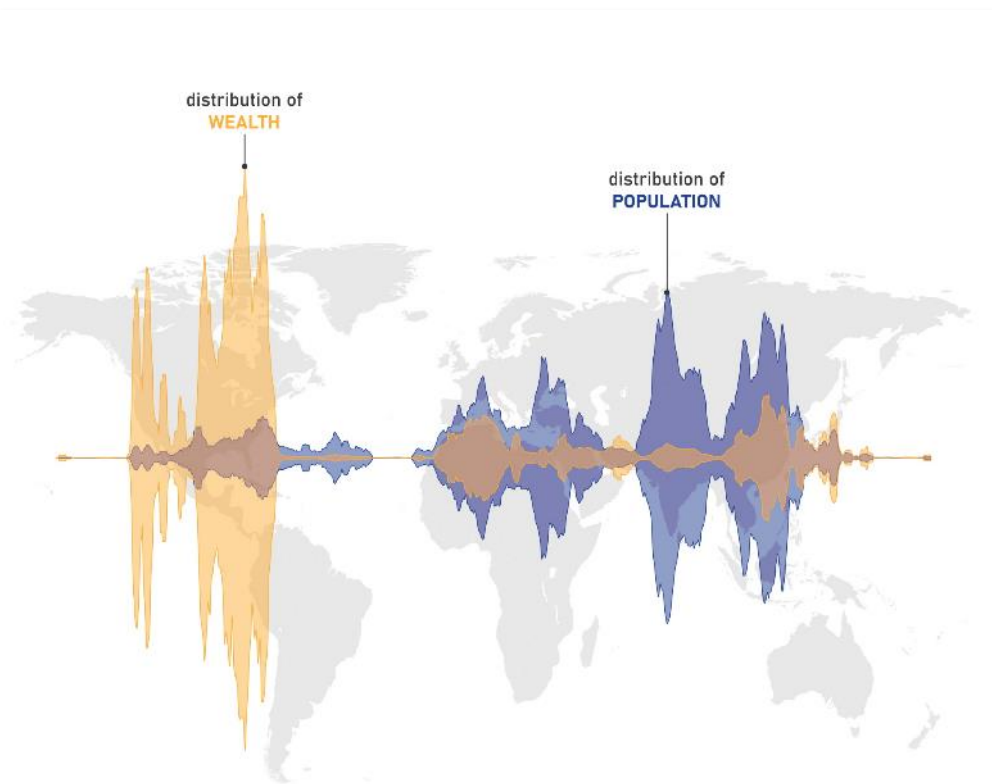
bodie_ 4 points · 13 days ago
↑
↓ This graph is horrendous. I've read more than a hundred comments and no-one is able to explain how it's supposed to be read.

Reply Give Award Share Report Save

distribution of
POPULATION



zation
n_vde)

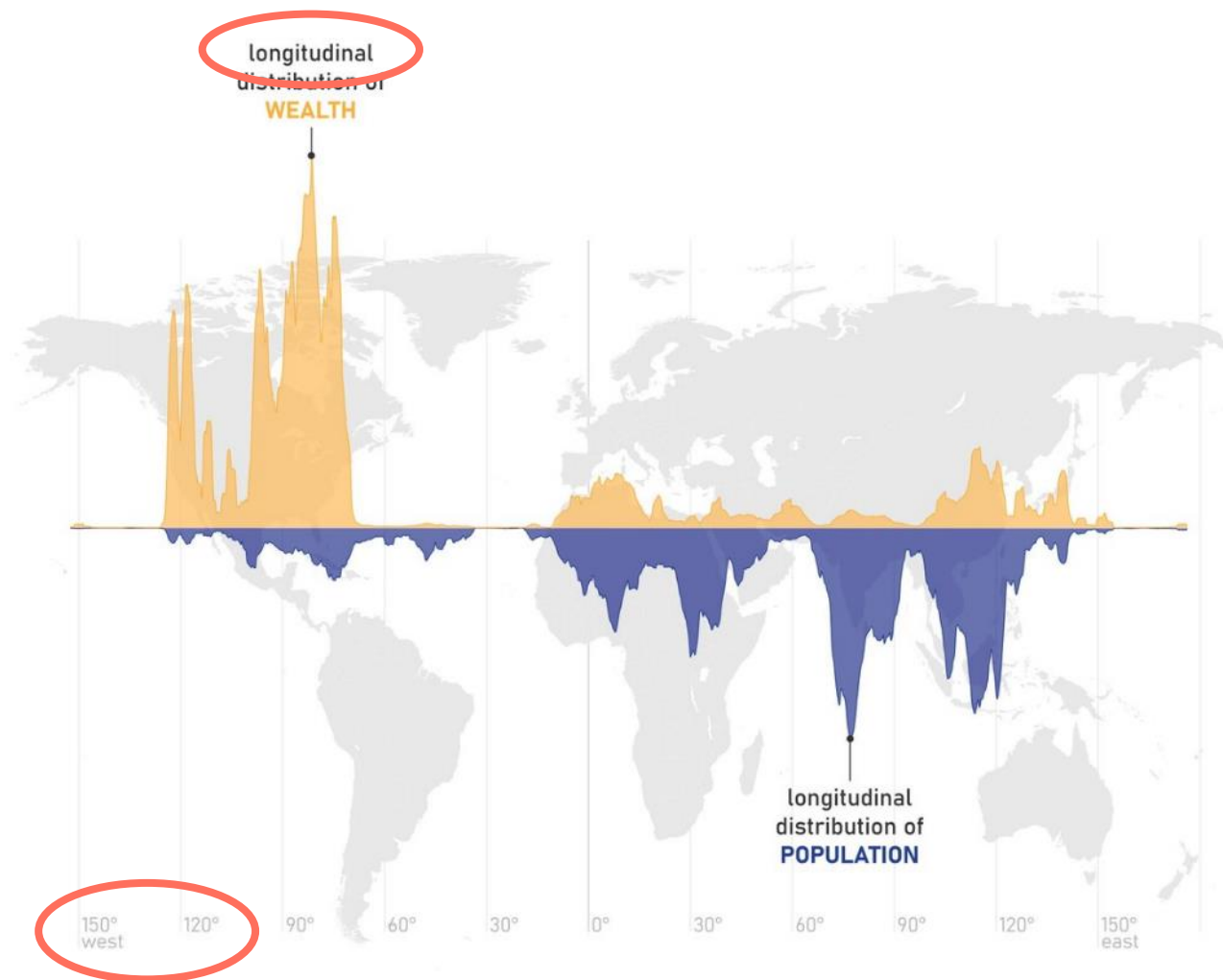


The Wealthy West

Inequality is not just limited to North versus South

Source: Credit Suisse Global Wealth Report 2019; Socioeconomic Data and Applications Center - Gridded Population of the World v.11

A #MakeoverMonday visualization
by Koen Van den Eeckhout (@koen_vde)

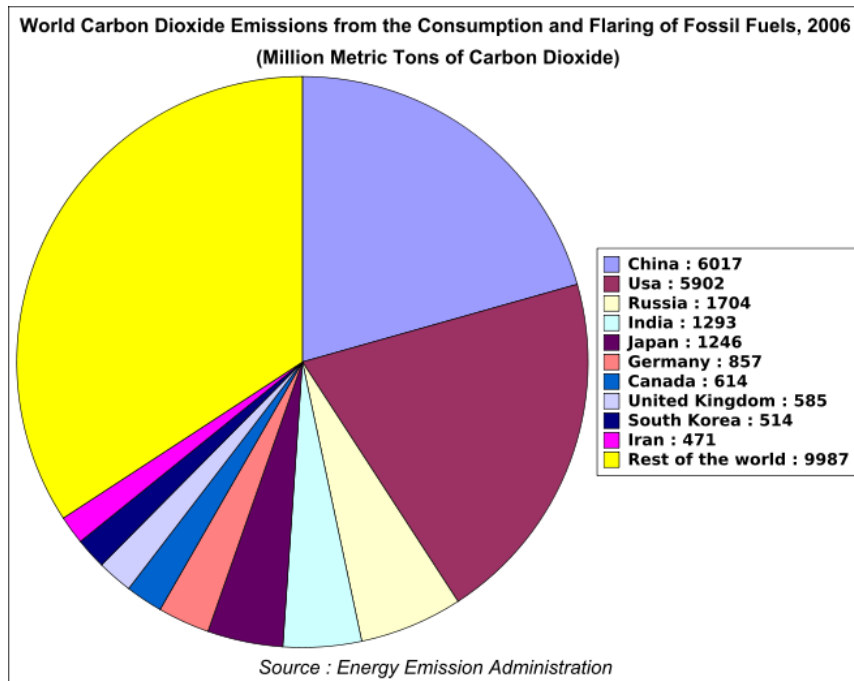


The Wealthy West

Inequality is not just limited to North versus South

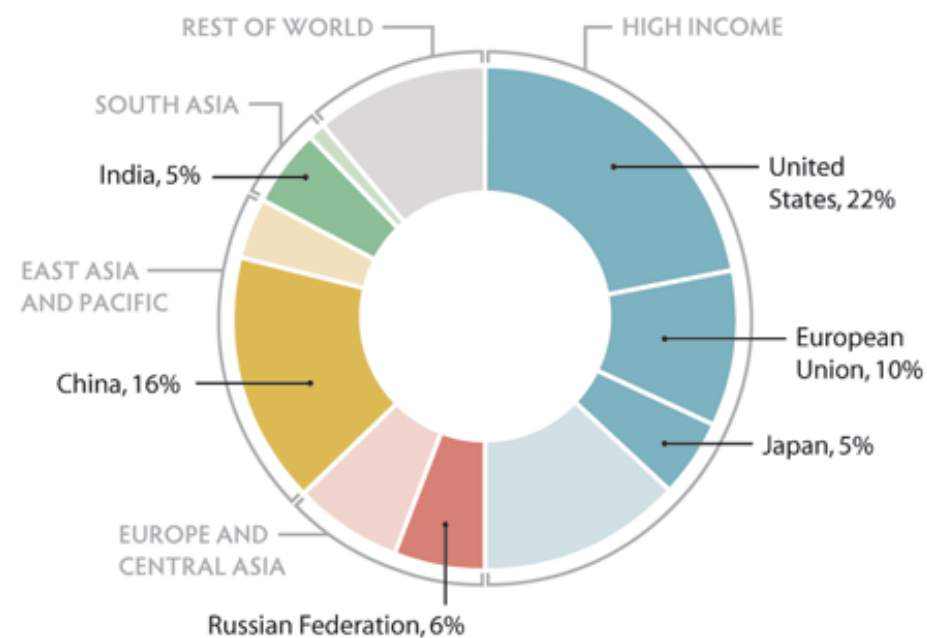
Source: Credit Suisse Global Wealth Report 2019; Socioeconomic Data and Applications Center - Gridded Population of the World v.11

A #MakeoverMonday visualization
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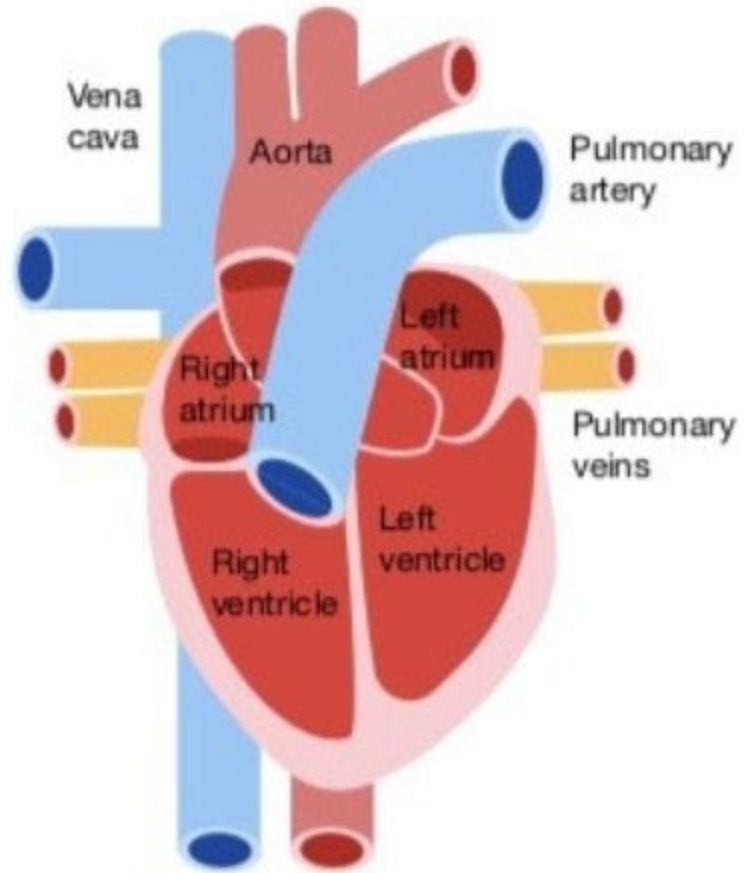


GLOBAL SHARE OF CO₂ EMISSIONS

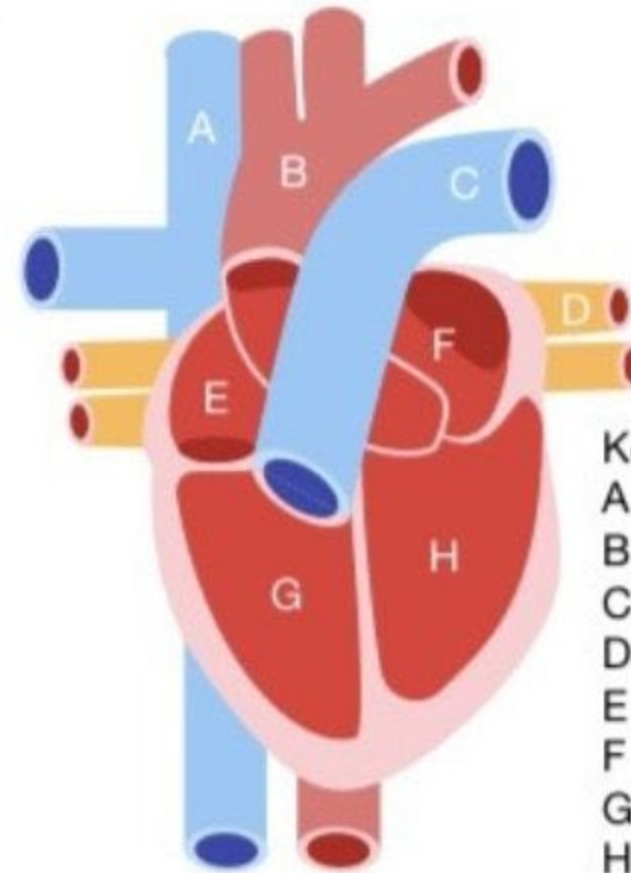
Carbon dioxide emissions are dominated by just five countries, and the European Union:



a)



b)



Key

A - Vena cava

B - Aorta

C - Pulmonary artery

D - Pulmonary veins

E - Right atrium

F - Left atrium

G - Right ventricle

H - Left ventricle

General guidelines

identify your story

maximize the signal-to-noise ratio

use color with intention

use text sparingly

use enough white space

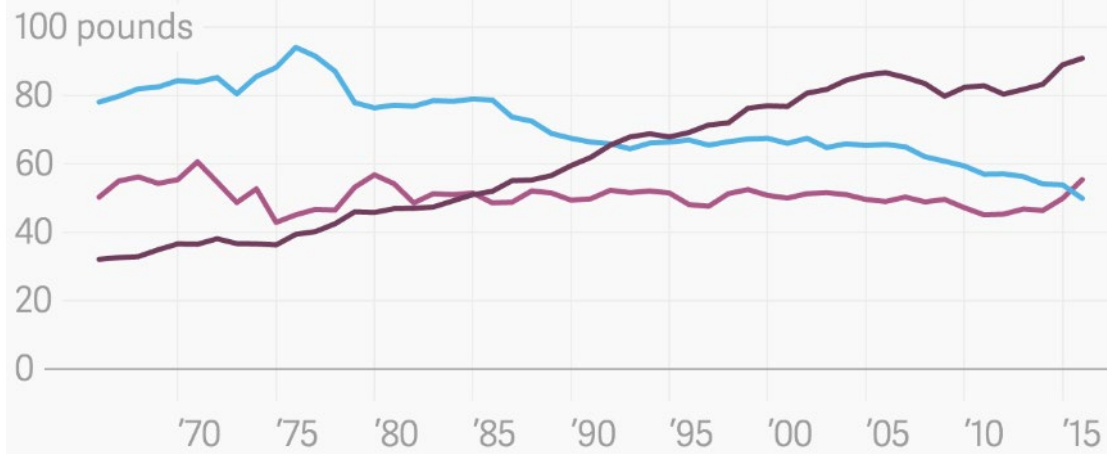
~~data~~



story

US per capita consumption of poultry and livestock

■ Pork ■ Beef ■ Chicken

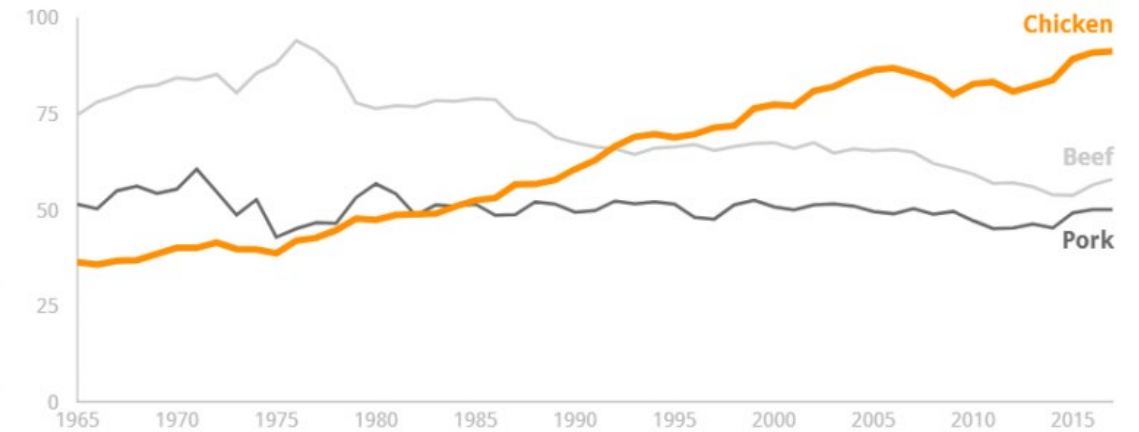


△ T L △ S | Data: National Chicken Council

Americans are eating more chicken than ever before

U.S. per capita consumption of chicken has more than doubled since 1965.

Pounds per capita



Source: [National Chicken Council](#)

Created by Marc Soares for #MakeoverMonday

The background is a faded, reddish-orange image of a newspaper page. At the top, there is a world map. Below it, the text "The Nobel Prize" is visible, followed by "114 years, 108 prizes". Several small portraits of people are arranged in a grid-like fashion. The word "Workflow" is centered in the middle of the page in a large, white, sans-serif font.

Workflow

Workflow

identify your story

sketch your concept

check the requirements

design

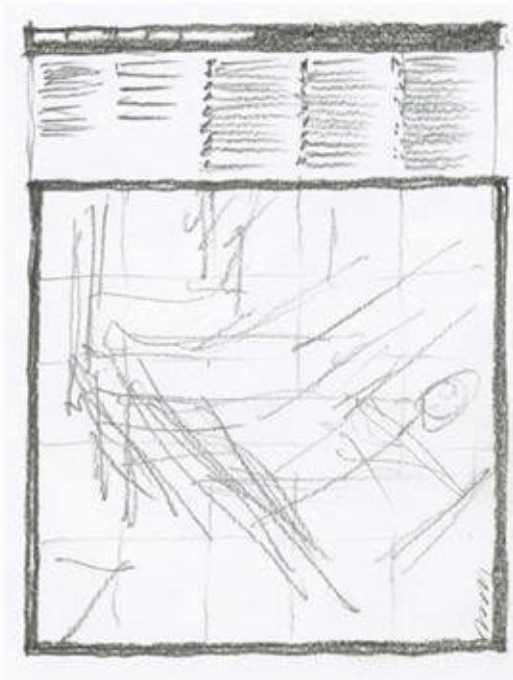
Massimo Vignelli

Designing a map that is really a diagram

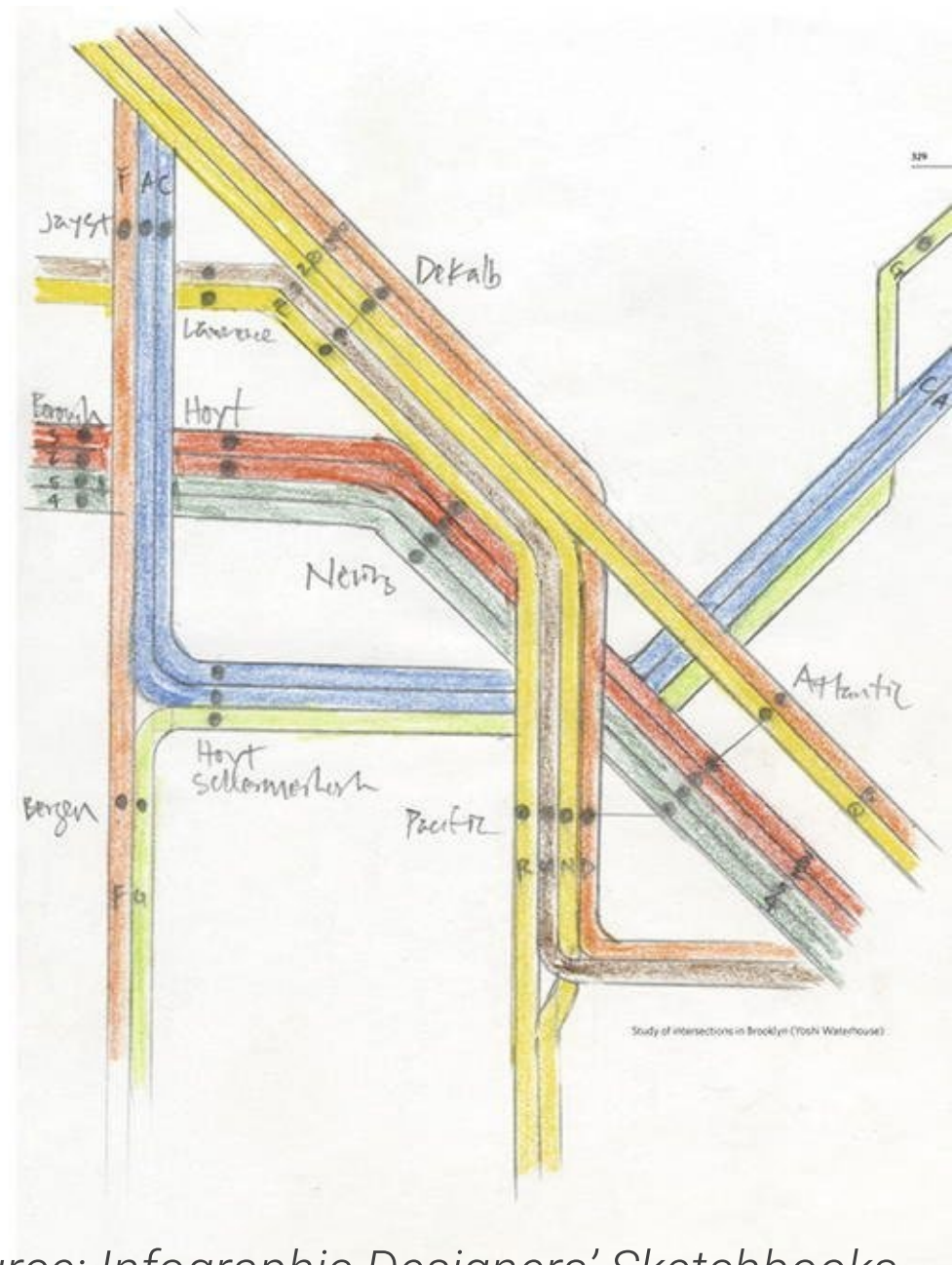
In 1972, Massimo Vignelli designed a diagrammatic for the New York City subway. He replaced the serpentine maze of geographically accurate train routes with simple, bold bands of colour that turned at 45° and 90° angles. Each route was colour-coded, its stops indicated by black dots. To make the map function more effectively, a few geographic liberties were taken, something that didn't sit well with New Yorkers. For instance, the new map showed Central Park as a square; Vignelli reasoned that for people riding underground, the park's rectangular proportions were irrelevant. There are fewer stops along Central Park West than in Midtown, so logic dictated that less map space was required. But New Yorkers wanted their rectangle back, and in 1979 the map was replaced.

As it turned out, that original map of 1972 was ahead of its time; Vignelli's economical format was perfect for web accessibility. In 2010 a new digital iteration, *The Weekender* (these pages), the result of the combined efforts of Vignelli and two associates, Beatriz Cilluentes and Yoshi Waterhouse, went online. One of their first acts was to re-term the map; it is now a diagram. The design process began the traditional way, using black-and-white and coloured pencils. "Sketching forces us to concentrate on the details," Vignelli explains. "We use the computer to refine details, but the concept is expressed with a 3b Caran d'Ache."

The team rebuilt the diagram geometry from scratch. "Based on a grid and a masterplan established in advance," Vignelli says, "we analysed the situation and worked to find the most appropriate solution for every station with several connections by discussing and sketching alternatives until we found the best one."

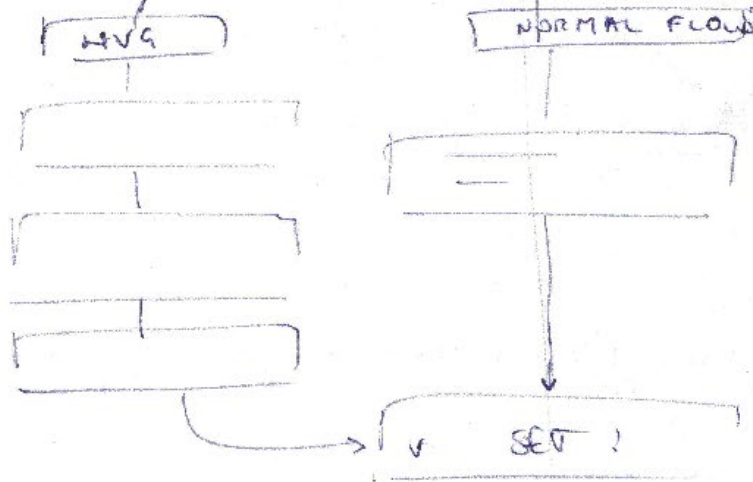


Drawing, final diagram layout with frame and legend



Source: Infographic Designers' Sketchbooks

EYnovation billing process



EYnovation billing process

This flow applies to
punctual interventions
(PI), subscriptions and
events organized by a
SSL, within the scope of
EYnovation in Flanders.

For questions, contact
eynovation@be.ey.com



Your task as
an EYnovator



What the Core
Team does for you

Estimate and check the required
number of hours with your
partner



* A combination of different
SSLs is possible. If so, make a
tailormade division of hours.



EXTERNAL ACTION:
PI: fill out form with startup
all: charge customer for
the PI or subscription



INTERNAL ACTION:
Book hours on EYnovation
dummy code of partner

* If your partner doesn't have
an EYnovation dummy code
yet, inform the Core Team.

Report to the Core Team

Core Team bills quarterly to VLAIO

approval process
(couple of months)

Core Team gets money from VLAIO

flow for external EY entity

Core Team puts money on
the EYnovation code of
EYnovation Partner

* For details, see Excel file
on pricing for EYnovators

Core Team lets external EY
entity know for what amount
they can send an invoice to
EYnovation Partner

* Code: XXXXXXB2

internal process
(pre billing tool)

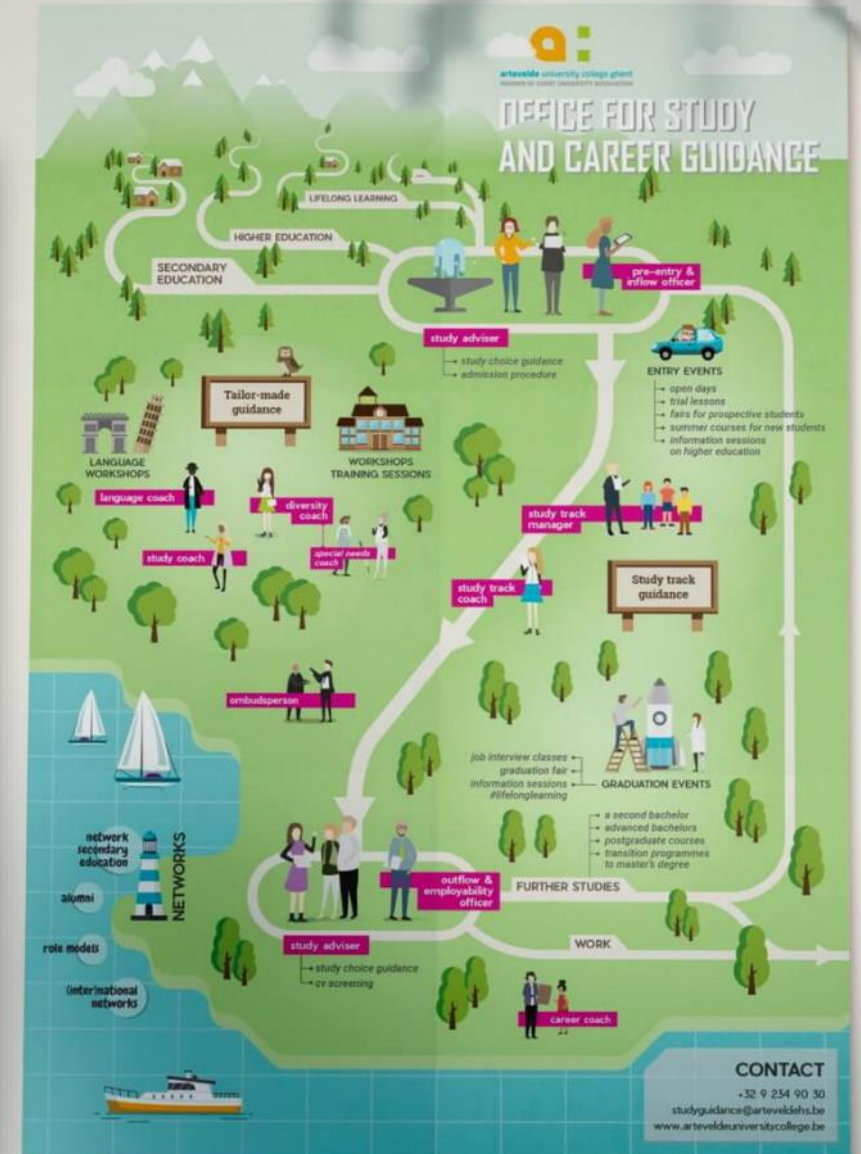
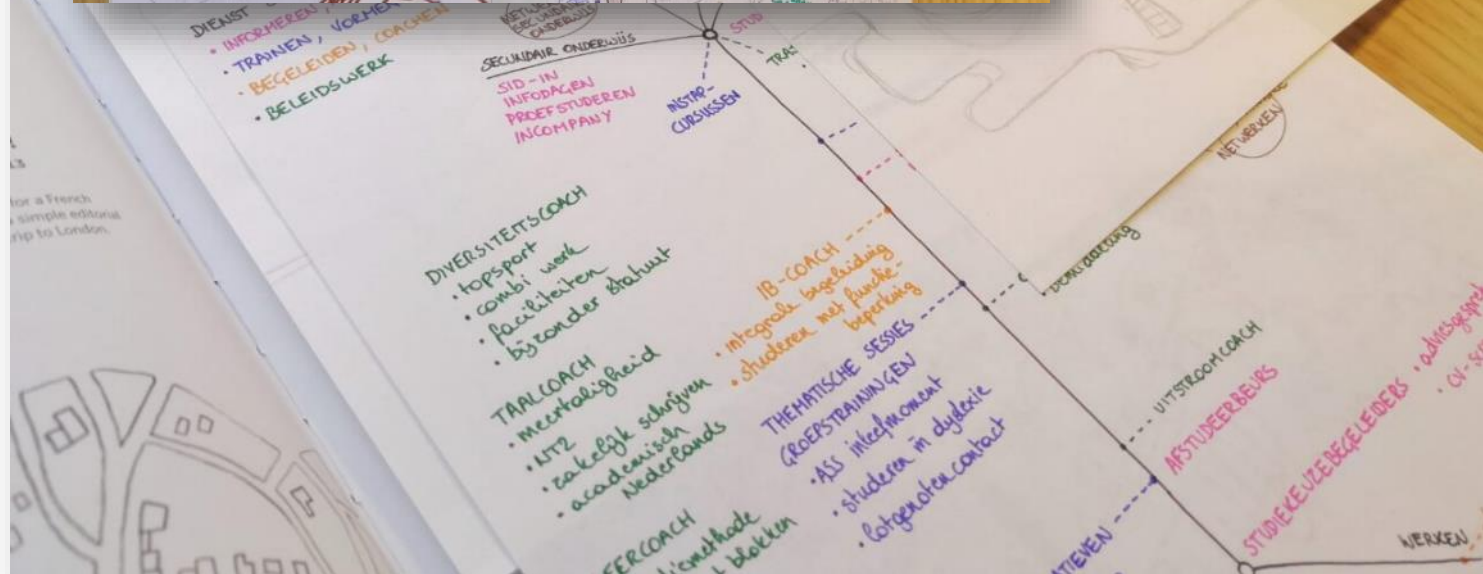
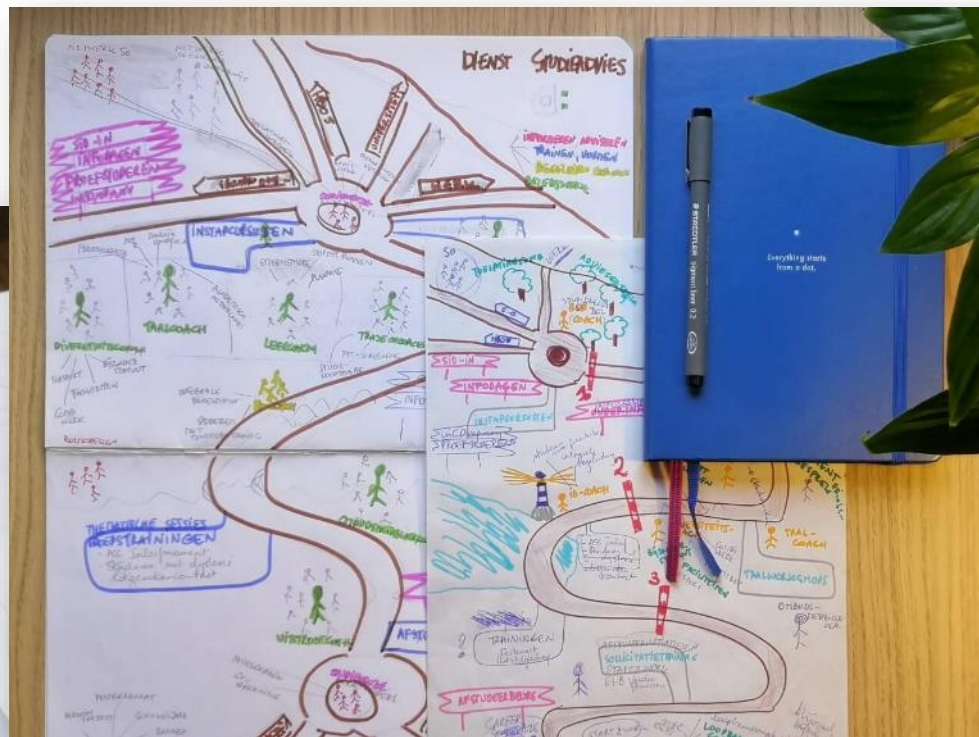
EYnovation Partner approves

standard flow

Core Team puts money on
the SSL partner(s) code(s)

* For details, see Excel file
on pricing for EYnovators

You're all set!



Workflow

identify your story

sketch your concept

check the requirements

design


Graphical abstract

× +

← → ↻ 🏠

🔒 <https://www.elsevier.com/authors/tools-and-resources/graphical-abstract> 📄 ⋮ 🛡️ ☆

⬇️ 🔒 📄 🛡️ 🐱 ☰

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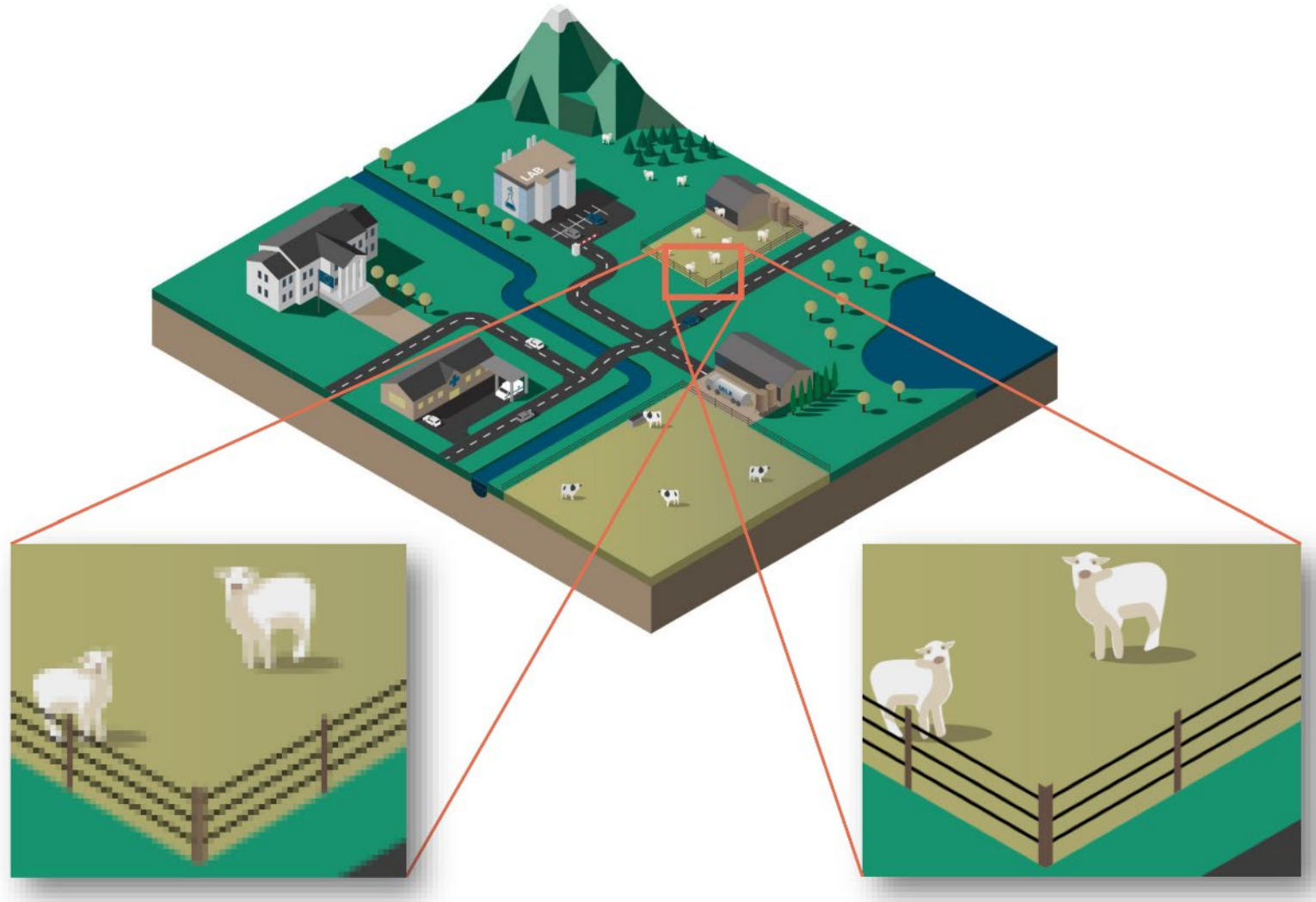
👤

Specifications:

A graphical abstract should be a one-image file and should visualize one process or make one point clear. For ease of browsing, the graphical abstract should have a clear start and end, preferably "reading" from top to bottom or left to right. Try to reduce distracting and cluttering elements as much as possible.

- Image size: Please provide an image with a minimum of 531 x 1328 pixels (h x w) using a minimum resolution of 300 dpi. If you are submitting a larger image then please use the same ratio (200 high x 500 wide). Please note that your image will be scaled proportionally to fit in the available window on ScienceDirect; a 500 by 200 pixel rectangle.
- Font: Please use Times, Arial, Courier or Symbol font with a large enough font size as the image will be reduced in size for the Table of Contents to fit a window of 200 pixels high.
- File type: preferred file types are TIFF, EPS, PDF or MS Office files.
- No additional text, outline or synopsis should be included. Any text or label must be part of the image file. Please do not use unnecessary white space or a heading "graphical abstract" within the image file.

⬆️



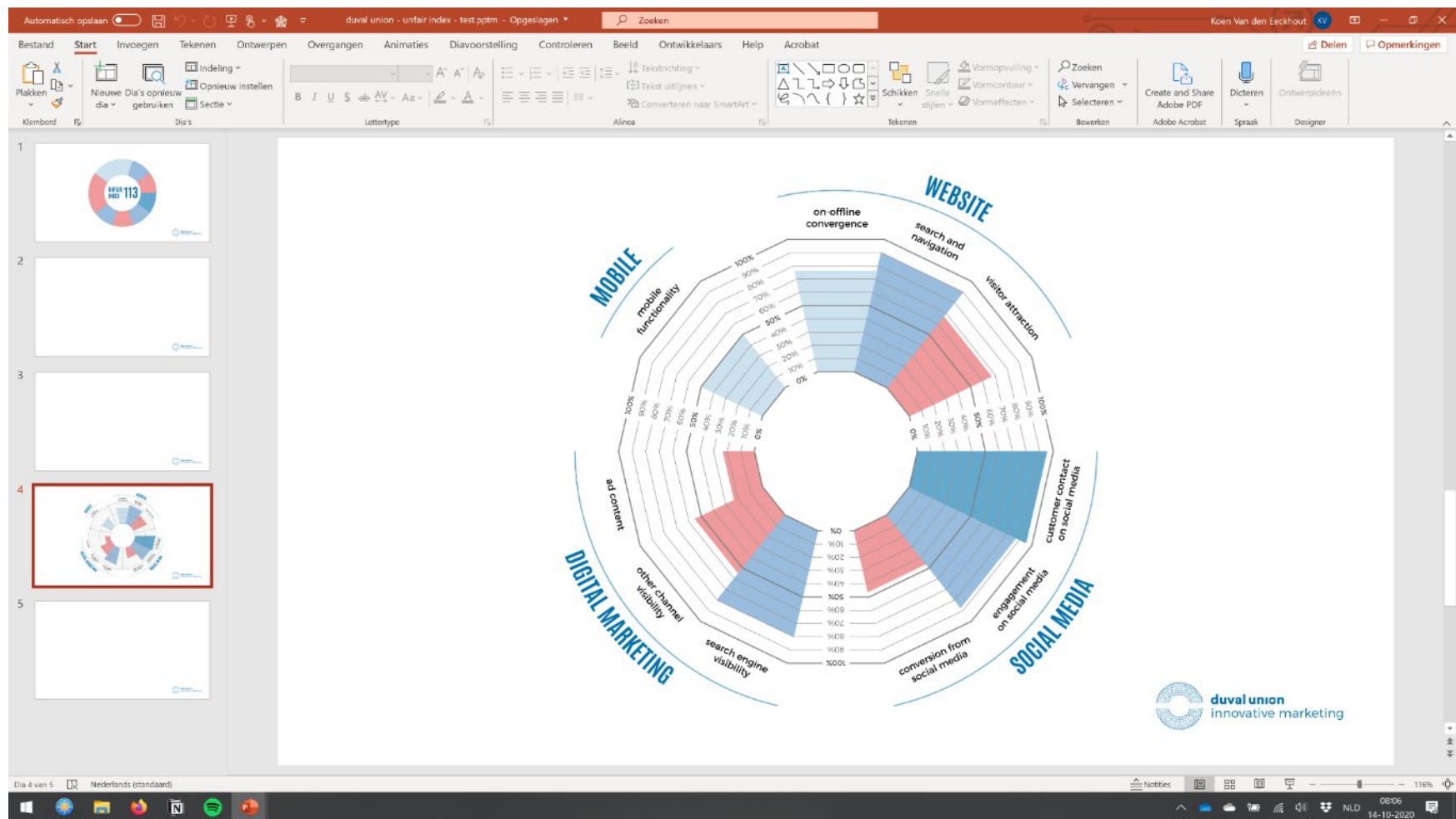
bitmap image
jpg, png, bmp, tiff

vector image
svg, pdf, eps

The background is a faded, reddish-orange image of a newspaper page. At the top, there is a world map. Below it, the text "The Nobel Prize" is visible, followed by "114 years, 108 prizes". Several small portraits of people are arranged in a grid-like fashion. The overall image is tilted slightly to the right.

Available tools

use the tool you are comfortable with



PowerPoint

what you see is what you get
you already have it and use it
templates available

4

2

Protocol

On May 25, 2019 a **Muscle Talent Scan** was performed on your team members to make an estimation of their muscle fiber typology. During the 20-minute scan, their muscle metabolic profile was scanned on two different calf muscles: M. Soleus and M. Gastrocnemius.

5

3

Results

The table below indicates the average Z-score for the individual muscle fiber typology.

→ positive Z-score = more fast twitch fibers
→ negative Z-score = more slow twitch fibers

→ positive Z-score = more aerobic metabolism
→ negative Z-score = more anaerobic metabolism

Typology group	Name	Average Z-score
Slow	Adriana Huisman	-0.22
	Martine de Vries	-0.17
Intermediate	Martine de Vries	-0.14
Fast	Jana Huisman	0.22
	Angie de Vries	0.26
	Anna de Vries	0.26
	Anna de Vries	0.26
	Anna de Vries	0.26
	Anna de Vries	0.26
	Anna de Vries	0.26

6

4

How to interpret these values?

On May 25, 2019 a **Muscle Talent Scan** was performed on your team members to make an estimation of their muscle fiber typology. During the 20-minute scan, their muscle metabolic profile was scanned on two different calf muscles: M. Soleus and M. Gastrocnemius.

Online tools

Canva

canva.com



Infogram

infogr.am



Piktochart

piktochart.com



Mind the Graph (life sciences)

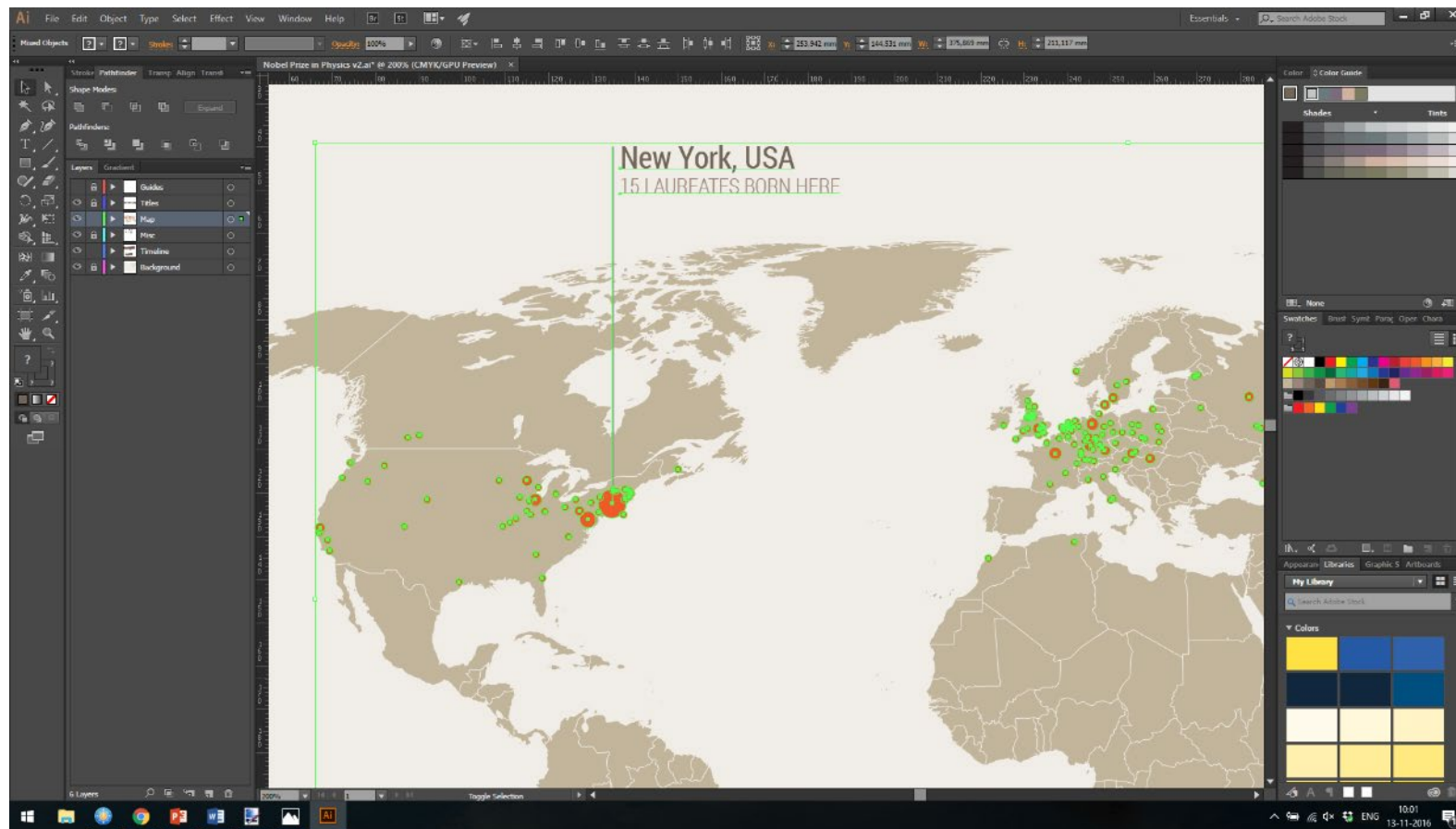
mindthegraph.com



Diagrams.net (flowcharts)

diagrams.net





Adobe Illustrator

“industry standard”
extremely powerful
steep learning curve
expensive subscription



AFFINITY Designer

[MORE INFO](#)

Bring your visions to life with the ultimate graphic design and illustration app.



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ONLY €54.99

[BUY NOW](#)



Windows

ONLY €54.99

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iPad

ONLY €21.99

[BUY NOW](#)

Alternative: **Affinity Designer**

nearly as powerful as Adobe Illustrator

still a steep learning curve

one-off payment (approx. €55)



INKSCAPE
Draw Freely.

♥ Help us make Inkscape awesome! ♥

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INKSCAPE 1.0.1
Draw Freely.



GNU/Linux



Linux based Free Desktop
Systems

Windows



Microsoft's Windows Desktop

macOS (10.11-10.15)



disk image (dmg)

Source Archive



xz tarball

Release Notes

Inkscape 1.0.1 is mainly a stability and bugfix release. It also comes with a few new features that hadn't been stable enough to make it into Inkscape 1.0.

New Features

Inkscape 1.0.1

All Platforms

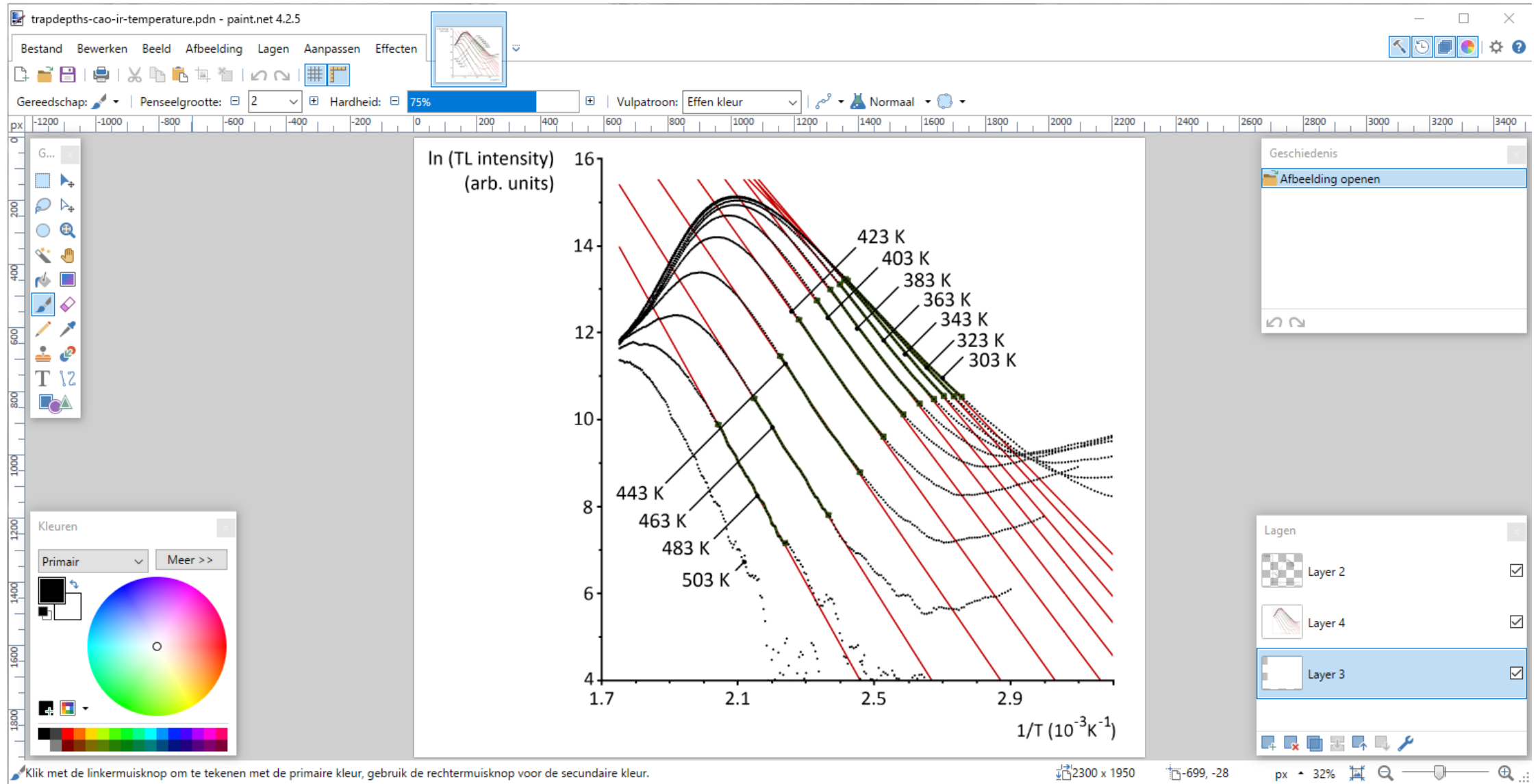
Responsible People

Manager: **Marc Jeanmougin**

Revisions

Alternative: **Inkscape**

<https://inkscape.org/release/inkscape-1.0.1/>



Alternative: **Paint.NET** or similar

<https://www.getpaint.net/>



Available resources



unsplash.com

pixabay.com

picography.co

burst.shopify.com

reshot.com



Credits: UGA college Ag & Environmental sciences



Credits: Gemma Denise

Freepik website interface showing search results for "research". The header includes navigation links (Vectors, Photos, PSD, Collections, Premium, More tools) and a search bar. The search results display 4,262 resources, including various illustrations related to research, data analysis, and genetic engineering. A prominent green banner at the bottom right offers a "Free Download 900" with the text "Free license with attribution".

Navigation: Vectors, Photos, PSD, Collections, Premium, More tools

Search: Resources, Free, ... research

Filters: Free, Vectors

4,262 Resources

Illustrations shown:

- Illustration 1: People using a large screen with a magnifying glass.
- Illustration 2: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 3: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 4: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 5: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 6: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 7: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 8: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 9: A hand holding a magnifying glass over a laptop screen displaying charts.
- Illustration 10: A hand holding a magnifying glass over a laptop screen displaying charts.

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🔌 Pro services 🔌 Online sellers

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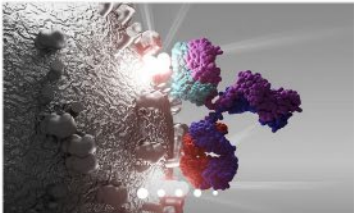



mogumash
Level 2 Seller

I will do all medical and scientific illustrations for you

★ 4.9 (354)

☰ ❤️ STARTING AT €8.86





adamdorey
Level 1 Seller

I will design scientific illustrations, figures and...

★ 5.0 (16)

☰ ❤️ STARTING AT €13.29





anscaparelli
Level 1 Seller

I will do scientific illustrations, graphical abstract and scienc...

★ 5.0 (28)

☰ ❤️ STARTING AT €26.58


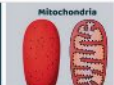







atiksugiwara
Level 1 Seller

I will draw realistic scientific botanical illustrations of...

★ 5.0 (35)

☰ ❤️ STARTING AT €8.86

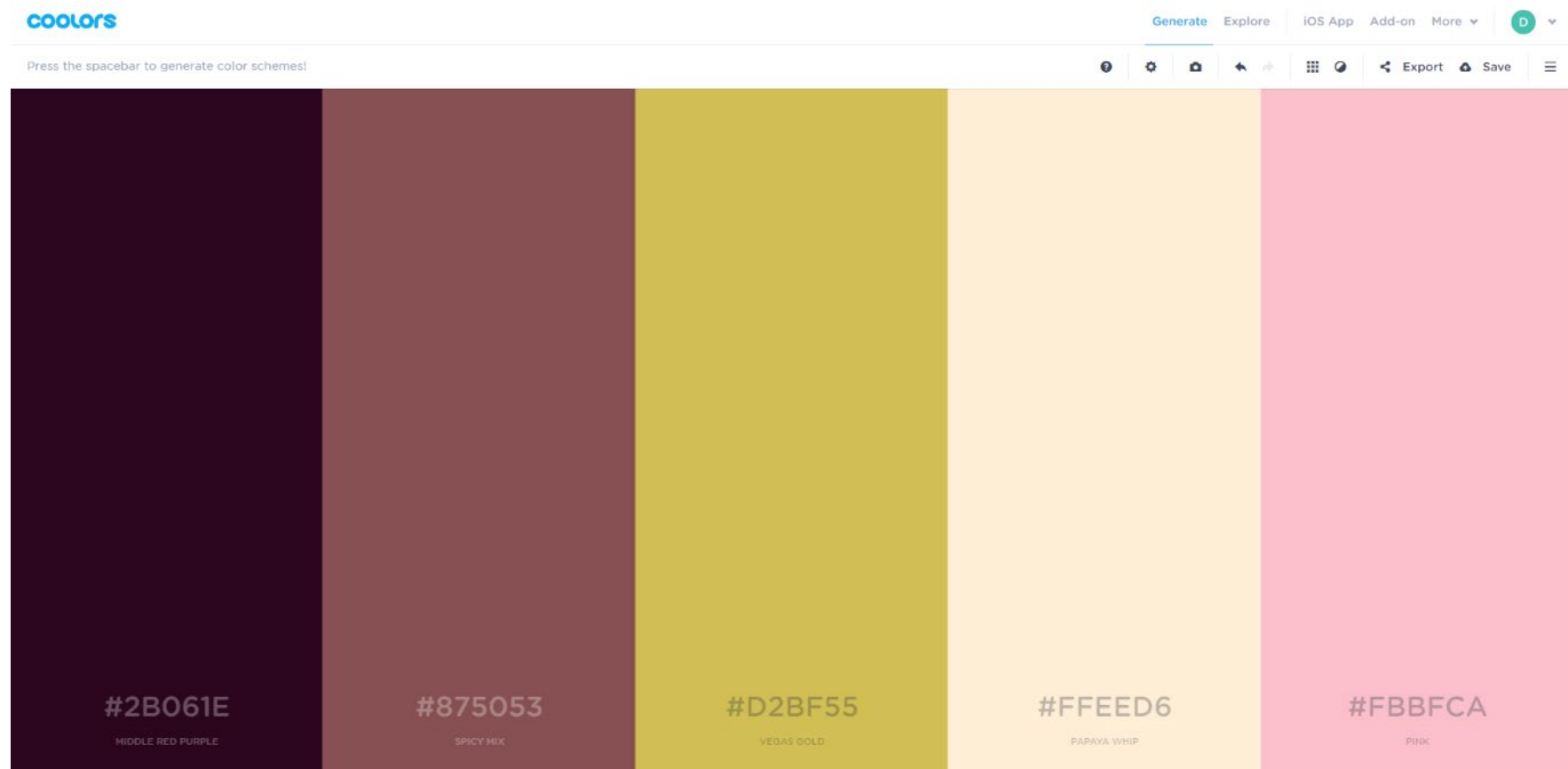


Fiverr

THE IMPORTANCE OF
COLOUR

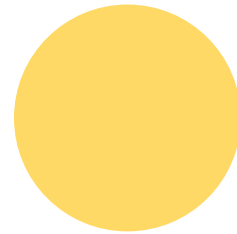
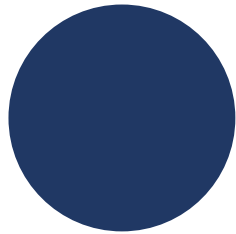


STEPHENWILDISH.CO.UK



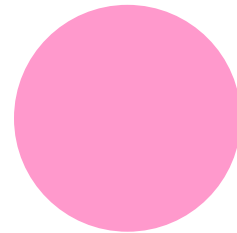
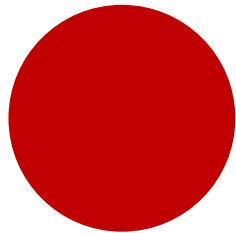
coolors.co

*trust,
stability*



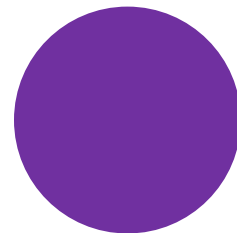
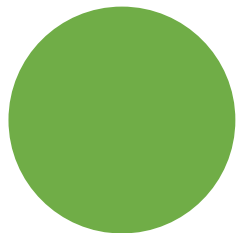
*happiness,
warmth*

*energy,
passion*



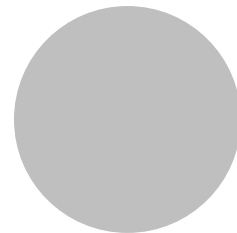
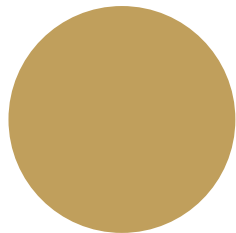
*sensitive,
love*

*friendly,
natural*



*rich,
mystery*

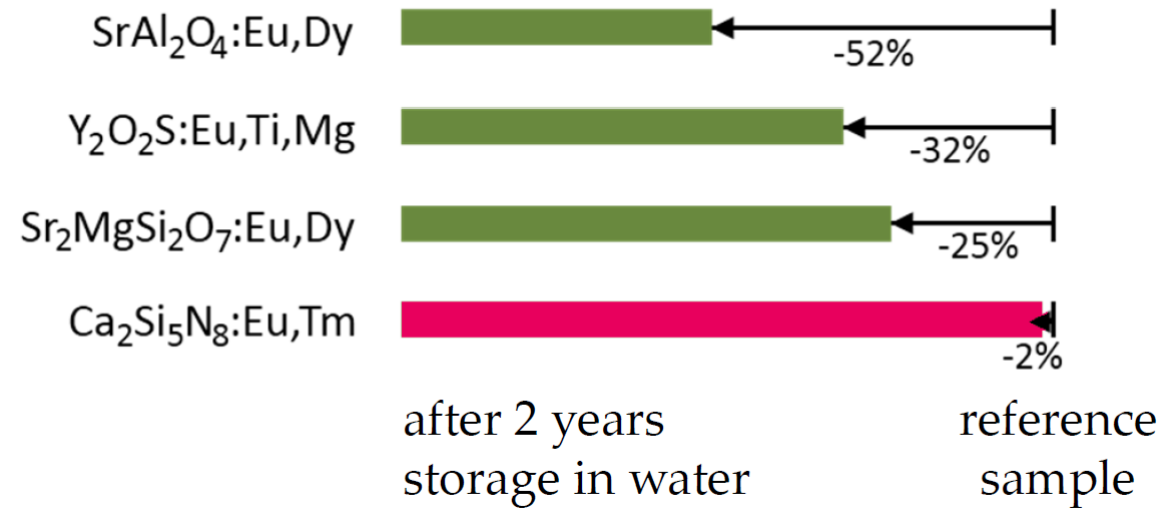
*history,
intelligence*



*neutral,
calm*

Accent colours

Compared to other common host materials, the nitrido-silicates are **very stable** and hence well suited for *in vivo* applications.





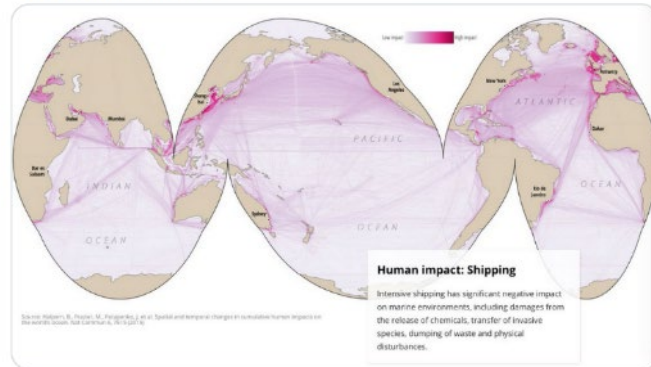
Further exploration

What's next?

Twitter



Maarten Lambrechts @maartenlam · 23 mei
Als antwoord op @pickover
From a work in progress

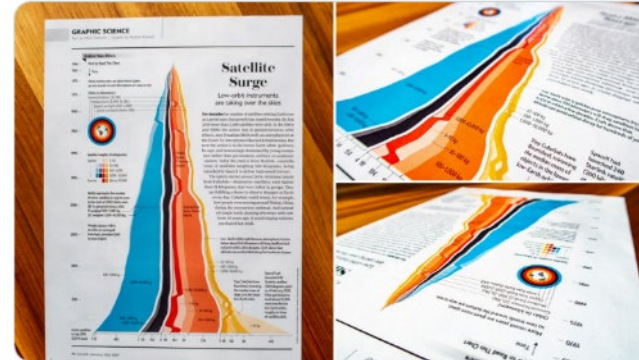


7 40 5



Nadieh Bremer @NadiehBremer · 15 u
New!! 🚀 I've created a streamgraph-meets-bump-chart #dataviz to show the rise & sudden surge in the no. of satellites orbiting Earth for @sciam 🌌

Huge thanks to @ChristiansenJen for the feedback + layout + sending me 2 issues when my store in NL didn't get them due to covid-19



7 40 368

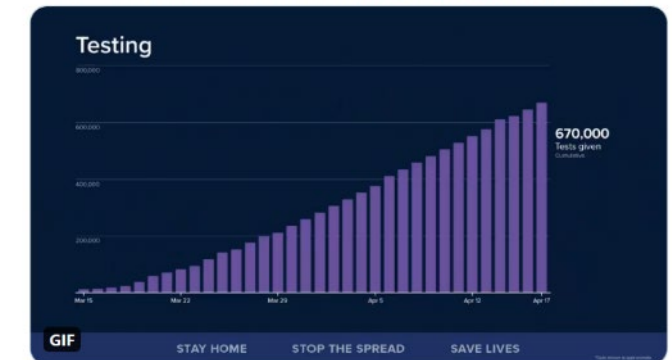
Vastgemaakte Tweet



Giorgia Lupi @giorgialupi · 30 apr.
We ❤️ @NYGovCuomo 's daily briefings. That's why at @pentagram we humbly tried to make his charts even more effective and human.

We talked to @FastCompany about it: [fastcompany.com/90498405/andre...](https://www.fastcompany.com/90498405/andre...)

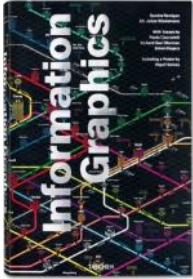
But also check out the full project here: drive.google.com/file/d/1tS-BDR...



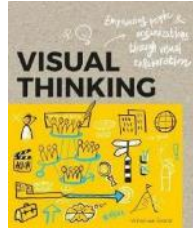
13 160 441

Full **Dataviz World Leaders** list at: twitter.com/Koen_VdE/lists

Books



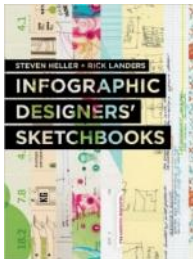
Information graphics
Taschen



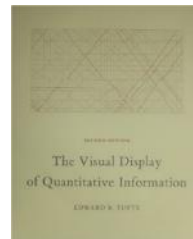
Visual thinking
Willemien Brand



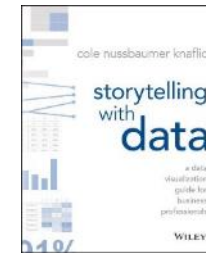
Visual journalism
Gestalten



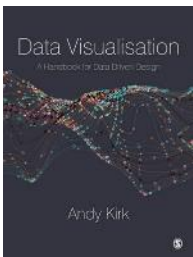
Infographic designers' sketchbooks
Steven Heller, Rick Landers



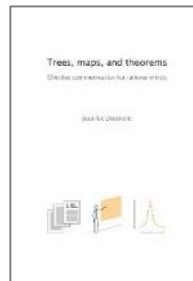
The visual display of quantitative information
Edward R. Tufte



Storytelling with data
Cole Nussbaumer Knaflic



Data visualisation
Andy Kirk



Trees, maps and theorems
Jean-Luc Doumont



Dear data
Stefanie Posavec, Giorgia Lupi

RECOMMENDED

RECOMMENDED

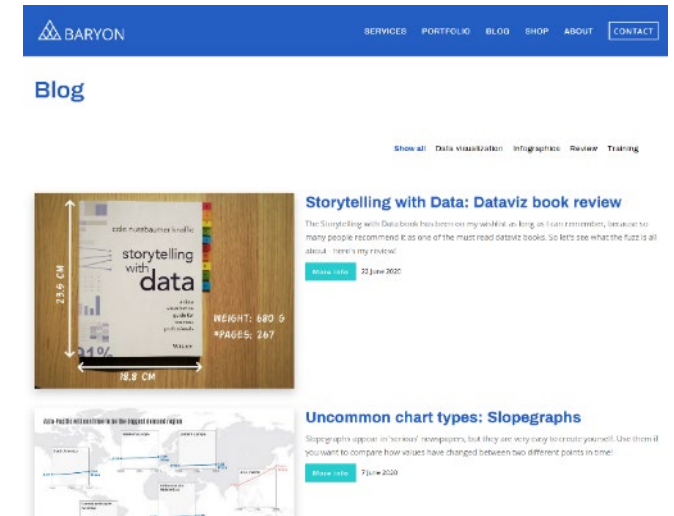
Blogs



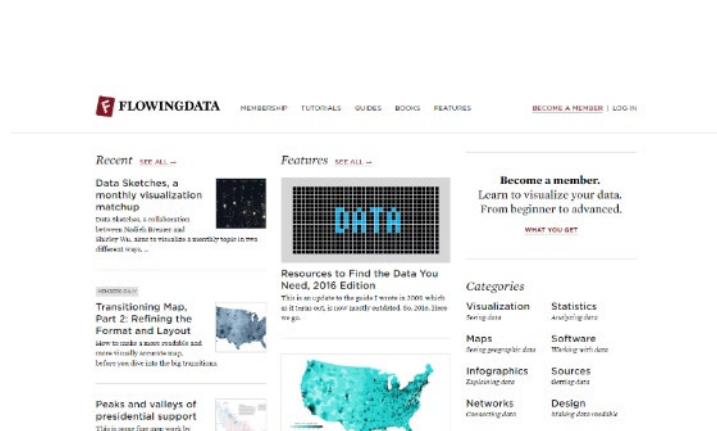
[Visualising Data](#)



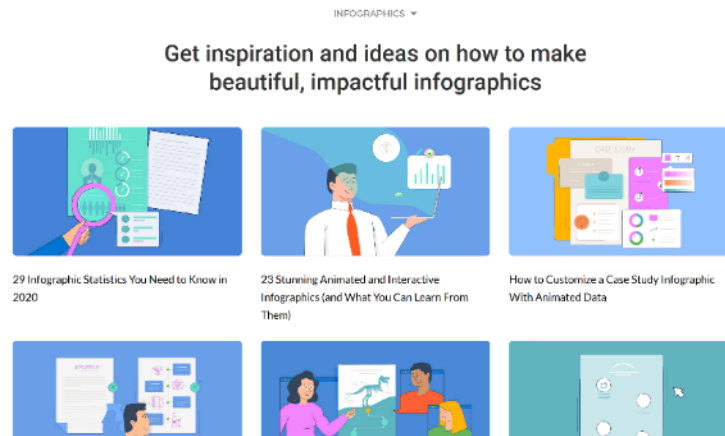
[Nightingale](#)



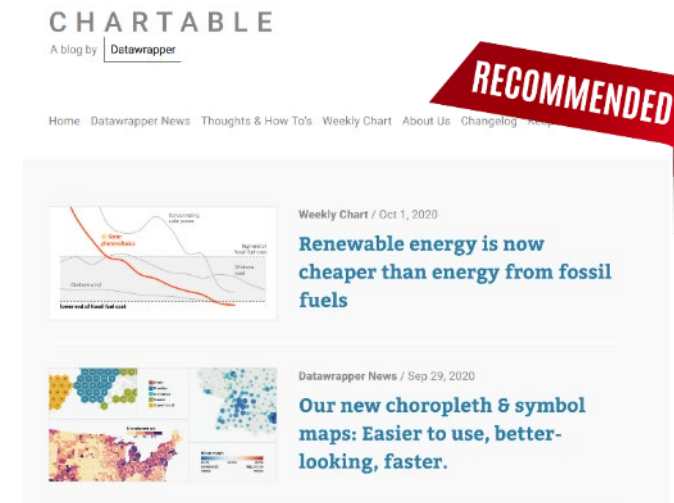
[Baryon blog](#)



[Flowing Data](#)



[Visme blog](#)



[Chartable](#)

Q&A

All the slides and all the links:

<https://baryon.be/infographics-resources>



Koen Van den Eeckhout – koen@baryon.be - @koen_vde

Thanks!

All the slides and all the links:

<https://baryon.be/infographics-resources>

Koen Van den Eeckhout – koen@baryon.be - @koen_vde