Innovative Practices in Science Journalism

Report on the Kavli Symposium on Constructing the Future of Science Journalism in Europe

Novotel Hotel ǀ **Toulouse** ǀ **9 July 2018**

Introduction

During this one-day meeting at ESOF2018 in Toulouse on July 9th, 28 innovative science journalists and change makers in newsrooms from a total of 13 countries (10 European) gathered for the first edition of the European Kavli Symposium to discuss, explore and envision the future of science journalism in Europe.

As detailed in this report, the Symposium was the first opportunity to share best practices on innovative digital formats that can be applied to science journalism. This report shares the best practices that emerged from this meeting.

Goals

The main objectives of this meeting were to:

- Explore innovative practices that can benefit science journalism in Europe

- Sare best practices and lessons learned among practitioners between US and Europe

- Convene forward-thinking, creative journalists who want to drive innovation in science journalism in Europe

- Brainstorm ideas and action plans to advance science journalism in Europe

- Develop innovative agendas for science-journalism meetings in Europe incl. KS5 in the future.

From a long term perspective, this meeting will act as a starting point to develop a network of journalists committed to build innovative, impactful and sustainable science journalism in Europe.

Best Practices

Here is a list of all science stories and projects that were covered in the Kavli Symposium that used innovative narratives, formats and tools for storytelling and audience engagement:

Interactives & Data Visualisations

- **The Three-Degree World** (The Guardian): an interactive of cities drowned by global warming (Nov 2017)
- **As Greenland Melts, Where's the Water Going?** (The New York Times): an interactive on the ice melting (Dec 2017 after a mission of 2015)
- **Safe Schools** (Wired IT and AGI) : a map (2012) showing seismology risk across Italy with specific stories on public schools safety, followed by a new visualisation project in 2017.
- **Info Amazonia**: a collaborative interactive storytelling project on the Amazonia region.
- **Climate Central**: a collaborative project between scientists and journalists to publish accurate climate change-related information, using data and simple infographics.

- **Filosofix - philosophy animates**: a science journalism initiative using cartoons to explain the selected topic in the simplest language using scientific information. Available in 4 languages
- **Labo de savoir**: this French project (The Knowledge Lab, in English) is a weekly radio program devoted to science and scientific culture.
- **Future Mag** (Arte): a 30 min programme on Arte (Franco-German public broadcaster) about the future of science and innovation.
- **Dollars for Docs** (ProPublica): a drug company money database produced by ProPublica showing how much money a doctor in the US has received for his medical practices and researches.
- **Follow the Grant**: an initiative to track where researchers get their research fundings from, based on information given in scientific papers about funding. The project developed a beta database called conflict of interest resolver: based on papers of PLOS journal.
- **Losing Ground** (ProPublica): a long-form, investigative journalism project using GIS and scientific data about disappearance of land south of New Orleans under water. Born out of a year-long collaboration between data journalist and scientists.
- **Hell and High Water** (ProPublica): a project building on the experiences and findings from 'Losing ground' to cover the Houston's vulnerability to storms.

Immersive Media

- **Lookout360°** (EFI & Global Editors' Network): a 6-month Accelerator that helped 12 journalists from 12 countries to experiment with 360 video on climate change and encouraged to do science-based reporting, with an overview of the stories published on 12 media houses.
- **Daily 360** (New York Times): a daily 360 video coverage by the NYTimes including some collaboration with museums to film in caves or underwater.
- **360 photoshoot in a space museum** (TASS): a 360 photo showing the inside of space museum in Russia.

AI/Machine Learning

- **BBC**: How BBC is using AI in their programming for the panel and discussions including for the Edinburgh Festival.
- **The Washington Post**: The Post's Heliograf is replacing entry level reporting jobs on sports, based on a template. Sometimes just reporting the scores, no storytelling involved. (More on the Heliograf here and an example.
- **SCiNotes**: an automated manuscript writer which develops a draft scientific manuscript and helps analyse data.
- **Science Surveyor**: using the abstract and citations of a peer-reviewed paper, Science Surveyor provides journalists context about that paper in several easy-to-read visualizations. Instant experts, patrolling the web to see what else has been published on a given topic
- Improve your writing skills: emulate the best writers (algorithm based on styles of 50 best writers that works like an editor)
- **Tiny device** that could help you hear better underwater

Some remarks and discussion points:

- AI may replace journalists in 10 years and learn to tell a story too, we need to think of different ways of working in this new landscape
- BBC - a lot of work on AI is on personalization of the BOT-generated story
- Another role for AI - newspaper articles are often 500 words but people prefer either long reads or short news, but AI should review literature to check soundness of research
- we need to rely on experts for medical papers understanding
- There is danger if we rely too much on AI
- Tools for linking different stories on the same subject and their ranking

Tips

What are do's and don'ts when it comes to connecting science journalism to (digital) innovation? Here are the gathered advices and tips from the experts attended the Kavli Symposium.

- **Collaborate with other science journalists**: More efforts can be made for science journalists to connect better with each other, in order to allow cross-border reporting. Especially global topics like climate change, reporting scientific evidences from various countries makes reporting more valuable.
- **Collaborate with innovators**: the only way to connect science journalism to new ways to tell stories is to keep up with understanding new technologies and tools. Find out the best way to work with video producers, app makers, and graphic designers and start discussing possible ways to tell your science stories in a more engaging way.
- **Work with scientists closely**: in order to get the true sense of scientific findings, non-science journalists who are covering scientific topics also need to invest their time and efforts in understanding scientists.
- **Explore new technologies**: 360 videos are easy to embed using Facebook, Google VR view, Momento360, Kuula, Youtube, can be used for live broadcasting. AI can help science journalists research better and do some of the quick work.
- New Orleans 'Losing ground' about disappearance of land south of New Orleans under water http://projects.propublica.org/louisiana/
- Local reporters on the ground, one year projects with local news outlets about environmental change and natural disasters.
- Worked with scientists and interviewed local people (audio)
- Houston's vulnerability to storms: 'Hell and high water' about Houston's readiness to hurricanes and storms and prevent the consequences https://projects.propublica.org/houston/
- Data from scientific papers that did not raise public concern
- Aim: bring issues to policymakers and public debate, transform maps that are not easy to understand into maps that show which areas are vulnerable + difficult political situation
- A lot of time went into understanding the format of the data and how to transform it into a software that will visualize data in an easy way
- Different ways of getting into the story: Play around with different scenarios and proposals, You can play the timelines of storms

- Difficulties: put all the data into a website to disseminate it
- Create app version - emerging technologies could make this possible
- Collaboration between newsrooms (ProPublica + local newsrooms)
- How come up with these specific ideas? 1- Unique partnerships 2-Interest from the first example from a newsroom

Anna Nagle (Nature Magazine) Science journalism & community engagement

- Engagement is listening to what the audience is saying, involving the audience in the work you're doing, building relationships - more than a click
- Audience: primarily scientists and academics, so topics are more about working in science rather than from a specific field
- Using the responses to an article tweeted, led to another article and then to a survey to the target audience (personal stories shared) - responsibility
- Article on depression of scientists led to great engagement. Google Forms to source people's ideas. Result: website aggregating content on scientists and mental health
- Brexit and Science - reporting on what will happen with science projects after Brexit
- Nature briefing: handpicked and summarised articles that the subscribers receive in a newsletter format
- Research Realities (Tumblr) - challenges of scientists written on post-its and taken picture of, shared on Tumblr
- Facebook groups to get engagement and conversations with the readers based on the posts. You can ask people moderation questions when they ask to join the group (to know your audience).
- Scipher - what is the impact of your research?

Great things elsewhere

- You draw it (New York Times) - showing the stats on different topic - challenging the pre-conceived ideas
- Specifically, Vox's Facebook group for Obamacare enrollees. Also mentioned ProPublica's 'Get Involved' page.
- Gather - active slack channel for people in engagement circles, lots of case studies, great for bouncing ideas around, full of other resources.

Designing Solutions

We've identified four challenges experienced by those who are practicing science journalism. We divided the groups to develop ideas that could solve the identified challenges and developed an early prototype to solve those challenges.

1. Recurrence intervals and risk
2. Reporting a story from many parts of the world simultaneously
3. IT and data reporting
4. Vaccines

#1 Challenge

- Problems: science, comm, and politics. Science: lack of predictability.
- Comm: bad at communicating. Politics: low probabilities so bad comm
- We're not looking at one single challenge.
- How might we visualize uncertainty and translate the sense of risk?
- How might we learn from what is already known of human/social response to risk ie research on risk communication, by means of research results as well as of effective/unsuccessful examples?

#1 Ideation for Solutions

All ideas can be divided in different categories:

- **Gaming/AR**: developing a game that users can download or play online to make them understand risks using their locations. Could be QR codes with augmented reality or a game with events based on risk.
- **Explaining**: Have an explainer next to the graphics or whatever data visualisation format is chosen.
- **Science risk communication**: It could also be interviews, talks or Q&A videos from scientists of risk communication that could explain risk and uncertainty.
- **Multiple sources**: finding multiple sources to confront findings and show certainty. We could even personalise the solution by age to find out risks at a certain point of your lifetime.
- **Daily experiences/users cases**: the solution could be based on more simple things that are risky on their daily lives and they can easily relate to. (rumsfeld scale)

#1 Prototype

The proposed prototype will be a game that will be available through an app or browser. It will be a fortune wheel that you will have to turn and it will tell you the risk of flooding in your specific house or location (geolocalisation). On the background of the wheel there will be a Google Maps with your location and it will show you how far from you the flooding is taking place. The objective is to get people get a sense of risk. The phone floods if you are under risk of flooding and you can't use it for some seconds/minutes. To make people use it, it might be linked to Facebook notifications or similar.
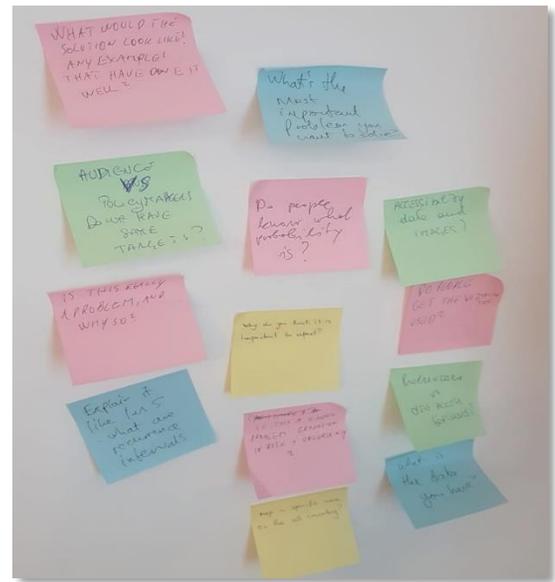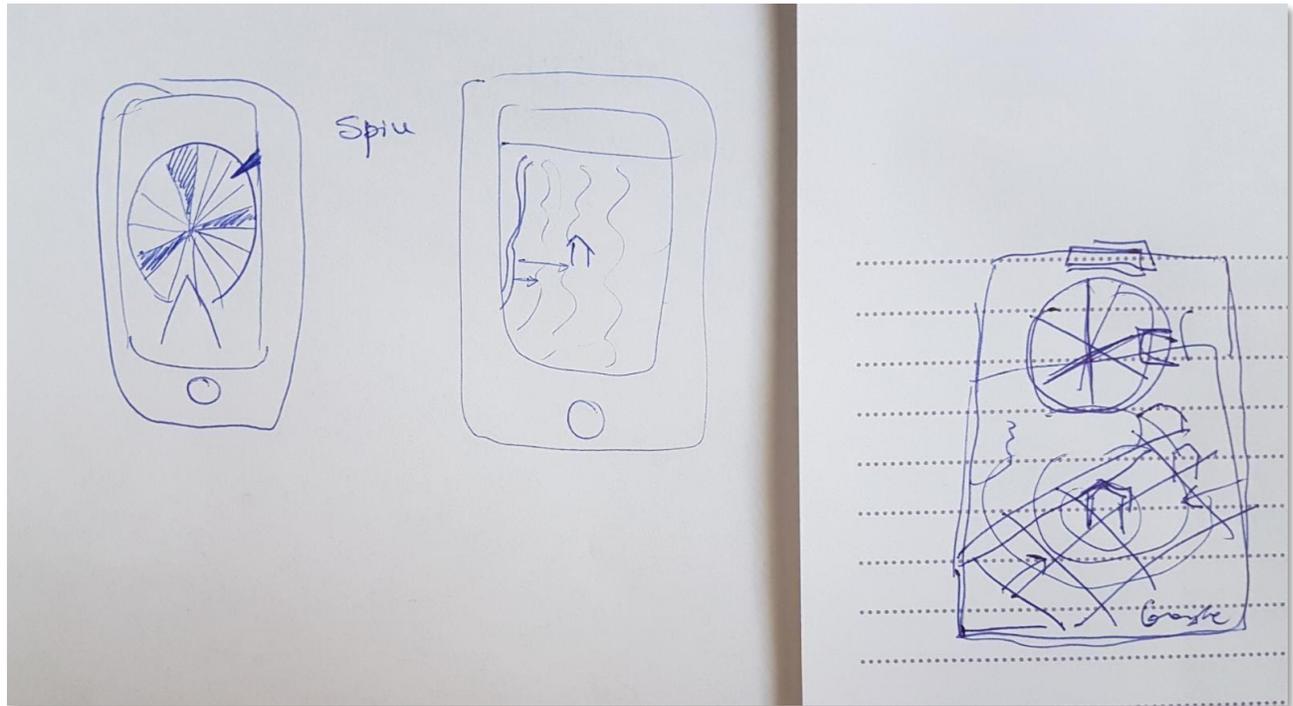
#2 Challenge

Chrissie Giles of Mosaic, the longform publication of the Wellcome Trust would like to report about a story focusing on people's experiences with epidemics from different parts of the world simultaneously. The idea is to select 18 x 18 years old who experienced epidemics in 18 different countries. There are however a number of issues: finding and selecting good reporters to go with the story, as well as the resource challenges to develop a story, due to a limited capacity for infographics/interactives on the Mosaic site test and build new digital features.

How might we identify and select the people and the regions for the story (to best depict the issue at hand)?

#2 Ideation for Solutions

Criteria

1. **What are the criteria to identify these individuals?**
2. **How to assure that selected individuals represent the issue/topic?**
3. **How can one avoid stereotypes?**

- Medical issues by regions
- Biggest health issue in a country
- Sort by GDP and pick every xth country
- Lifespan and life quality indicators

- Number of doctors
- Qualitative/interesting diseases (rare/unique diseases?)
- Public funding of healthcare
- City vs. urban
- Diversity
- All people who know each other somehow
- Cool people
- 18 degrees of separation
- Great circle around the globe
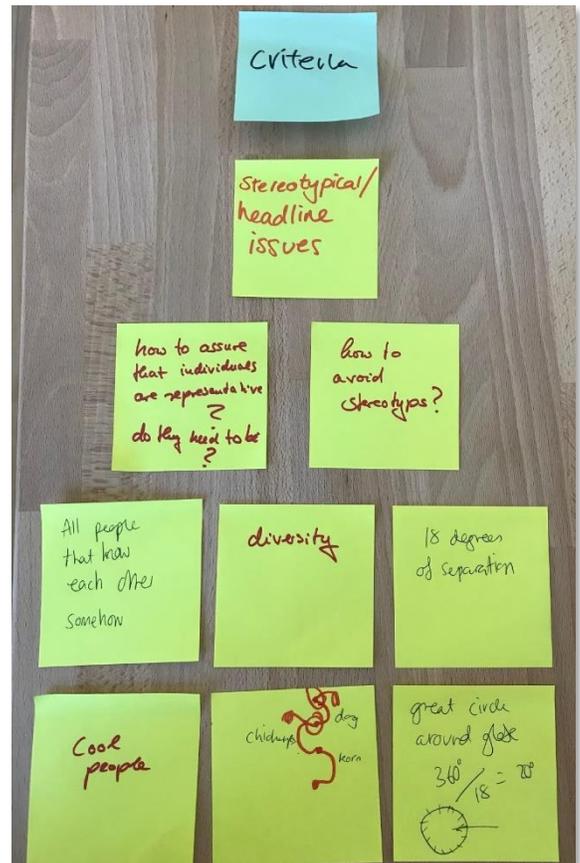
Methods

- Internet search for teenagers via social media posts
- Facebook
- 59 national associations of WFSJ
- Personal networks
- Local press
- Local doctors
- Journalism schools and youth newspapers
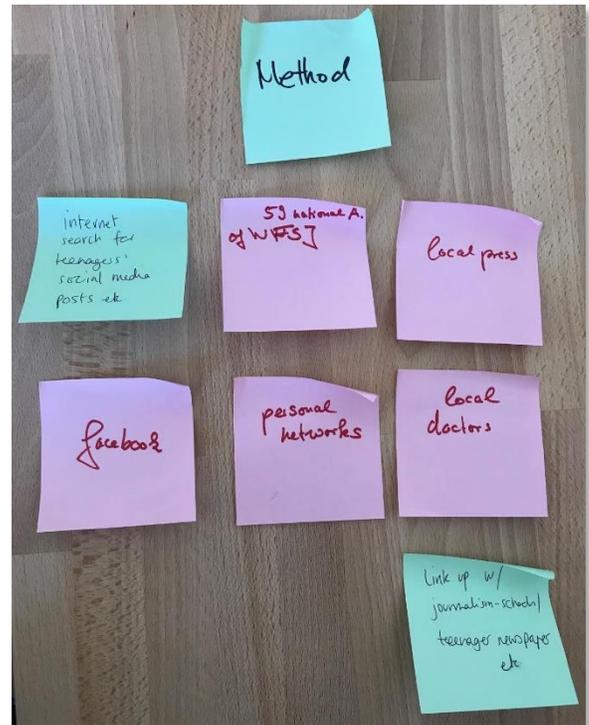
Story/Narratives

- Global map or flyover map
- Interlinked narrative
- Narrative with targets
- Time
- Narrative = one person to the other
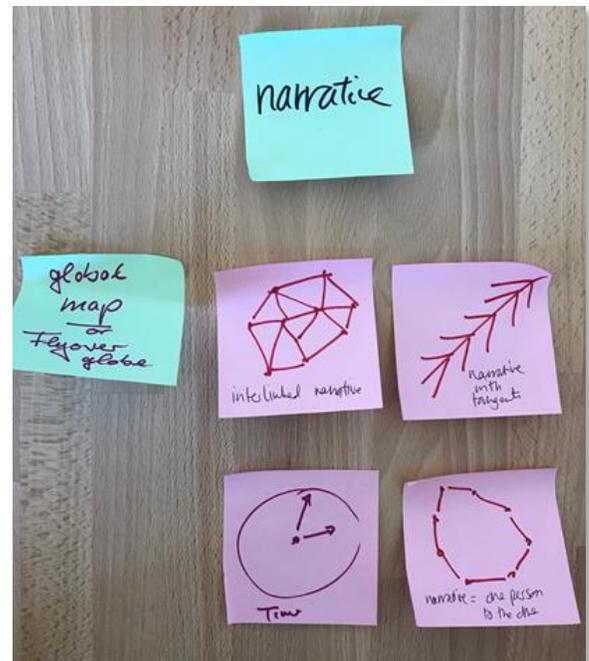
#2 Prototype

The group then developed a flowchart as a solution to the How Might We question. The following chart determines the process of identifying and selecting 18x18 years old who experienced epidemics.
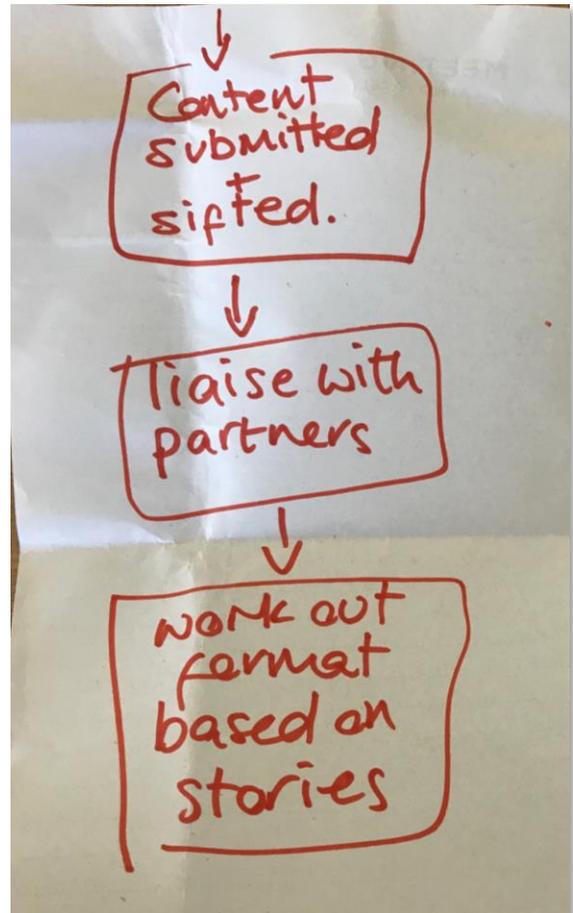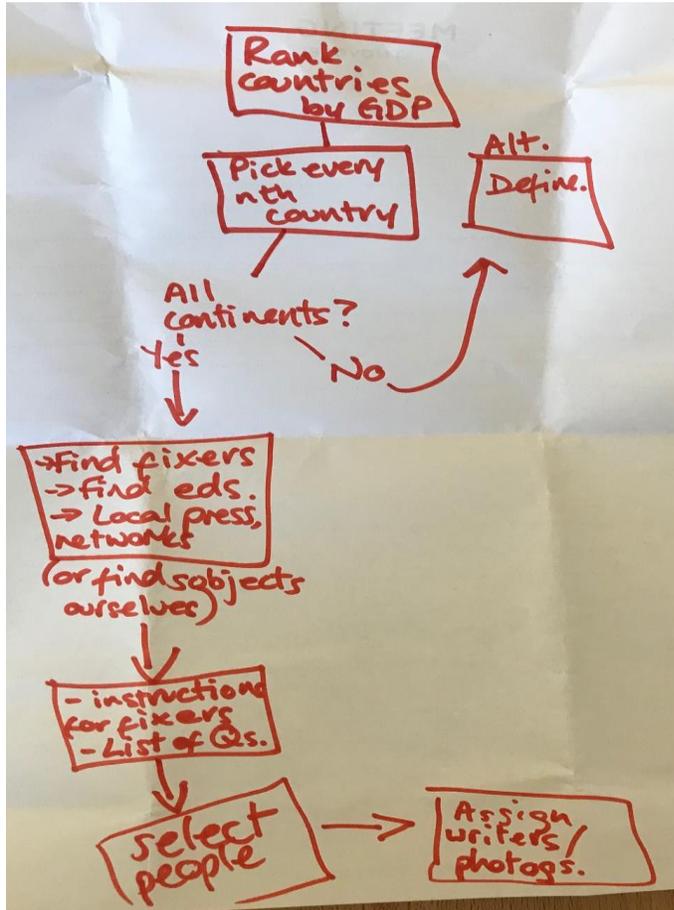
#3 Challenge

1. What is a neural network software behind all AI applications?
2. What does this software do?
3. How to show it on a website in an interactive way?
4. How to make my readers understand **what artificial intelligence is and what neural language means?** I want to build an **interactive tool** to make them to understand what happens with neural networks.

What is the challenge the user is experiencing?

- Explain what AI process takes
- Training data, basic and mathematical way
- Neural networks is software: self driving cars, music recognition, etc
- Visualization of a neural network: object, analyze by a software,
- Started with Cambridge Analytica story: Facebook gets lots of data from people, get patterns of data through its algorithms. And it's really important to understand the technology right now.
- How does it work or what is it?
- Experience is key point
- Big scandals about pic fakes
- The public is citizens, individuals
- different ends from books in diff pages

How might we…?

1. How might we show how AI works?
2. How do we guide the users through the AI process?
3. How might we make AI relevant to the people?
4. How might we show/draw the process of AI recognition?

How might we represent the consecutive steps in the AI recognition process, making it relevant and engaging to the people?

#3 Ideation for Solutions

- Find my digital twin: Who talks like me? Who looks like me? An image and accent database to be able to find a person similar to you.
- Interactive video with decisions steps
- Police profiling with my face, interaction process (with weight on decisions)
- Understand the AI process with daily life examples
- VR labeling with someone navigating it, with paths from different width
- Computer game to understand how it works going from 1 level up
- Make a quiz to test their understanding of AI and point to the right resources corresponding to their level
- Input changes - output changes
- Real life demonstration: a kind of flashmob, invite thousands of people to a dark place, and a real maze and or virtual reality and film them, then share

#3 Prototype
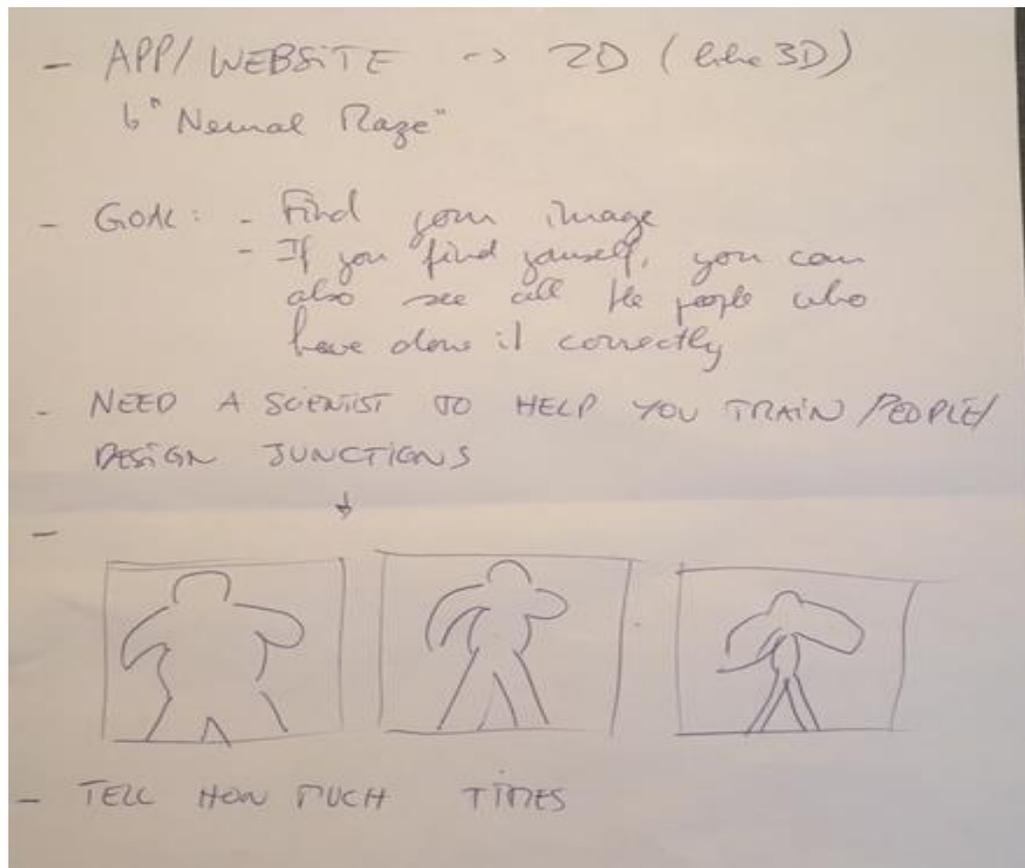
A website and related app called 'Virtual maze' (2D game)

1. You have to input your own picture at the beginning.
2. The goal is find your yourself in a labyrinth and see other people who found themselves.
3. At each junction a decision has to be made based on various possibilities and paths of different widths.
4. Sometimes a person has to go to the same juction many times, just adds the neural network weighs the information.
5. Implementation: collaborate with a team of science journalists, a data protection specialist, scientists, and data visualization designers
6. Provide clear instructions on the game.
7. As an incentive or Prize:
   - → Spend a day with the AI specialists that made the game at his place /university
   - → Not to announce any prize, and at the end just to give some statistical message about how many people solved it like you, etc...

#4 Challenge

The problem: How can science journalists increase science literacy of parents hesitating to vaccinate their children by engaging with them?

How might we …?
1. Allow statistics to speak?
2. Help doctors communicate better with patients and journalists?
3. Avoid polarization in communicating complexity?
4. Communicate side effects correctly and effectively?
5. Create transparency around industry ties who are feeding into the anti-vax narrative?
6. Demonstrate our independence as journalists? (lack of trust in institutions)
7. Extract a common statement from doctors?
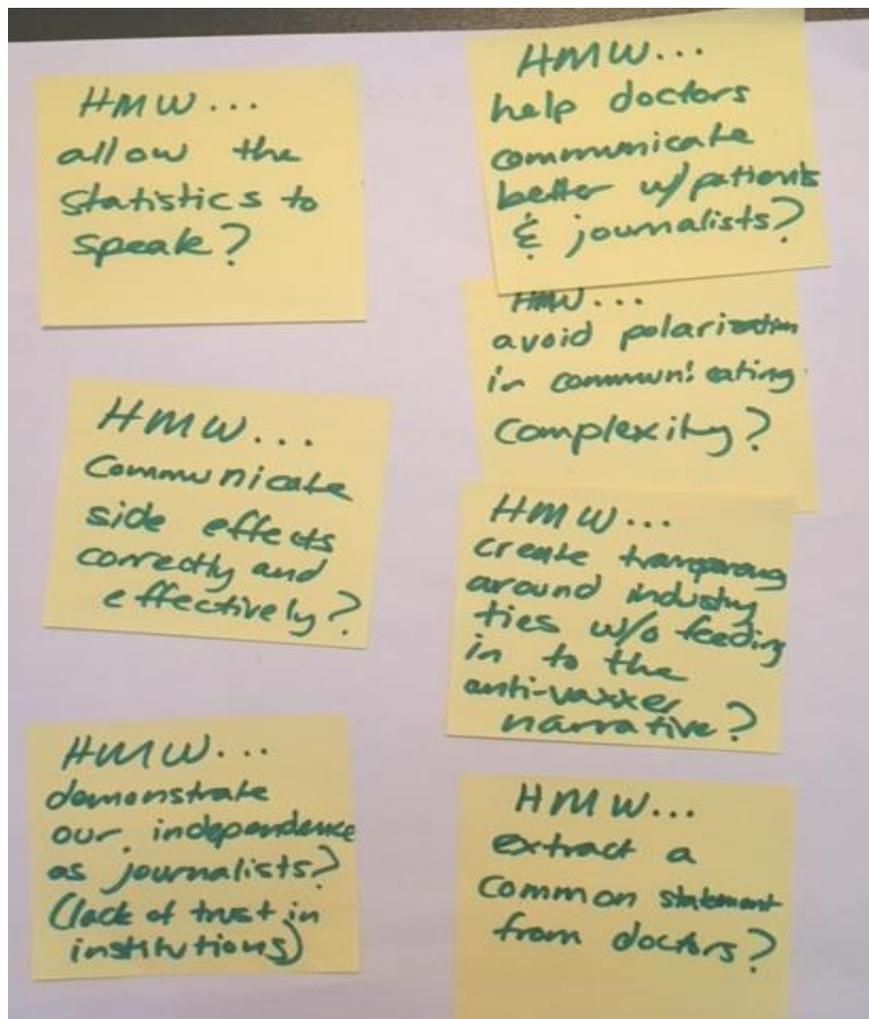
#4 Ideation for Solutions

Journalism: a series of in depth articles, truly engaging with the perspective of people with doubts, taking readers by the hand and critically reporting on all issues: development and regulation, reporting on side effects, (suggested) ties between industry, government and regulators, etc.

Entertainment : Comedy or talkshow

Include kids points of view; conduct live surveys getting data on perception's evolution.
Aired of Facebook live, youtube, public Tv, etc. **Include a web site.**

Other tools ideas: webinars, series of workshops, MOOC, radio show, dataviz training, show math without showing the math, interactive map where users can change parameters and see epidemiological events in differents angles and see large scale effects of disease spread. Role playing game user exploration style where the parent needs to make choices of vaccinating or not his child and evolves in the game.

#4 Prototype
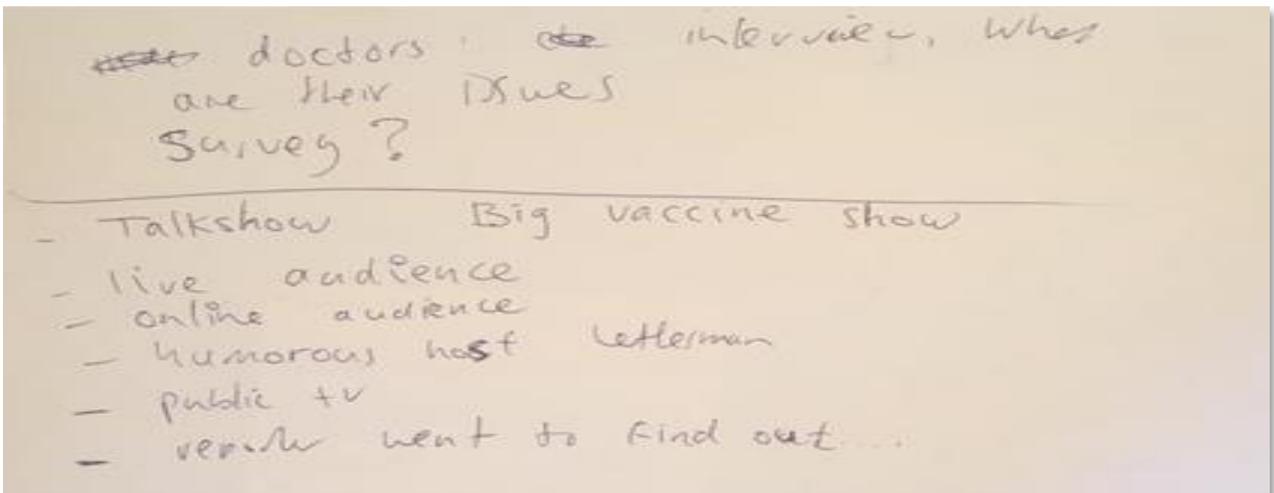
New project ideas

Mainly coming from pitch sessions

- Mapping and infographics on weather/climate change and spread of vectors of tropical diseases in Europe (policies in countries and ways to tackle this)- Vera
- Science quality marker - a visual indicator on quality of science papers (research quality indicators), objective: make people learn and reflect, tool for journalists who cover often the science of low quality. For now only on health science, manually fed, in Danish - potential to expand cross-country in multiple languages.
- Video masterclass on science journalism 'We stand for science journalism' - looking for funders
- Massively multiplayer pan-European team game - looking for collaborators to revive the game – Gabriele

Concluding remarks

This symposium was a first opportunity for European science journalists to reflect on digital formats that can make compelling stories for the public and on the advantages for collaborating in making these formats the new reality.

All agreed that there is still a considerable amount of work required in the field of fact-checking sources and to help better determine the accuracy and correctness of factual statements in articles, reports, publications, etc. The design thinking exercise allowed participants to think outside the box and to collectively reflect on concrete problems colleagues are facing.

The next European Kavli Symposium will be reflecting on specific science reporting challenges in Europe and how to tackle them.