



Building
City
Dashboards

Open Data Mapping & Engineering Fictions

OLIVER DAWKINS & JESSICA FOLEY



Building City Dashboards Project

- Urban and regional data visualisation
- Interactive Maps
- Virtual and augmented reality
- Spatial modelling and analytics
- Data quality and standards
- Training and outreach

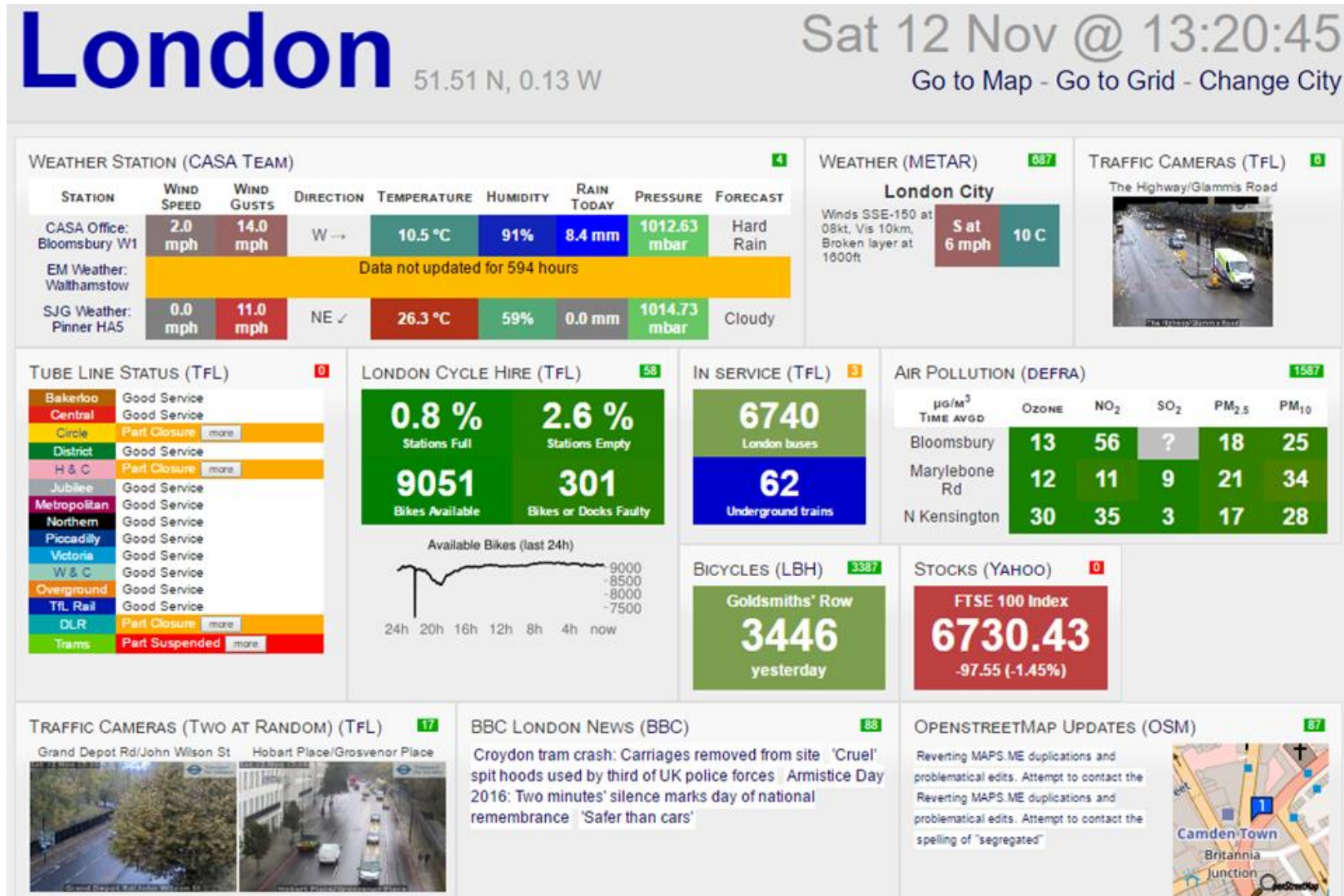
What is a city dashboard?

Just as a car dashboard provides critical information needed to operate the vehicle at a glance, indicator dashboards provide key information for running companies or cities. Information is typically communicated through gauges, traffic light colours, meters, arrows, bar charts, graphs, etc.'

Kitchin, R. et al.(2015, p11).



CASA London City Dashboard





Why do cities and regions need dashboards?

- Scale of the city increasing in terms of human population, economic output and physical size (Batty, 2009)
- New methods required to understand and manage cities
- Data produced by and about urban environments offer insights into what is happening in cities and city regions
 - Data from **sensors** e.g. noise, air quality, climate & traffic
 - Data generated by **government** and city departments e.g. housing & health
 - Data generated by **citizens**, e.g. crowd-sourced data/maps

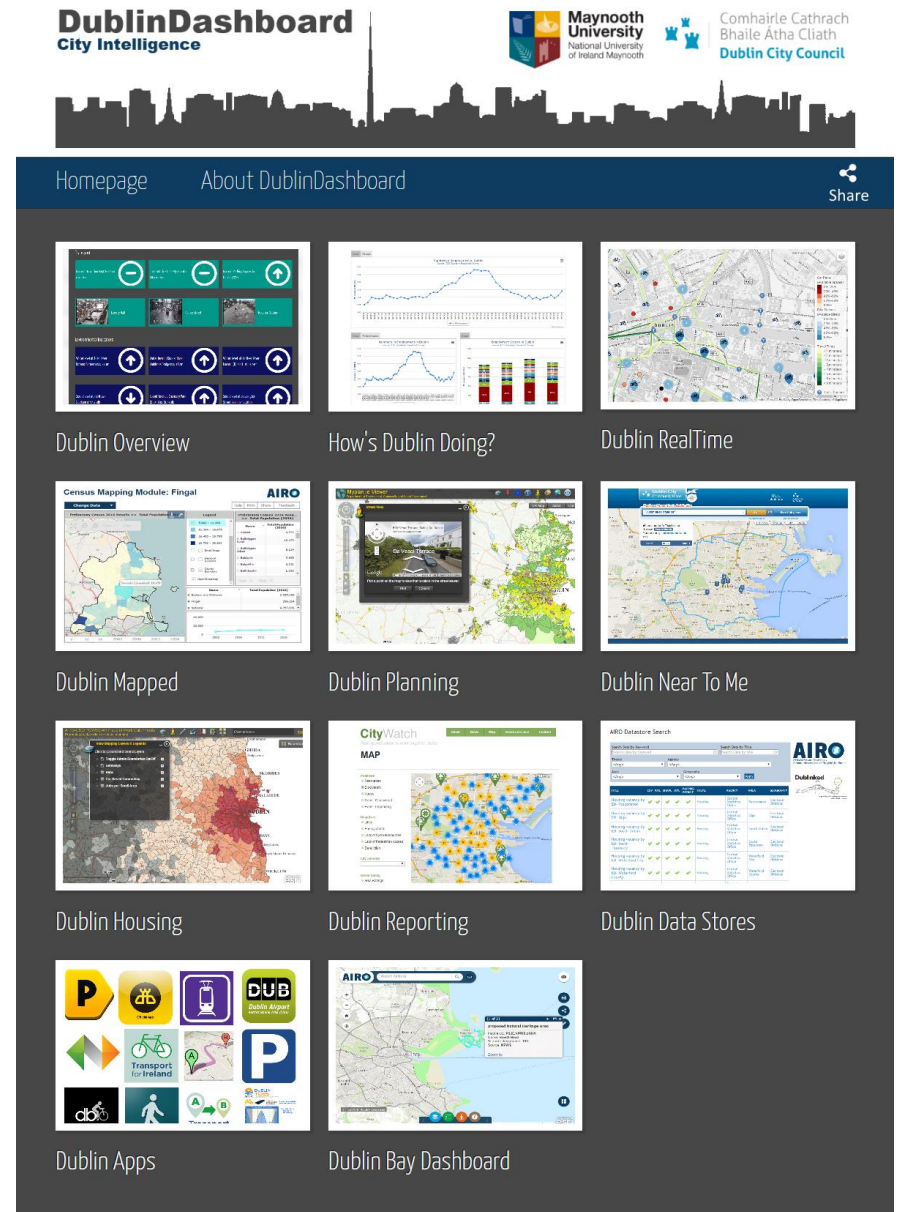


Dublin City Dashboard

Launched in 2014

Key focus

- Enable local authorities to interact with urban data and better understand urban processes
- Provide a tool for citizen engagement



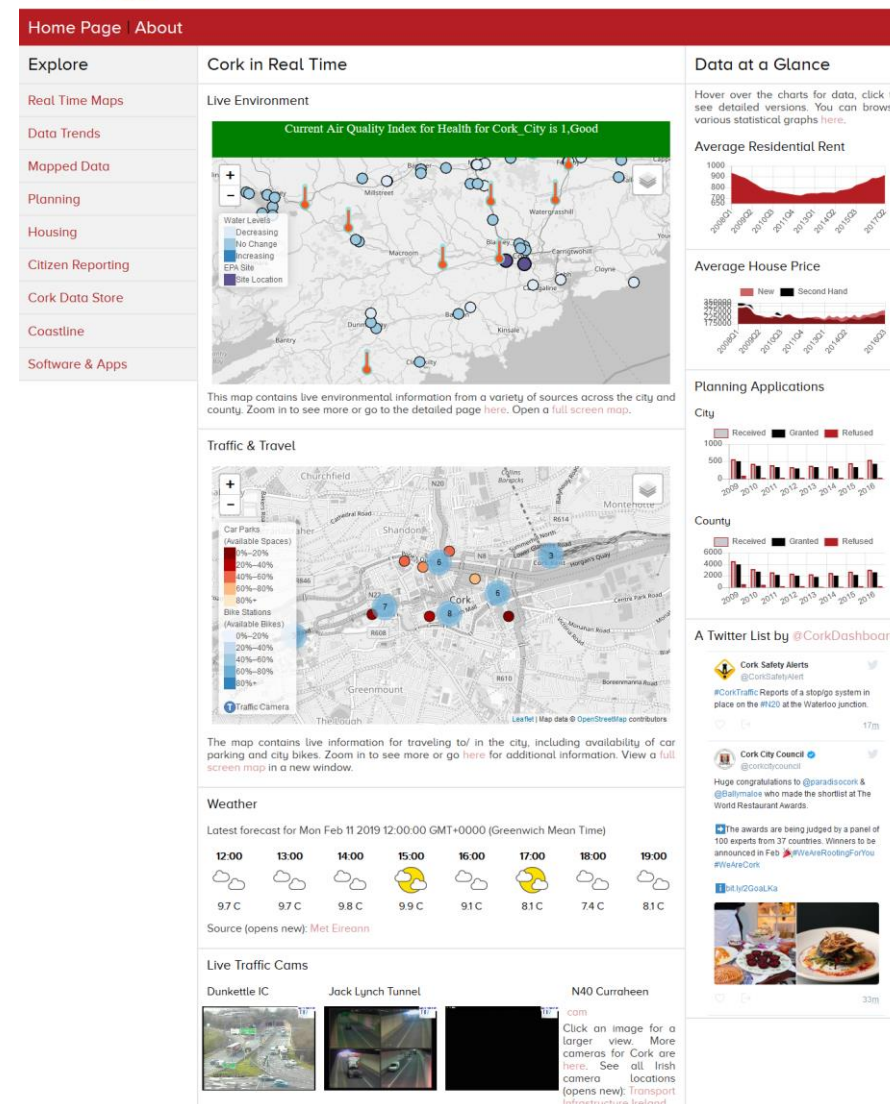


Cork City Dashboard

Launched in 2017

Key focus

- Improved design
- Better site structure and navigation
- Usability





Dashboarding is more than a purely technical exercise

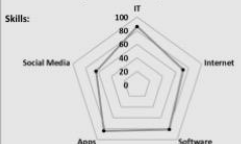
User archetypes are developed from actual interviews

Supports user-centred design throughout project lifecycle



Josh Davis "A Curious Mind"

Age: 25 - 34
Occupation: Irish Water Surveyor
Education: Ordinary Degree
Expertise: Environmental Science
Family Status: Single with no children
Location: Blessington
Challenges: Colour-blind
Interests: Nature & photography
Locations: Home & mobile
Operating System: Android & iOS
Platform Types: Phone & Tablet
User-Group Type: Novice
Dashboard Experience: Casual
Domain Knowledge: Simple



Experience &
Josh is curious, so he has visited or twice before. He originally fox through Google after seeing a tv somewhat familiar with looking having used it for his undergrad

- Referrer: Search engine
- Introduction touchpoint: Tv

Interacting wi
Josh explores the site to see who tell him about his city. The storie interesting to him, because they like to browse the environment help him make plans for photog Dublin.

Typical Tasks f
Josh usually lands on the home i likes to browse the environment help him make plans for photog Dublin.

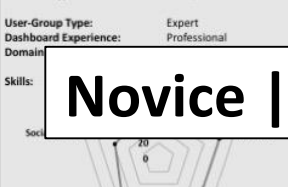
Josh is also interested in transpo has to drive to multiple sites ac throughout the week for work.

Josh's Story:
Josh has had casual experien city dashboard domain. He d the potential meaning of city actionable urban activities an However, Josh is a curious se capacity to grasp the use of may experience in the initial u allayed in the presentation of upon extended periods of is Furthermore, the stories that his current knowledge of data



Chris Martin "The Prof"

Age: 45 - 54
Occupation: Consultant
Education: BScSc (Social Sciences)
Expertise: City Management
Family Status: Married / 2 Children
Location: Dun Laoghaire
Challenges: Long-sighted / Impatient
Interests: Digital Technology
Locations: Office / Hotel
Operating System: macOS
Platform Types: iMac / MacBook
User-Group Type: Expert
Dashboard Experience: Professional



Experience &
Chris uses city dashboards to ma informed and therefore focusses usability of the data he is present new projects and plans come up wants access to diverse city-spec he can manipulate them in differ

- Referrer: Personal Network
- Introduction touchpoint: Ind

Interacting wi
Chris accesses multiple dashboar sometimes when travelling abroa able to view and compare differe as being able to explore new dat made available, often on a globa

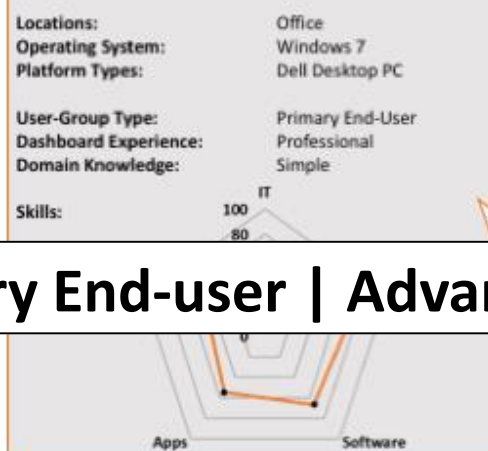
Typical Tasks f
Chris typically needs to commu upon high impact projects based He is familiar with multiple data multiple data comparison tools. I cities in his country with other E which isn't really facilitated else be able to create and customise and convey his findings to an oft

Chris' Story:
possess a rapid response tim expects to be able to acquire i carrying out tasks that are pe can be executed and access specific data resources and to professional presentations and



Jane Quinn "Science Nerd"

Age: 34 - 44
Occupation: Technical
Education: Master's Degree
Expertise: Sociology
Family Status: Living with Partner & Baby
Location: Greenhills
Challenges: Mildly Dyslexic
Interests: Music & Arts
Locations: Office
Operating System: Windows 7
Platform Types: Dell Desktop PC
User-Group Type: Primary End-User
Dashboard Experience: Professional
Domain Knowledge: Simple
Skills: IT 100, Internet 80



Experience & skills:

Jane uses the dashboard regularly at the local county council (CC) where she works. She is familiar with data stories and thematic data content. She regularly explores new data use-cases, routinely following links to data sources to check their veracity, and makes use of visualisations in her monthly reports.

- Referrer: Internal training
- Introduction touchpoint: Data Coordinator

Interacting with Jane:

Jane visits the site with specific tasks and goals in mind. She learned about the site from a training session that she attended through work. Jane knows that if she has to undertake a new line of enquiry, she can use the "Tasks" page to learn new skills.

Typical Tasks for Jane:

Jane has the site saved in her "Work" bookmarks folder in Chrome. She often keeps a tab open for reference throughout the day.

Jane's job requires her to write monthly reports about housing completion rates in the local CC area. She also needs to compare her CC to other local authorities with similar population sizes.

Jane's Story: "Crisp and clean designs with up to date data."

Jane has professional experience with city dashboards, but has a simpler understanding of the city dashboard domain as a whole. Jane is familiar with most city-specific systems and has used some of the in-depth data on a regular basis. Jane has regular tasks to gives her explicit expectations of a system and a comprehensive. These motivations give her an advantage over new users, but structures and navigating to data-sets on unfamiliar or overly complex pages. Jane overcomes these issues by systematically following menu patterns and page structures. She appreciates consistent and professional terminology use and an effective web-design and data visualisation methodology. These support her in creating patterns-of-use that are easy to remember and implement in both the regular and occasionally explorative tasks she has to perform. Jane uses the online training and help-pages, but only if they are quickly accessed, well-organised, and easy-to-use.

Jane's Situation:

Her Goals / Motivations

- Appreciates effective data visualisations.
- Regularly writes reports.
- Enjoys exploring new data.
- Evaluates her skill-set through task completion.

Frustrations and Pain Points

- Not being able to verify data sources.
- Not being able to find and use data sources quickly - "Where was that...?".
- Having to visit other websites and use unfamiliar tools without training.

Questions

- Is the CC on track for projected housing completion?
- Is the CC going to achieve this month's target?
- What other areas will effect this; homelessness, temporary accommodation, budgets, etc.?
- What data is available from other authorities?
- Are there any new planning proposals or infrastructure issues?

Reasons for Jane to return:

- Consuming and communicating data.
- Building new knowledges.
- Reading and writing about her city.

Novice | Primary End-user | Advanced

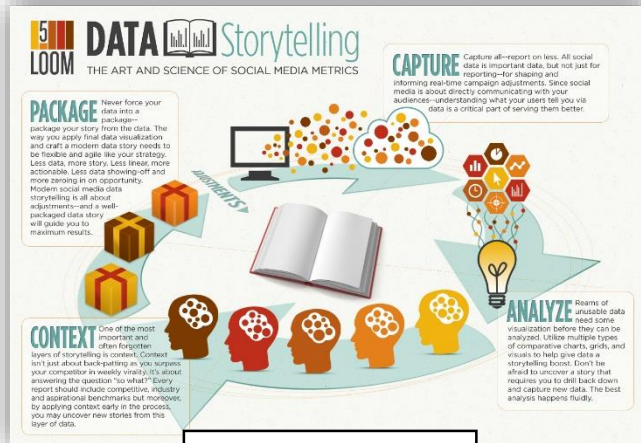


Visualizations

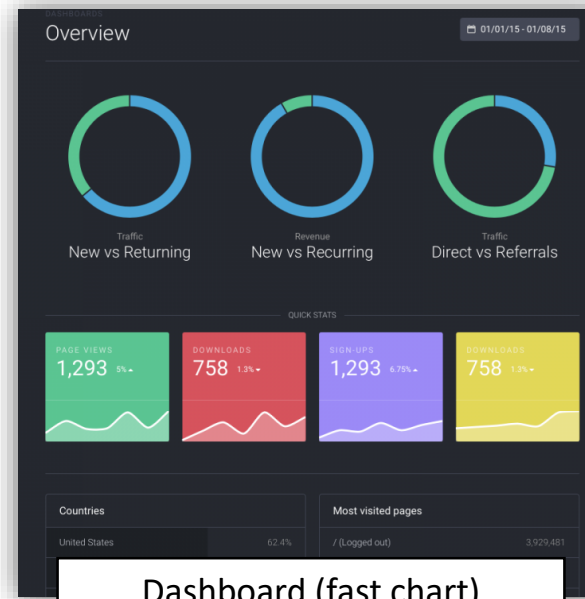
*Explanative
(communication of insights)*

Increasing Visualization Complexity

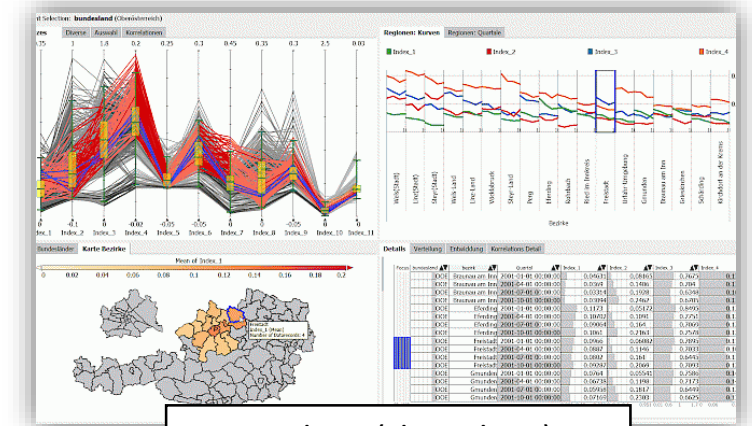
*Explorative
(discovery of patterns)*



Data stories



Dashboard (fast chart)



Analytic (slow chart)

Novice | Casual

End-user | Professional

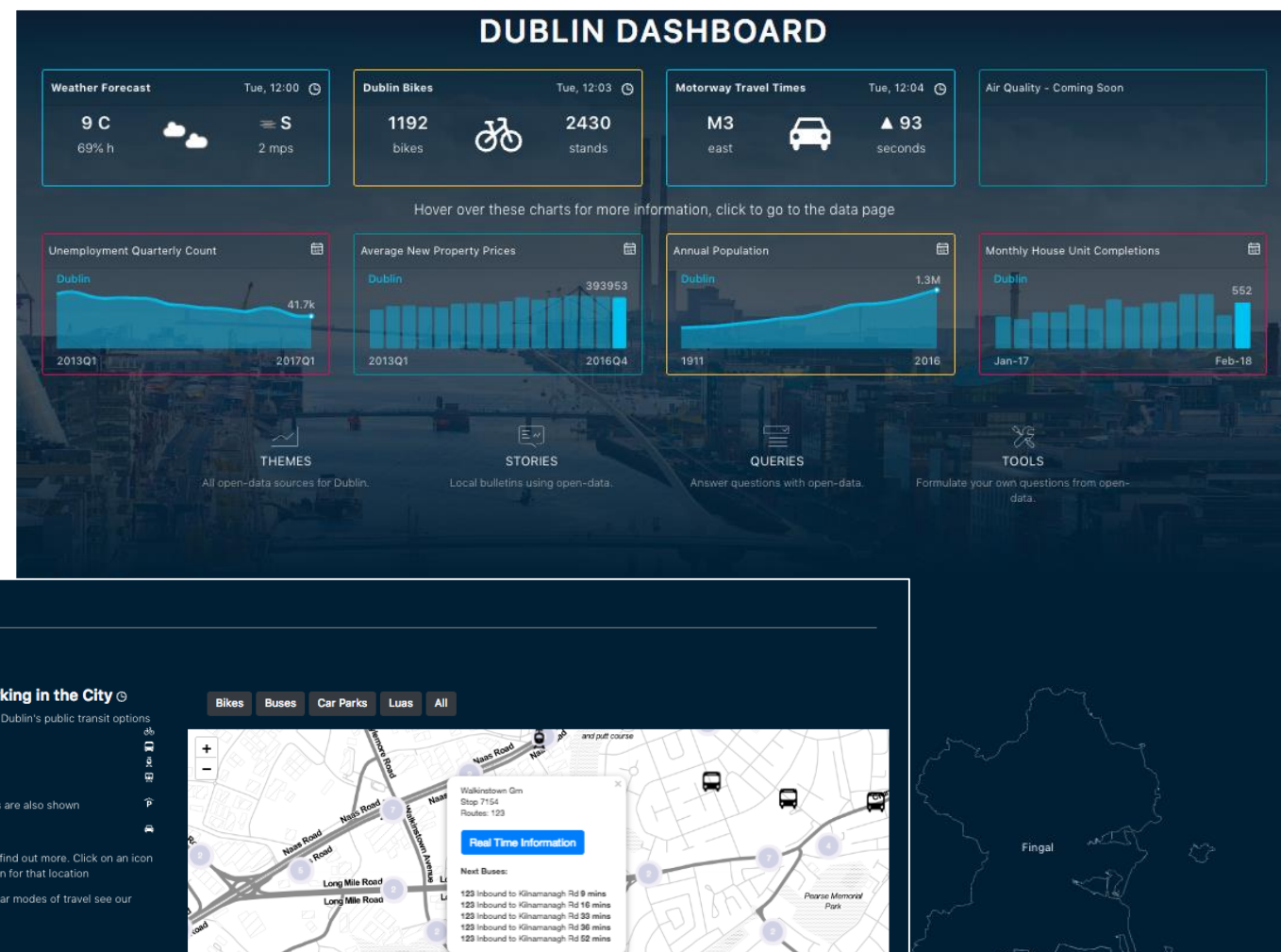
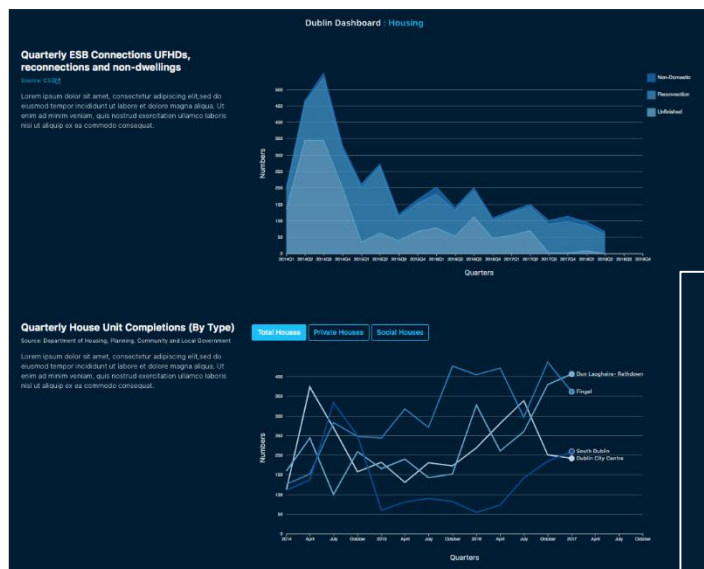
Advanced | Professional

Increasing Contextual Information



New Dashboard Designs

Informed by user research!



Stories | Themes | Queries | Tools



Big Data and Datafication

Big data is also characterized by the ability to render into data many aspects of the world that have never been quantified before; call it "datafication." For example, location has been datafied, first with the invention of longitude and latitude, and more recently with GPS satellite systems. Words are treated as data when computers mine centuries' worth of books. Even friendships and "likes" are datafied, via Facebook.

Cukier and Mayer-Schoenberger (2013, p.28)

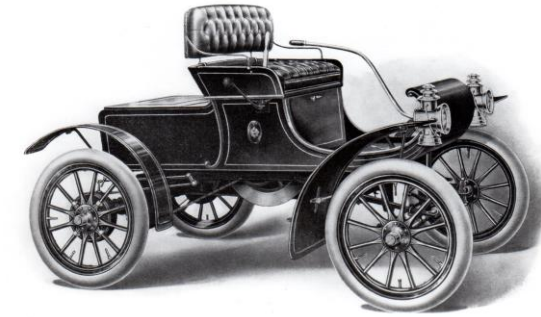
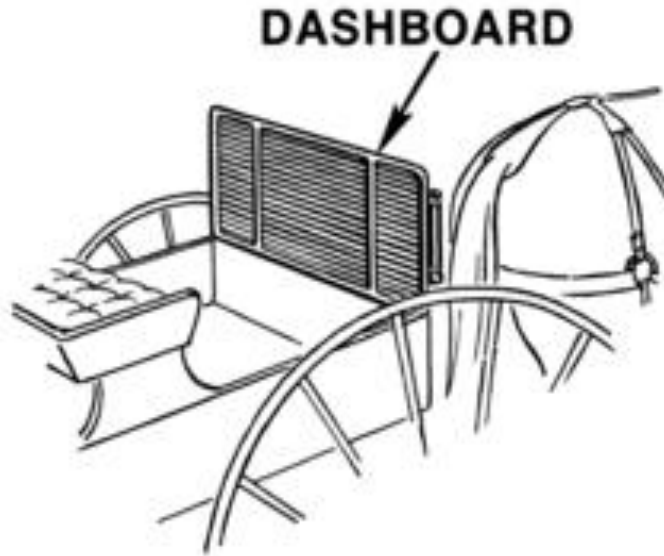


Data Literacy – Supporting the use of city dashboards as a shared social resource

How can we help **build capacity** within local governments and the communities they serve in order to help them make more effective **shared use** of city dashboards and data-driven approaches to urban governance?



Image: Grand Canal by Giuseppe Milo – Creative Commons Attribution 2.0 Generic (CC BY 2.0)



OLDSMOBILE CURVED DASH RUNABOUT
BUILT FROM 1900 THROUGH 1904

SPECIFICATIONS

CAPACITY -- Two passengers.
WHEEL BASE -- 66 inches.
TREAD -- 55 inches.
FRAME -- Angle steel.
SPRINGS -- Oldsmobile side springs.
WHEELS -- 28-inch wood artillery.
TIRES -- 3-inch detachable.
MOTOR -- 5 x 6-inch 7 H. P. horizontal.
TRANSMISSION -- All-spur gear, two speeds forward and reverse.
FINISH -- Black with red trimming.

EQUIPMENT -- Complete set of tools and pair of large brass side lamps.
RADIATOR -- Copper disk.
CARBURETOR -- Oldsmobile.
IGNITION -- Jump spark.
STEERING GEAR -- Tiller.
DIFFERENTIAL -- Bevel-gear type.
BRAKES -- Differential and rear wheel.
WATER CAPACITY -- Five gallons.
CIRCULATION -- Gear pump.
GASOLINE CAPACITY -- Five gallons.

Skeuomorph

From Wikipedia, the free encyclopedia

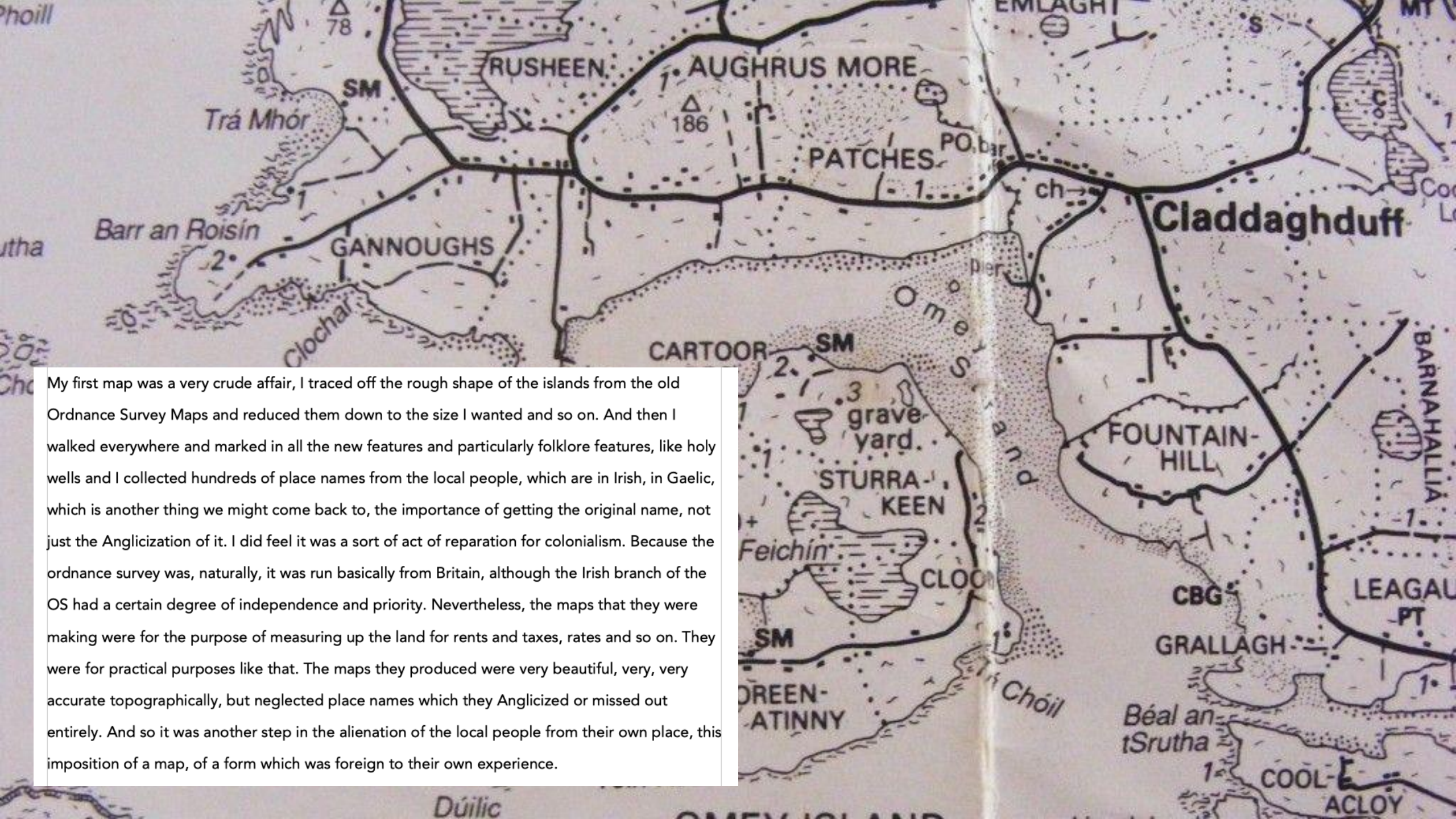
A **skeuomorph** (/ˈskjuːəˌmɔːrf, ˈskjuːoʊ-/)^[1]^[2] is a derivative object that retains ornamental **design** cues (attributes) from structures that are inherent to the original.^[3] Examples include **pottery** embellished with imitation **rivets** reminiscent of similar pots made of metal^[4] and a software calendar that imitates the **appearance** of binding on a paper desk calendar.^[5]



etymological roots of the terms *data* and *capta* make the distinction between constructivist and realist approaches clear. *Capta* is “taken” actively while *data* is assumed to be a “given” able to be recorded and observed. From this distinction, a world of differences arises. Humanistic inquiry acknowledges the situated, partial, and constitutive character of knowledge production, the recognition that knowledge is constructed, *taken*, not simply given as a natural representation of pre-existing fact.

My distinction between data and capta is not a covert suggestion that the humanities and sciences are locked into intellectual opposition, or that only the humanists have the insight that intellectual disciplines create the objects of their inquiry. Any self-conscious historian of science or clinical researcher in the natural or social sciences insists the same is true for their work. Statisticians are extremely savvy about their artifices. Social scientists may divide between realist and constructivist foundations for their research, but none are naïve when it comes to the rhetorical character of statistics. The history of knowledge is the history of forms of expression of knowledge, and those forms change. What can be said, expressed, represented in any era is distinct from that of any other, with all the attendant caveats and reservations that attend to the study of the sequence of human intellectual events, keeping us from any assertion of progress while noting the facts of change and transformation. The historical, critical study of science is as full of discussions of this material as the humanities.

My first map was a very crude affair, I traced off the rough shape of the islands from the old Ordnance Survey Maps and reduced them down to the size I wanted and so on. And then I walked everywhere and marked in all the new features and particularly folklore features, like holy wells and I collected hundreds of place names from the local people, which are in Irish, in Gaelic, which is another thing we might come back to, the importance of getting the original name, not just the Anglicization of it. I did feel it was a sort of act of reparation for colonialism. Because the Ordnance Survey was, naturally, it was run basically from Britain, although the Irish branch of the OS had a certain degree of independence and priority. Nevertheless, the maps that they were making were for the purpose of measuring up the land for rents and taxes, rates and so on. They were for practical purposes like that. The maps they produced were very beautiful, very, very accurate topographically, but neglected place names which they Anglicized or missed out entirely. And so it was another step in the alienation of the local people from their own place, this imposition of a map, of a form which was foreign to their own experience.





Data – American Marketing Association
amaalaska.org



We Love Data by Quantcast | Dribbble
dribbble.com



CMOs Must Love Data - Infinitive
infinitive.com



I love data science
slideshare.net



Love Your Data
smartimpact.co.uk



Love Data Week: The value of data
kalendarium.uu.se



SetWidth700-I-LOVE-DATA-ADMA-Blog
buildingengines.com



Nexxa Group Inc. – About Us
nexxagroup.com



Data Week with Emory Libraries
web.library.emory.edu



16 Reads that will make you love data
connection.sagepub.com



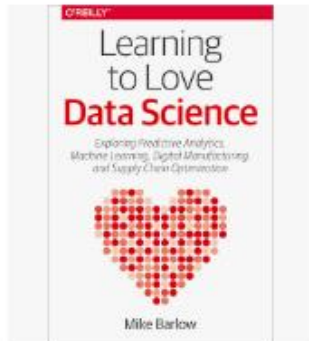
Why the Best Recruiters Have Learned to Love Data
sourcecon.com



Keep Calm-o-Matic
keepcalm-o-matic.co.uk



PacificEast | Keep Calm and Love Data
pacificeast.com



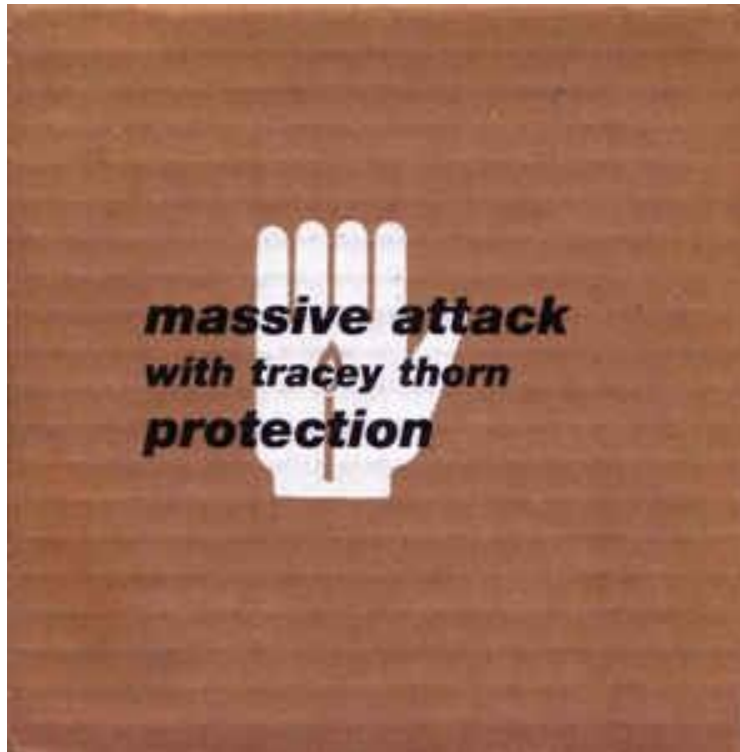
Learning to Love Data Science
shop.oreilly.com



DataFlash: Love Data Week
news.nnlm.gov



Love Your Data Week 2017
blogs.cranfield.ac.uk



What is a Sonnet Poem?

A Sonnet is a poem of an expressive thought or idea made up of 14 lines, each being 10 **syllables** long. Its rhymes are arranged according to one of the schemes – Italian, where eight lines called an octave consisting of two quatrains which normally open the poem as the question are followed by six lines called a sestet that are the answer, or the more common English which is three quatrains followed by a **rhyming couplet**.

The Structure of a Sonnet Poem

- ab ab, cdcd, efef, gg - English
- abba abba cdecde - Italian

How Do I Love Thee? (Sonnet 43)

Elizabeth Barrett Browning, 1806 - 1861

How do I love thee? Let me count the ways.
I love thee to the depth and breadth and height
My soul can reach, when feeling out of sight
For the ends of being and ideal grace.
I love thee to the level of every day's
Most quiet need, by sun and candle-light.
I love thee freely, as men strive for right.
I love thee purely, as they turn from praise.
I love thee with the passion put to use
In my old griefs, and with my childhood's faith.
I love thee with a love I seemed to lose
With my lost saints. I love thee with the breath,
Smiles, tears, of all my life; and, if God choose,
I shall but love thee better after death.



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