Data Science: An Opportunity for the 3rd Sector

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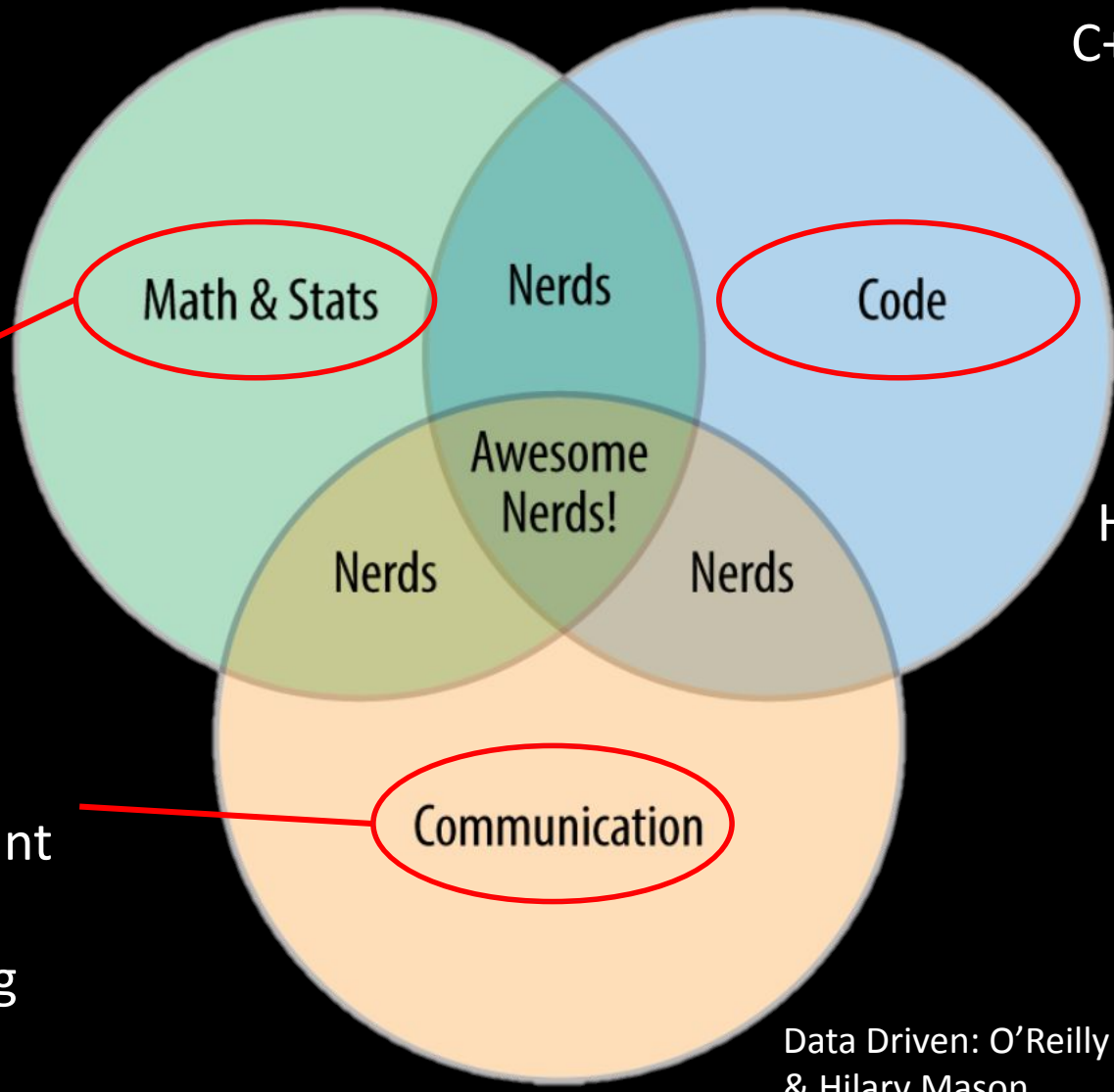
1. What is Data Science?
2. How can data science be used in the 3rd sector?
3. Examples
4. Brainstorm/Ideas/Questions

Data Scientist



Theoretical Physics
Computational Materials Science

Student magazines
Discovery Channel consultant
Scientific outreach events
PhD programme advertising material

C++: CERN data simulation
Density Functional Theory
HyPerCarlo, MC simulator.

Python: Data Analysis + Vis
ML scripts

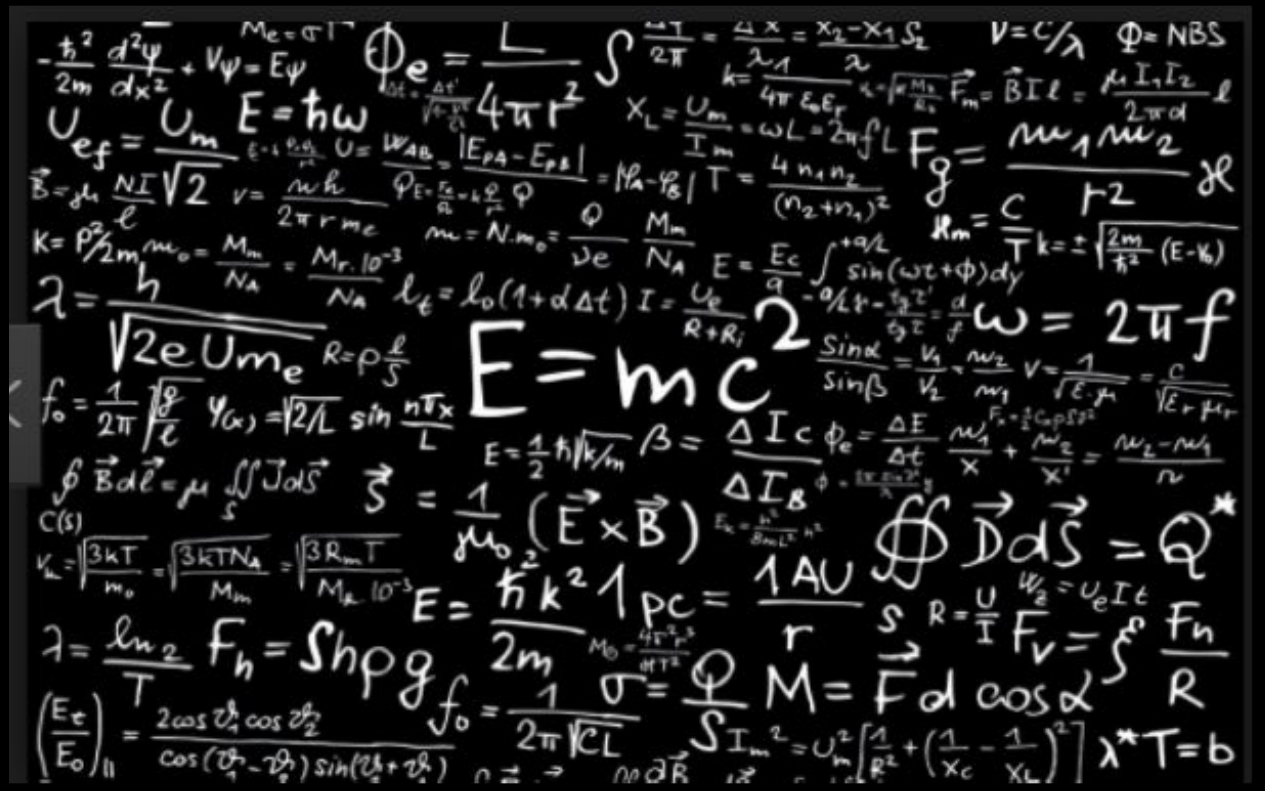
HPC: Lots of Bash
OpenMP / MPI
Cray Supercomputers.

Data Driven: O'Reilly Media, DJ Patil & Hilary Mason.

Data Science

The application of the scientific method to data:

Statistics
+
Programming
+
Artificial Intelligence /Machine Learning
+
Domain Knowledge
+
Communication/Visualisation
=
Data Science



3rd Sector: Challenges & Opportunities

1. Harder to access good tech talent.
2. A lot of qualitative insight (which is good!)
3. Possible lack of quantitative insight in some areas (possibly not in all areas?)
4. A lot of the datasets useful for 3rd sector causes are open, government provided etc.
5. With the right data people (me) talking to the right subject matter experts (you) we can create some amazing solutions very quickly!

DataKind

Gaining Visibility into Social Issues in the UK

June 2016

Objectives

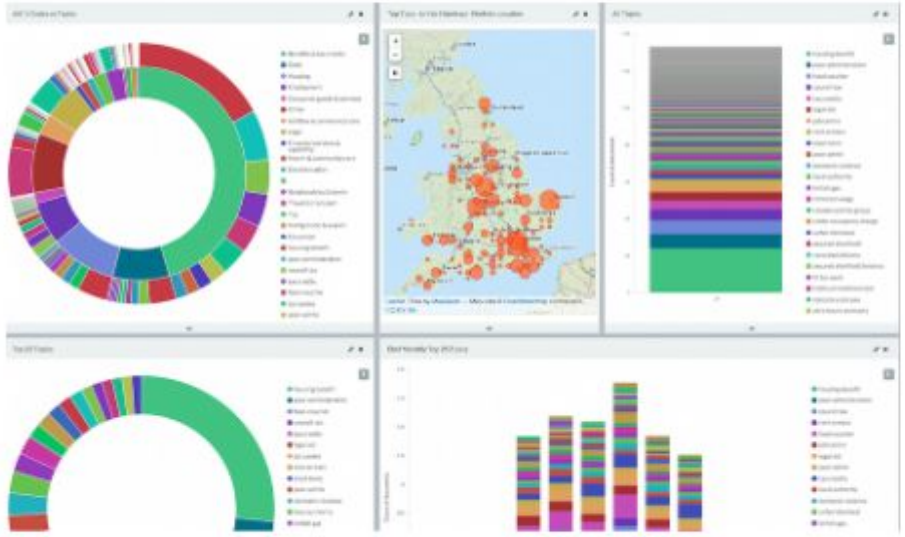
- Prototype a tool to harness Citizen Advice's data to better identify and react to emerging social issues in the UK
- Build awareness among Citizens Advice staff of new methods for mining and using data, and encourage them to open their data
- Share learnings with other charities on how to better manage and use data

- 3 different data sets integrated at front end through a visualisation and search engine dashboard.

- CAB say this 4 month project revolutionised their attitude to data.

What Happened?

After pulling together and linking all the data in Easticsearch (an open source search engine) th
ace team of Data Ambassadors developed a prototype of an interactive dashboard that would
enable the charity's staff to use its data for ongoing decision making - exploring hunches, testin
ideas and spotting new trends.



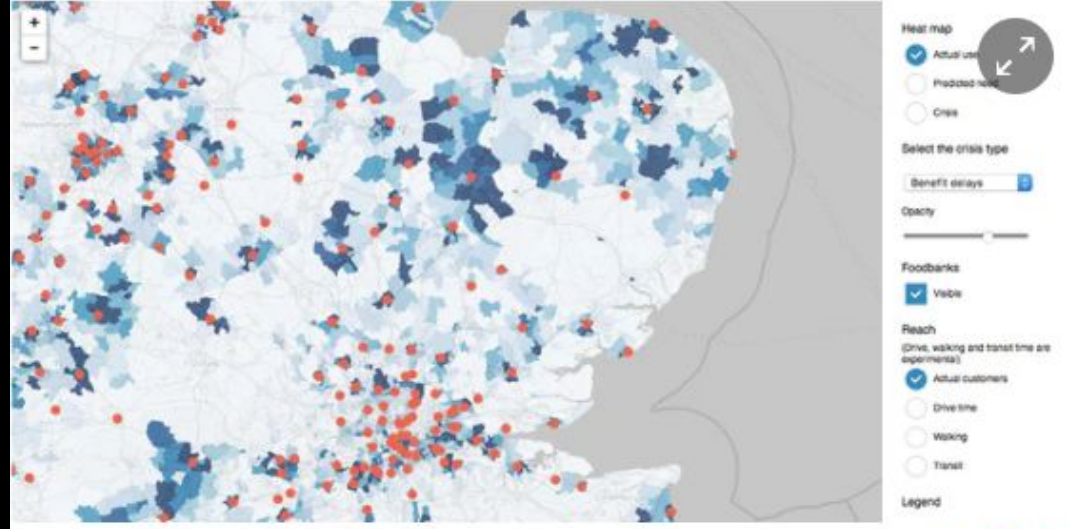
After four months' work, DataKind UK volunteers completed the dashboard prototype, bringin
together all three of their data sets in a searchable interface for the first time. One of the most
valuable aspects was the section analyzing the free text data in the staff reporting records. Usin

- Another dashboard, Trussel Trust could see where food banks are needed.

How data science is helping charities to fight hunger in the UK

Data technology is allowing the Trussell Trust to map current demand, highlight places with unmet need and predict future patterns

The use of food banks continues to rise in the UK. New measures are being used to help fight poverty. Photograph: Richard Stonehouse/Getty Images



Trussell Trust graphic, mapping the use of food banks in south-east England.

This aligned well with the trust's More Than Food initiative, which looks beyond providing emergency food and towards tackling the underlying causes of hunger and poverty. To do that, they need to know more about the people who come to them for help.

The trust's core data includes food bank locations and individual client data, such as their names, addresses, ages and underlying causes of crisis – benefit delays, school holidays, homelessness, etc.

With data science firm Coppelia recruited to the project, and having taken advice directly from the Information Commissioner's Office on appropriate data security, our initial analysis highlighted some noticeable regional variations and delivery patterns year on year.

- Analysed seasonal patterns and took pre-emptive action.

3.4. Social action on social media

Carl Miller, Centre for Analysis of Social Media, Demos

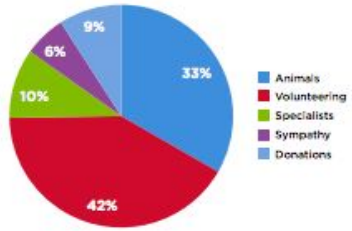
ocial media platforms are often seen to be nasty, even dangerous places. Misogynistic and acist language, cyber-bullying and hateful abuse all appear on social media platforms in large uantities. Extremist groups from across the political spectrum, even terrorists, have found a oice on these digital platforms, and use them to spread their message and find new recruits.

owever, these new digital platforms are also used to help others. These are vibrant new laces which people use to volunteer, organise, share skills, mentor, fundraise and donate, articipate in local civic projects and work as activists to change laws and minds. Taken ogether, this is digital social action – a new class of social good and community resource.

emos set out to understand the emerging contours of social action on one of the most nportant social media platforms: Twitter. We wanted to learn how it happened and who onducted it. We wanted to understand the contexts that inspired or provoked social action nd the problems it was directed towards. We were especially interested in social action that sually sails 'below the radar'; conducted outside of the formal structures of charities or social nterprises, that runs on little or no money and – because of this – is often missed. Ultimately, e were interested in how this emerging class of social action could be supported and ncouraged.

Ve looked at Twitter's reaction to two events. The first was the Somerset Floods during anuary and February 2014. Following the wettest weather on record, the UK suffered idespread flooding. Thousands of homes and offices were flooded, causing hundreds f millions of pounds of damage. The second was the launch of the Step Up To Serve ampaign,[26] launched on 21 November 2013. Supported by Prince Charles and the leaders f all three main political parties, it aimed to increase the number of young people routinely onducting social action in their local communities.

- Highlighted the profile of volunteering after a major event (flooding).

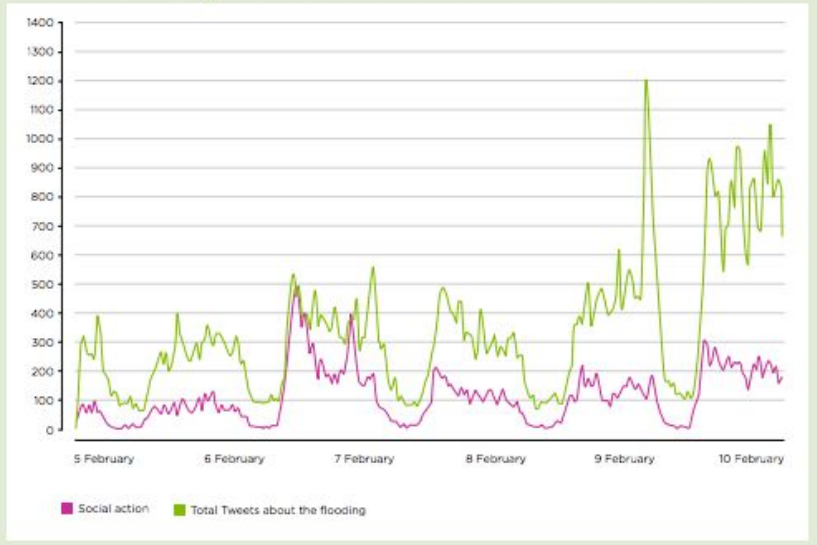


Of those that could be geographically located, a very broad pattern emerged. Tweets eflecting offline social action – of volunteering, donations and offers of help, tended to ome from areas affected by the flooding. Tweets reflecting online social action – of sharing nformation and advice – tended to come from areas – especially London and central England – that were not affected by the flooding, but were densely populated. Most of both kinds were below the radar. These were not Tweets sent by large, organised charities. These were ndividuals taking to Twitter, largely outside of any organisational context, trying to help, or ind help, however they could.

Figure 20. **Tweets related to social action. Orange = 'online social action'. Blue = 'offline social action'. Shaded = area affected by the floods. Size of colour = quantity of Tweets.**

Overall, these Tweets represented a form of digital community resilience. In the aftermath of a largely unanticipated disaster, communities across the UK reacted spontaneously to try to help one another. This research suggests that there is now an important digital dimension to this reaction. During the floods, Twitter became an important forum for important information, real-time updates from the ground, and a key exchange to make offers for help and to appeal for it.

Figure 18. **Number of social action Tweets versus total number of Tweets relevant to the flooding, over time**



- Analysis of twitter's reactions to events to understand social action.

- Suggested an "ebay for social action".

IDEAS!

Links:

https://www.theguardian.com/voluntary-sector-network/2016/may/09/data-science-helping-charities-fight-hunger

http://www.datakind.org/projects/gaining-visibility-into-social-issues-in-the-uk

http://www.nesta.org.uk/publications/data-good