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Abstract: A detailed report containing the classification and the description of the collected budget & spending visualisations

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Executive Summary

This document presents the research undertaken in order to collect and categorize different types of possible visualisations experimented to represent budget data in different contexts and projects.

This deliverable is part of the Work Package 3 whose main objective is to provide a human friendly interface of spending and budget data.

The outcome of this specific deliverable would be to analyse and reuse the best practices of some given data visualisations from the collection be used in the future software. This deliverable will also be further enriched through visualisation hackathons that will be held every couple of months.

Section A contains a selection of data visualisations about public finances from journalists and media organisations, civil society organisations and advocacy groups, public institutions and companies. These 76 examples were chosen from a bigger corpus of 233 fiscal data visualisation projects derived from a combination of mapping research, triangulating existing sources and lists and soliciting for additional cases from expert communities.

Section B describes in more details the methodology behind the process of organizing hackathons and collecting visualisations out of a hackathon, directly from engaged citizens.

Section C provides a proposal to create a website in order to promote all hackathons intended to take place under the project and in Appendix I, a report of the Hackathon organized by OpenKnowledge Greece in Thessaloniki on the 17th and 18th of June 2015.

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1 Section A: Visualisations Collection

1.1 Data Visualisations on Public Finance, Examples from Journalism, Advocacy and Institutions

1.1.1 Consultancy

Open Knowledge compiled though the help of the community a collection of references looking at how different kinds of visualisations and visual elements are used to narrate public finances - whether by journalists, civil society organisations or public sector bodies.

The list can be founded at https://discuss.okfn.org/t/good-examples-of-fiscal-data-visualisation/426.

1.1.2 Introduction

This report contains a selection of data visualisations about public finances from journalists and media organisations, civil society organisations and advocacy groups, public institutions and companies. We have selected 76 examples to illustrate 10 different functions, namely:

1. Showing breakdown of totals
2. Contextualising big numbers
3. Showing geographical distribution of funds
4. Showing trends over time
5. Showing breakdown of funds by sector or recipient
6. Showing networks of financial flows
7. Following financial flows
8. Comparing budgeting, commitment and execution
9. Comparison of revenues, expenditures and debts
10. Public finances per person

These 76 examples were chosen from a bigger corpus of **233 fiscal data visualisation projects** derived from a combination of mapping research, triangulating existing sources and lists and soliciting for additional cases from expert communities.[1]

1.1.3 Building the Collection

In order to build the collection we started with a collection of projects derived from another study we conducted in order to map “open budget data” on digital media.[2] In this study we could that over 65% of the 120 fiscal data projects we examined used visualisations to present information about public finances.[3] We also incorporated examples from other lists, including relevant items from a database of 466 projects from The Guardian and the New York Times from between 2000 and 2015,[4] as well as examples from expert data visualisation blogs (such as Infosthetics and Visual

[1] Gray, J. (2015) “Examples of Fiscal Data Visualisations”. figshare. Available at: http://dx.doi.org/10.6084/m9.figshare.1548331
[2] Gray, J. (2015) “Open Budget Data: Mapping the Landscape”. Available at: http://dx.doi.org/10.2139/ssrn.2654878
[3] Ibid, p. 39.
[4] See: http://collection.marijerooze.nl/

Complexity).[5] We then solicited for further examples from expert mailing lists, forums and targeted outreach on social media.[6]

1.2 Results

The typology of visualization by Function is provided in the following sections.

1.2.1 Showing breakdown of totals

1.2.1.1 Death and Taxes (United States)

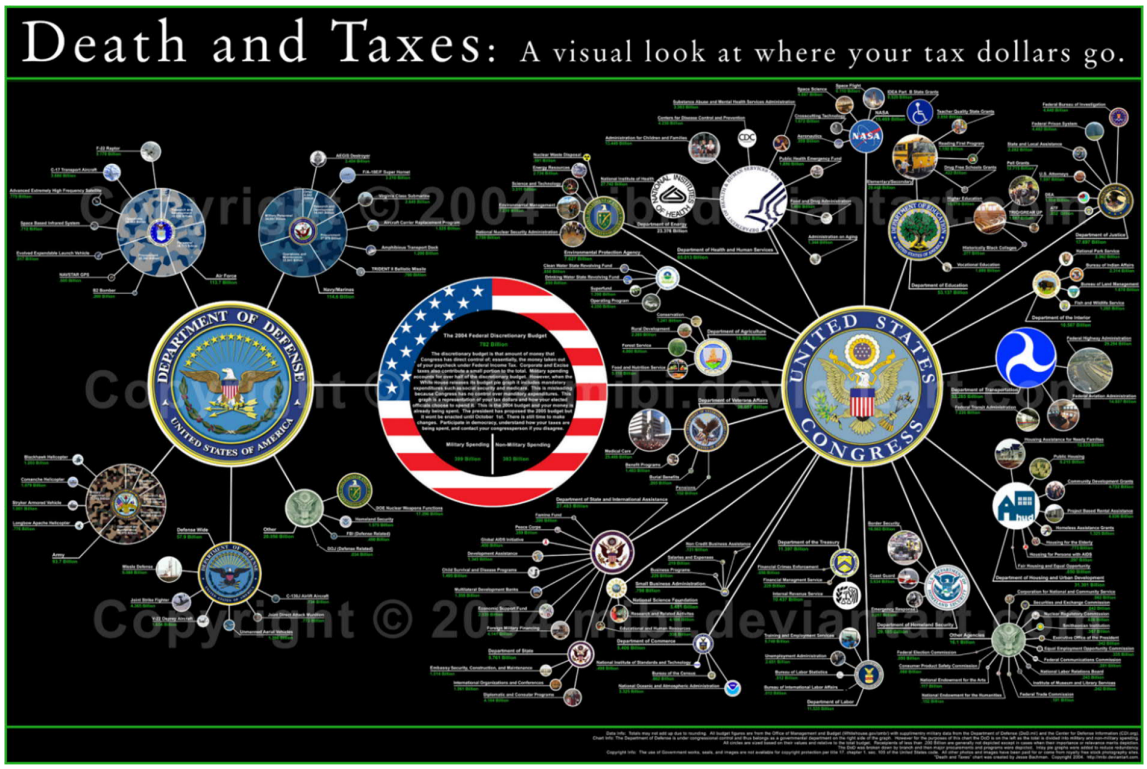


Figure 1 - http://mibi.deviantart.com/art/Death-and-Taxes-9410862

[5] See: http://www.infosthetics.com/ and http://www.visualcomplexity.com/

[6] For example: https://lists.okfn.org/pipermail/openspending/2015-June/002388.html and https://discuss.okfn.org/t/good-examples-of-fiscal-data-visualisation/426

1.2.1.2 Bubble Tree – Where Does My Money Go? (UK)

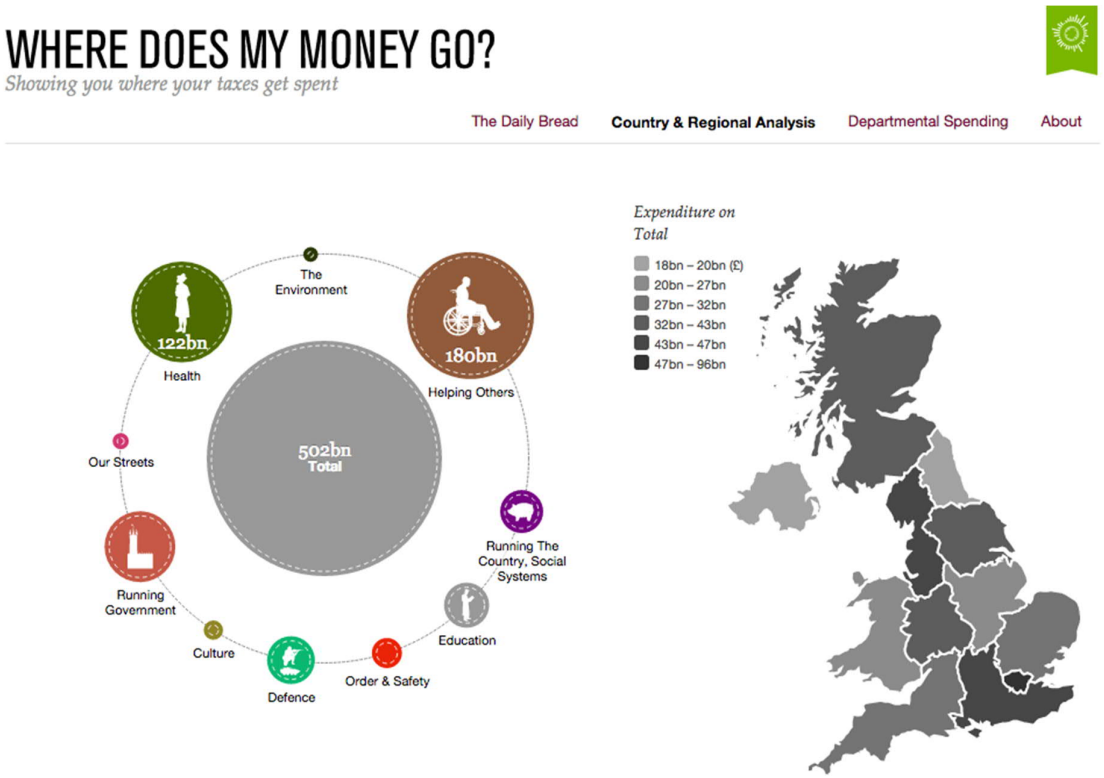


Figure 2 - http://wheredoesmymoneygo.org/bubbletree-map.html#/~/total

1.2.1.3 Tree Map – Open Spending (International)

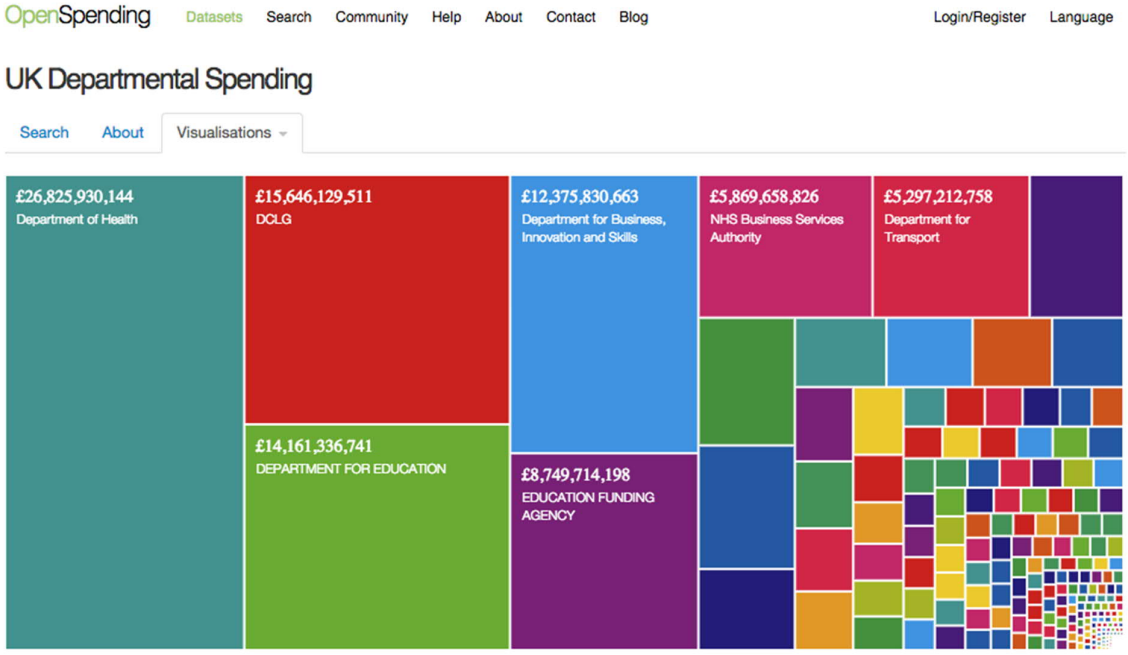


Figure 3 - https://openspending.org/ukgov-25k-spending/views/testtreemap

1.2.1.4 The Guardian: "Government spending by department, 2010-11: get the data" (UK)

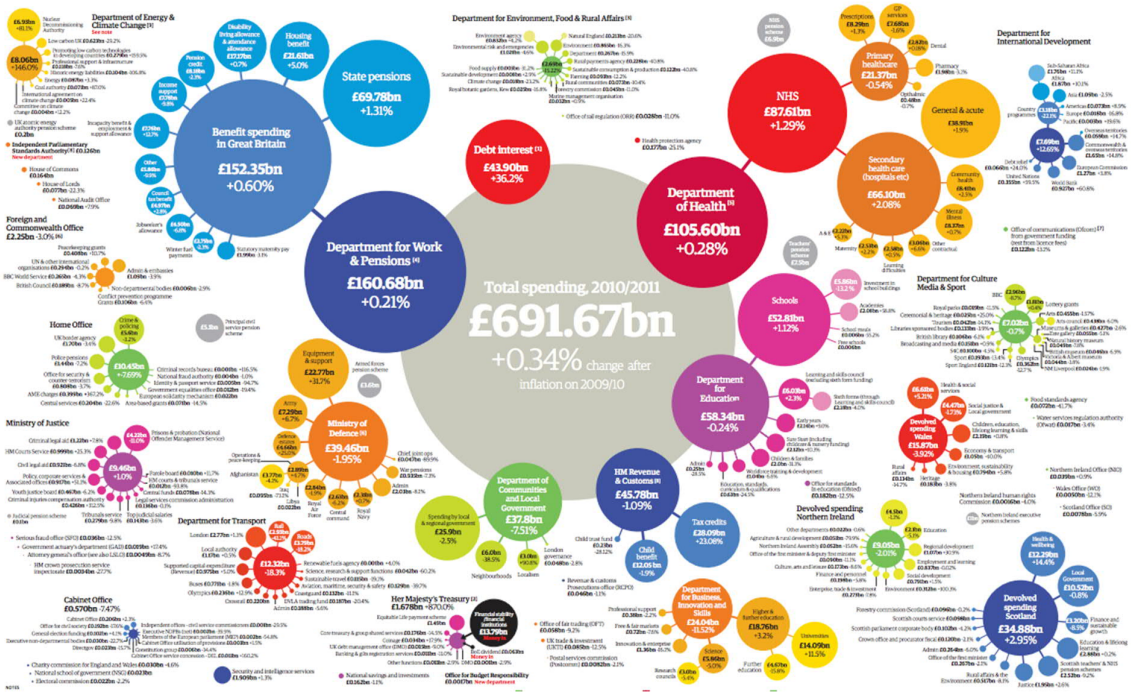


Figure 4 - http://www.theguardian.com/news/datablog/2011/oct/26/government-spending-department-2010-11

1.2.1.5 Bubbles – City of Bern 2012 Budget (Switzerland)

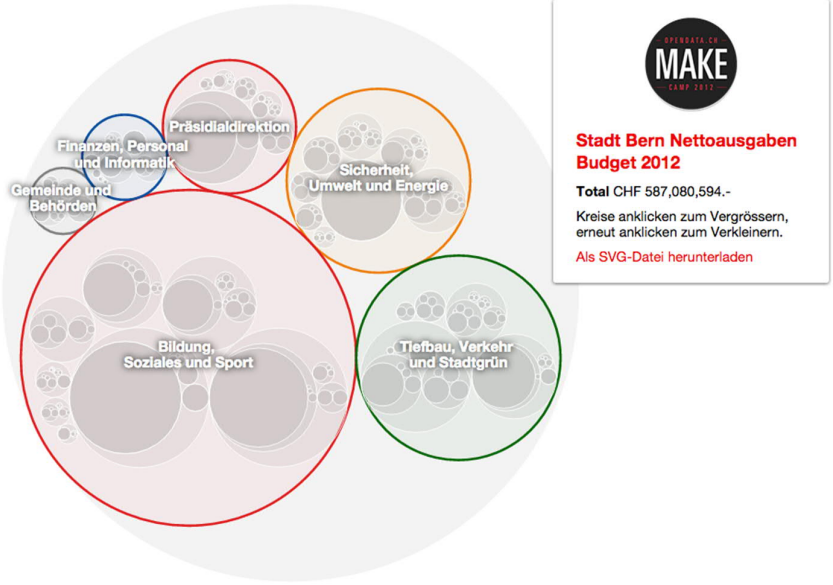


Figure 5 - http://t.preus.se/bernbudget2012/

1.2.1.6 OpenData.ch: Kanton Bern (Switzerland)

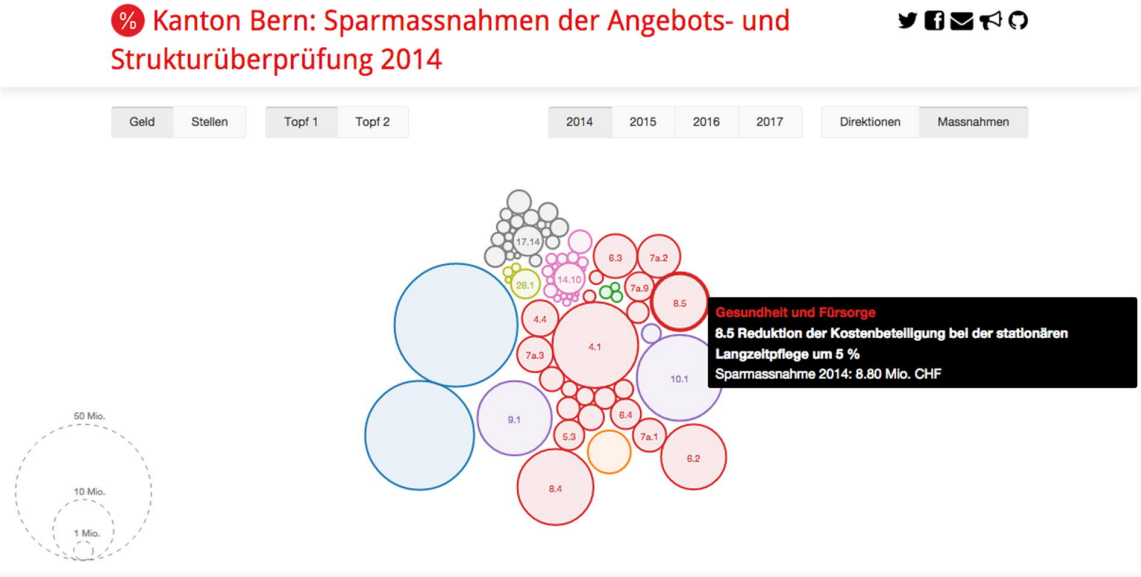
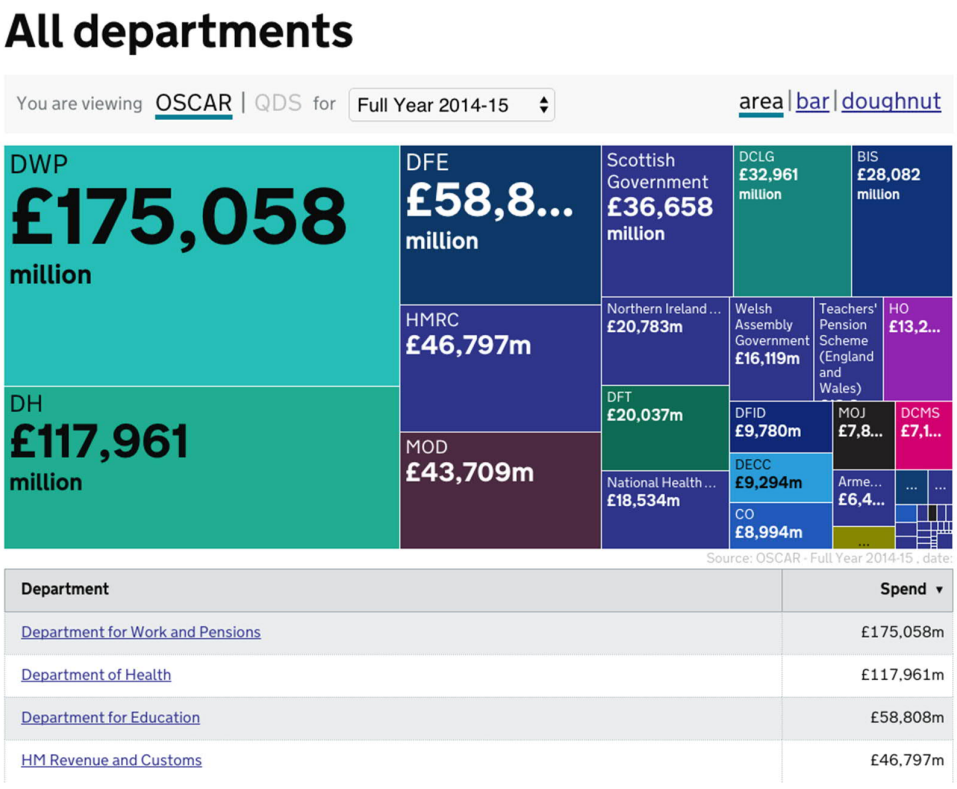


Figure 6 - http://be-asp.budget.opendata.ch/

1.2.1.7 Tree Map – Government Interrogating Spending Tool (UK)



Department	Spend
Department for Work and Pensions	£175,058m
Department of Health	£117,961m
Department for Education	£58,808m
HM Revenue and Customs	£46,797m

Figure 7 - http://www.gist.cabinetoffice.gov.uk/oscar/2014-15/#area

1.2.1.8 Tree Map: The Guardian: "BBC spending: where does the licence fee go?" (UK)

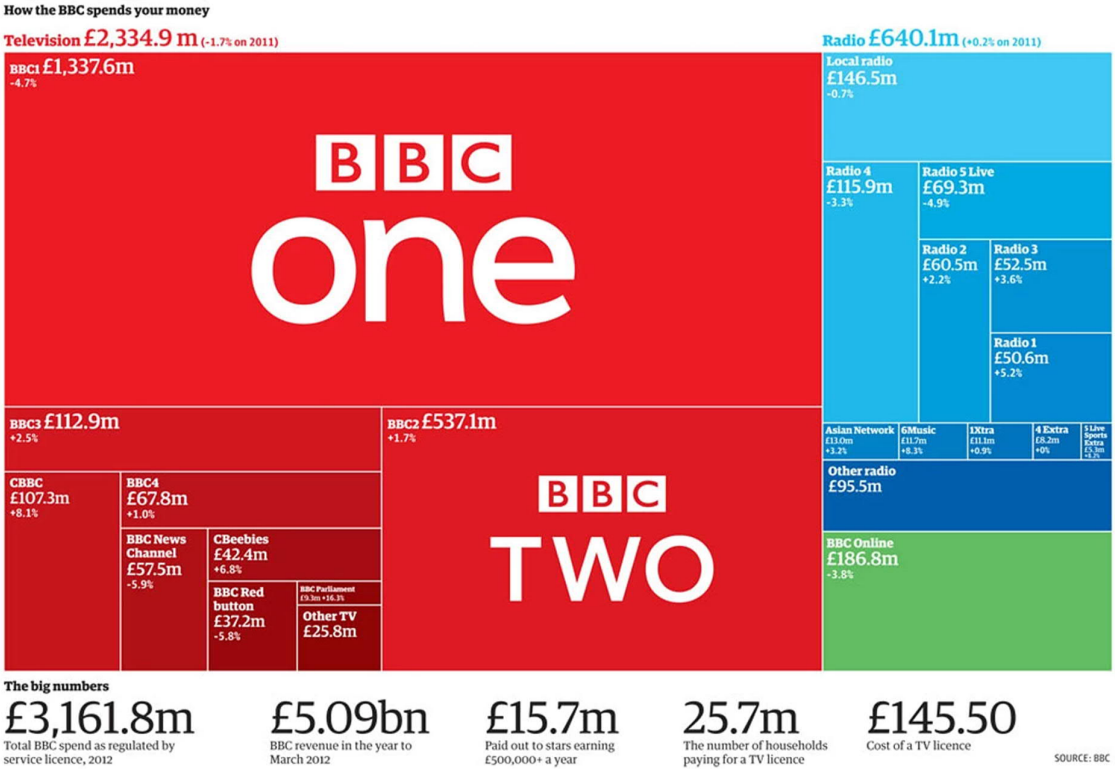


Figure 8 - http://www.theguardian.com/news/datablog/2011/jul/12/bbc-spending

1.2.2 Contextualising big numbers

1.2.2.1 XKCD: Money (International)

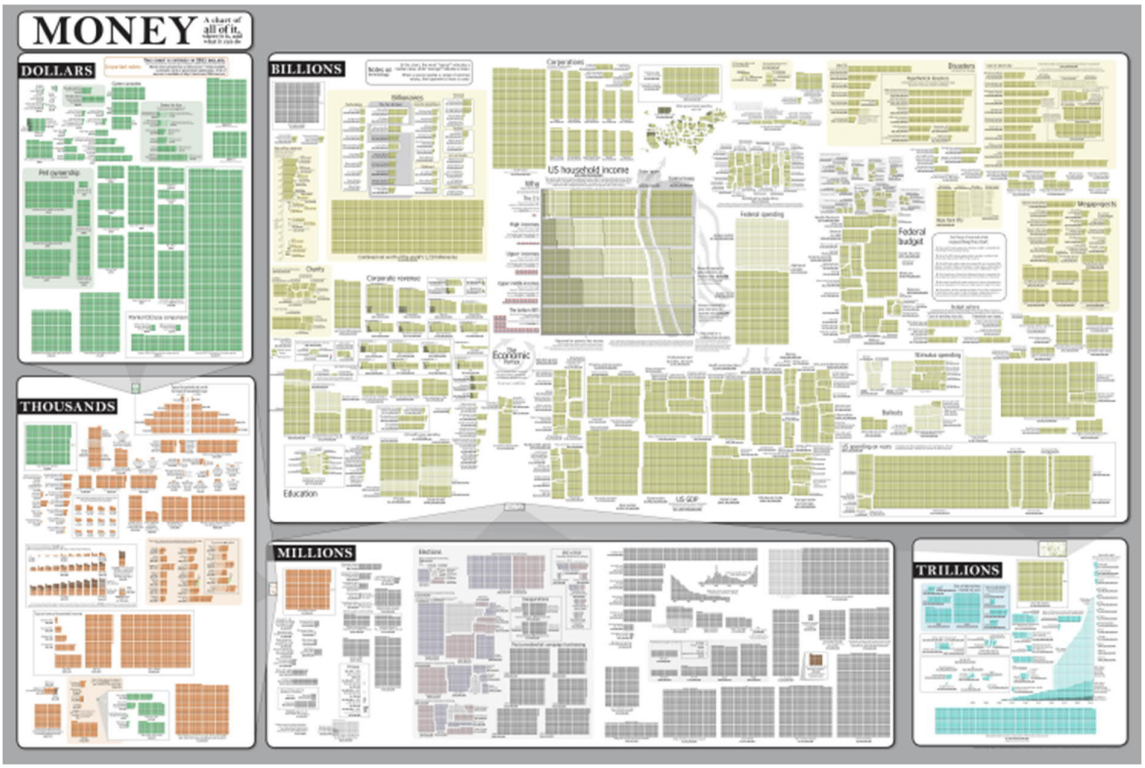


Figure 9 - https://xkcd.com/980/

1.2.2.2 Tree Map – The Billion Dollar-o-Gram 2013 (International)

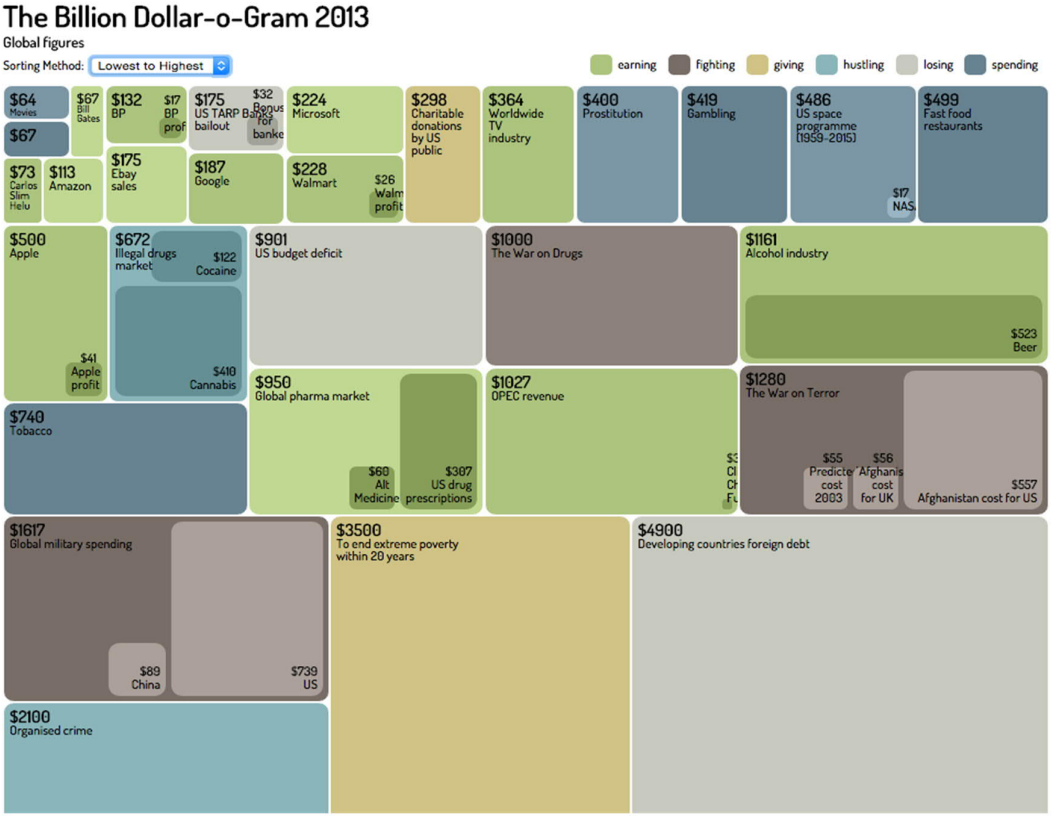


Figure 10 - http://www.informationisbeautiful.net/visualizations/billion-dollar-o-gram-2013/

1.2.2.3 Tree Map: The Guardian/Information is Beautiful: The Billion Pound-O-Gram (UK)

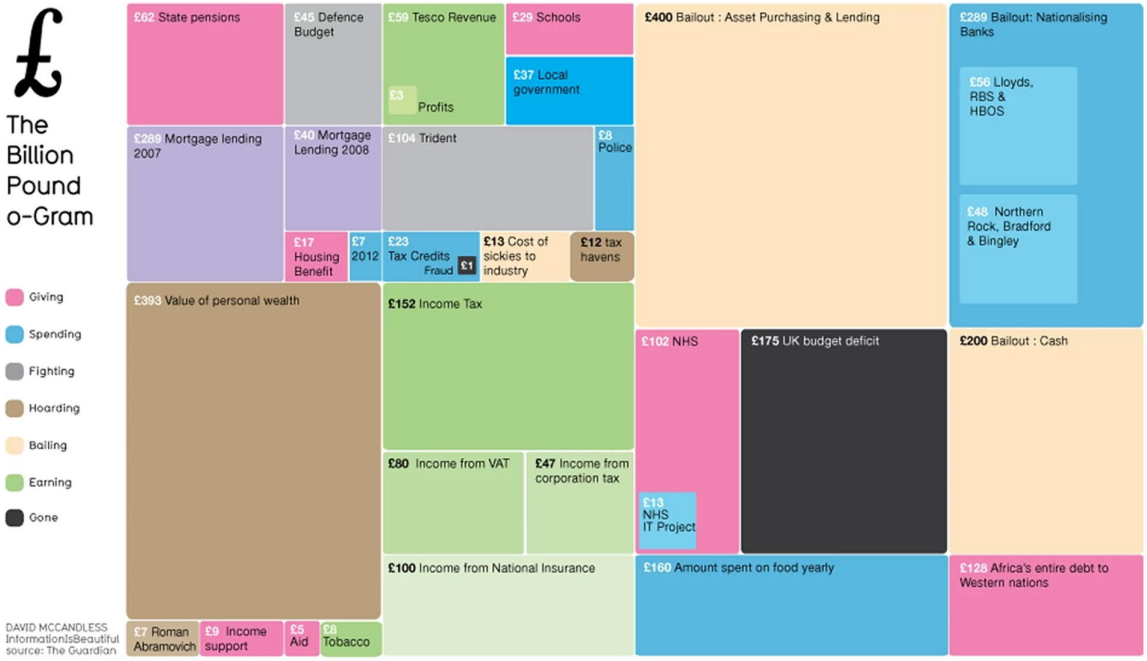


Figure 11 - http://www.theguardian.com/news/datablog/2009/nov/27/billion-pound-gram-inormation-beautiful

1.2.2.4 Information is Beautiful: Debtris US (United States)

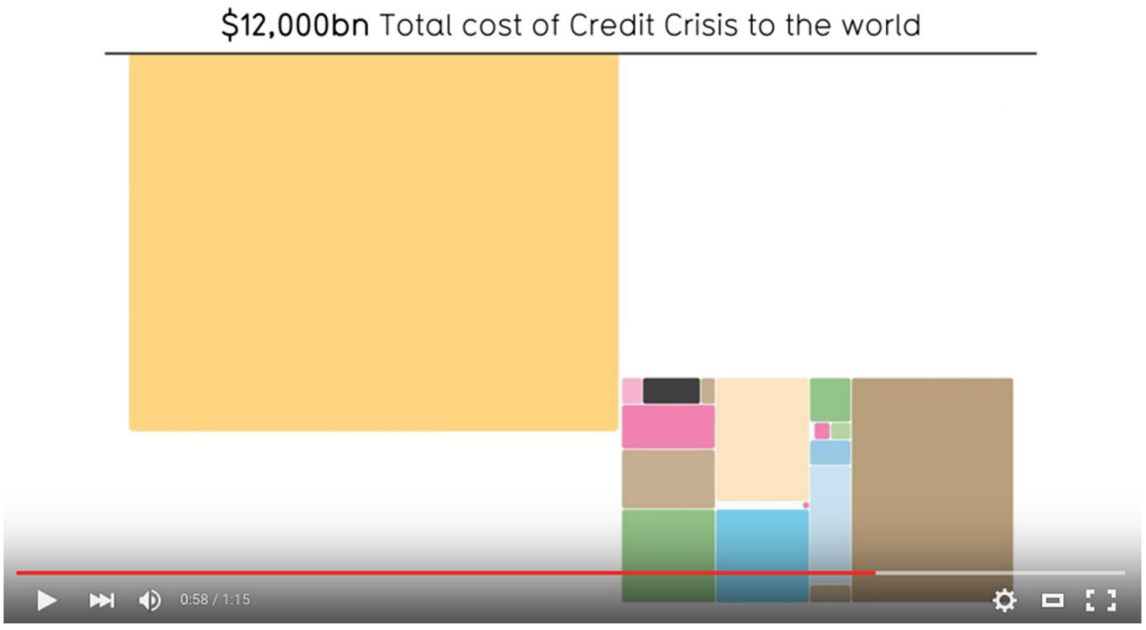


Figure 12 - https://www.youtube.com/watch?v=K7Pahd2X-eE

1.2.2.5 Spending Stories (International)

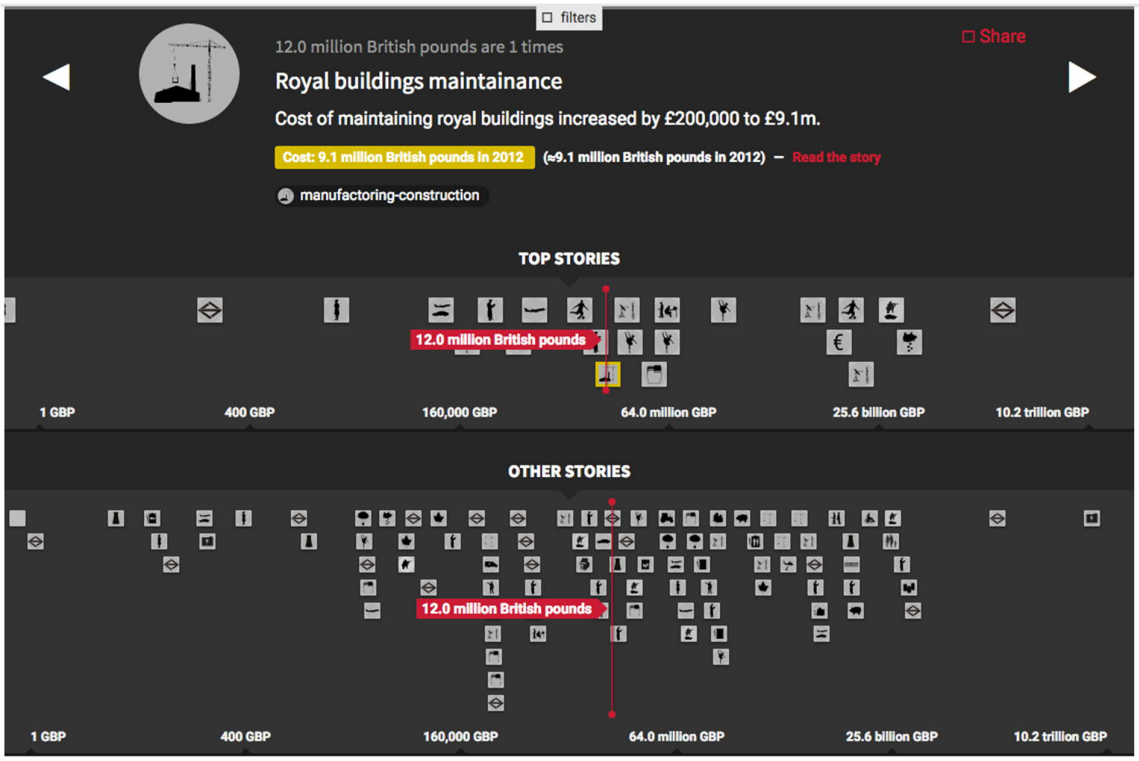


Figure 13 - http://spendingstories.org/

1.2.3 Showing geographical distribution of funds

1.2.3.1 Map Bubbles: Al Jazeera – "China's African spending spree" (Africa)

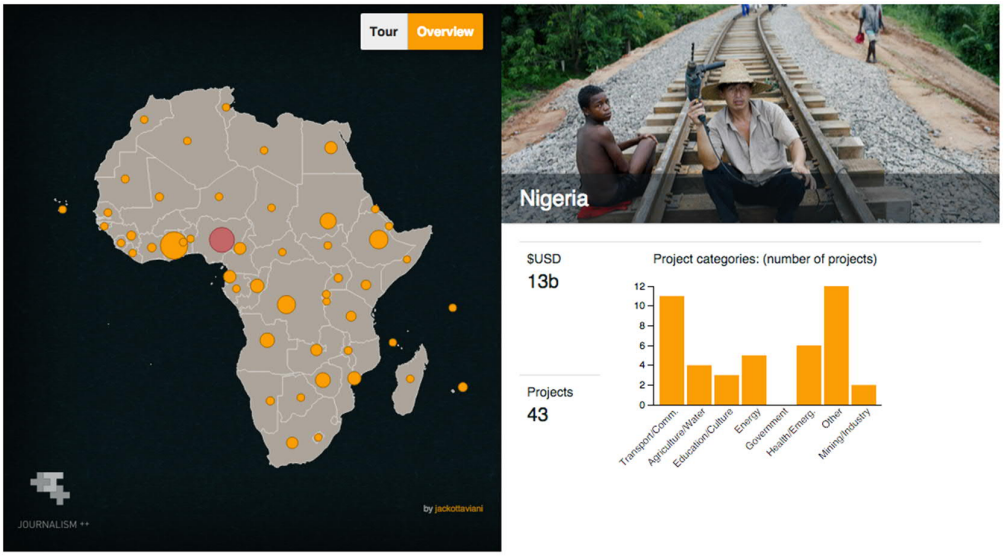


Figure 14 - http://www.aljazeera.com/indepth/interactive/2014/03/interactive-china-african-spending-spree-20143201213497991 36.html

1.2.3.2 Map Bubbles: Mapa Social (Brazil)

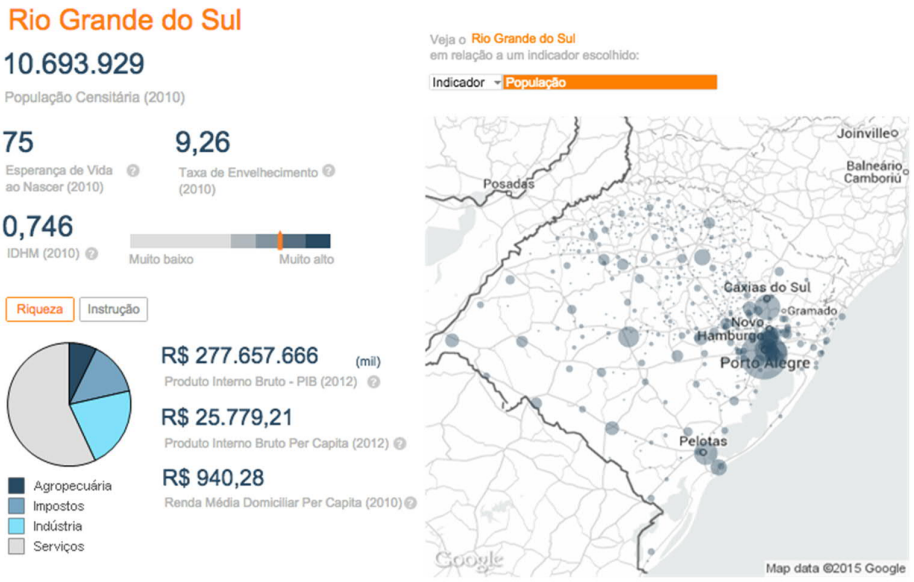


Figure 15 - http://appmapasocial.mprs.mp.br/

1.2.3.3 Map Bubbles: United Nations Development Programme (International)

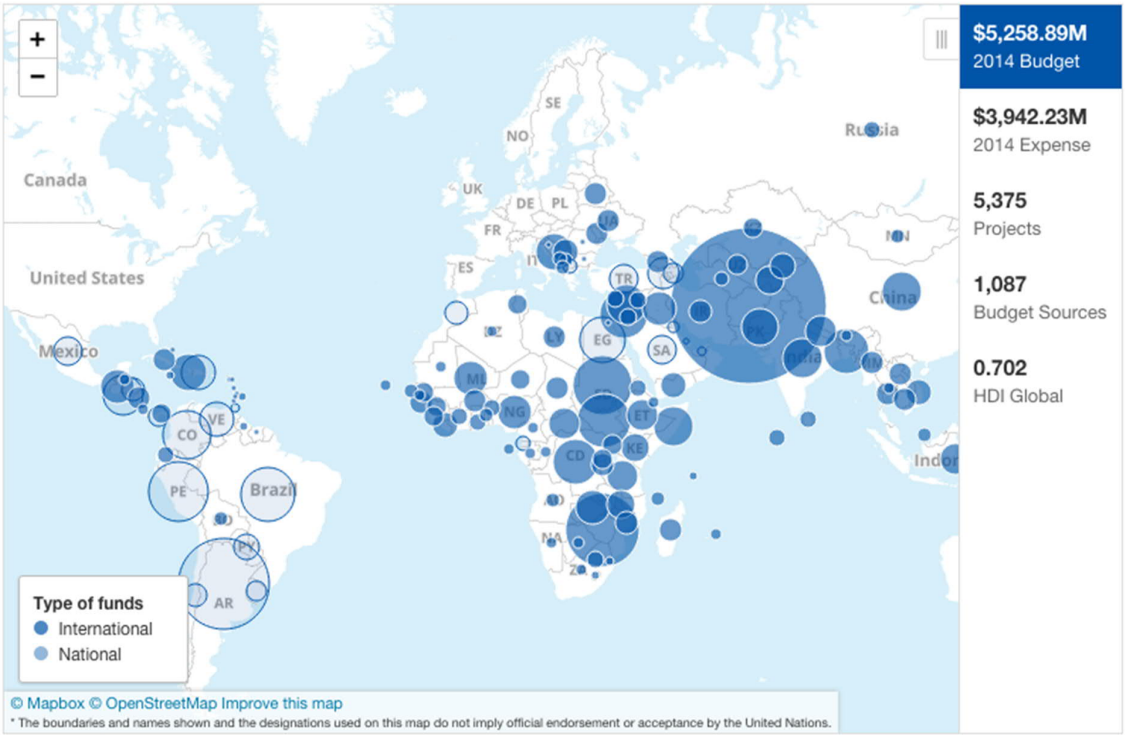


Figure 16 - http://open.undp.org/#2014

1.2.3.4 Map Bubbles: City of Boston's Open Budget Application (United States)

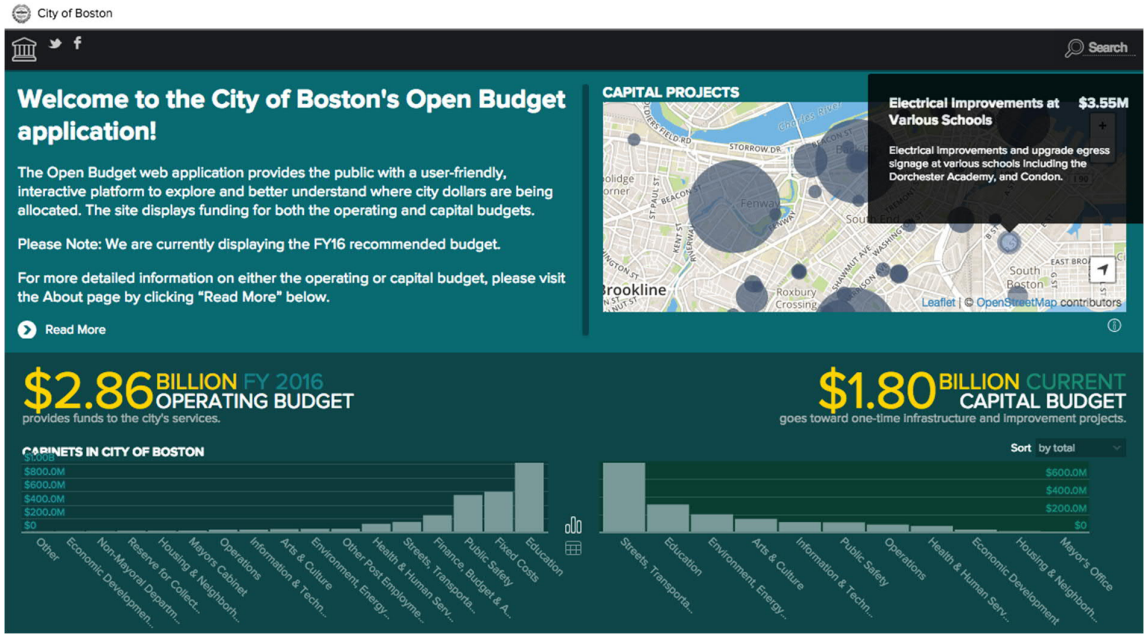


Figure 17 - http://budget.data.cityofboston.gov

1.2.3.5 Meu Município (Brazil)

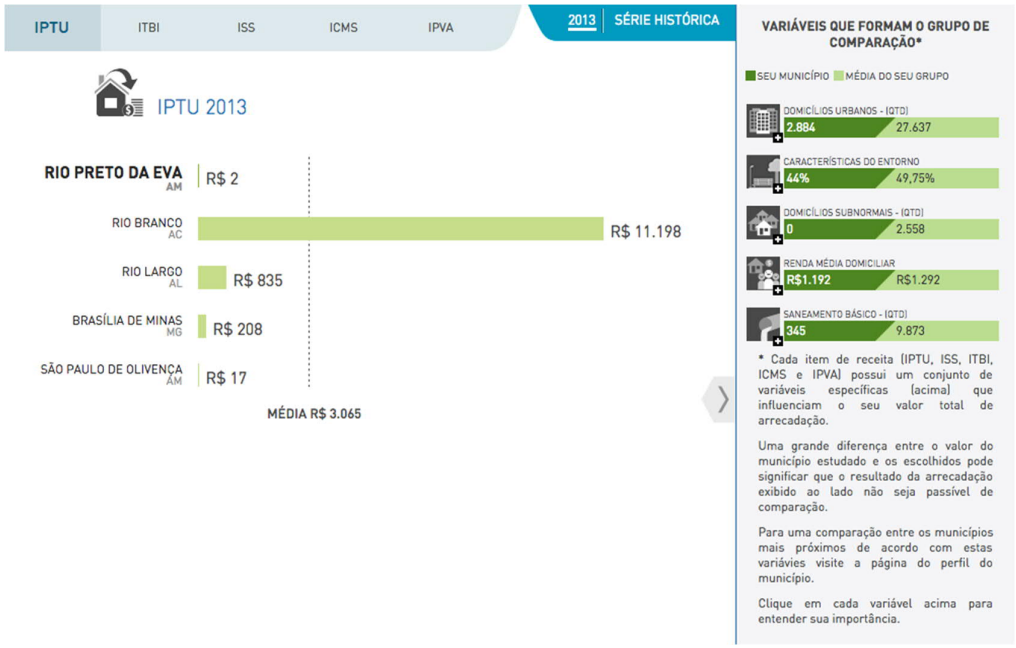


Figure 18 - http://www.meumunicipio.org.br

1.2.3.6 Guardian: “Who donates aid - and who receives it?” (International)

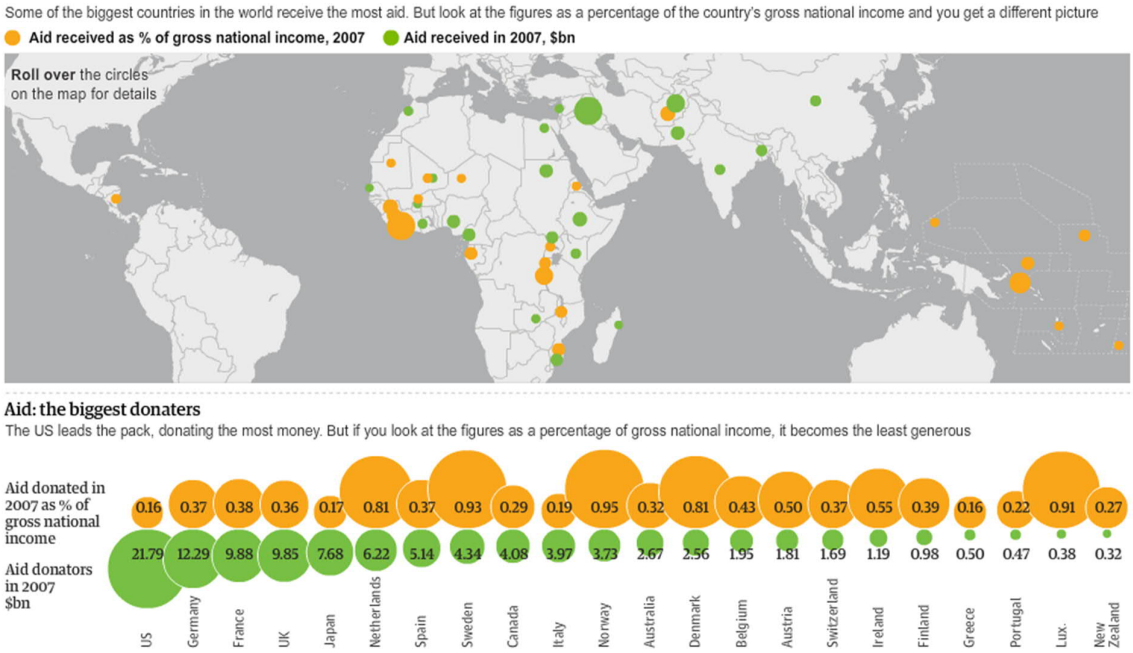


Figure 19 - http://www.theguardian.com/global-development/datablog/interactive/2010/sep/15/world-aid

1.2.3.7 Deconstructing the Hong Kong Budget – South China Morning Post (China)

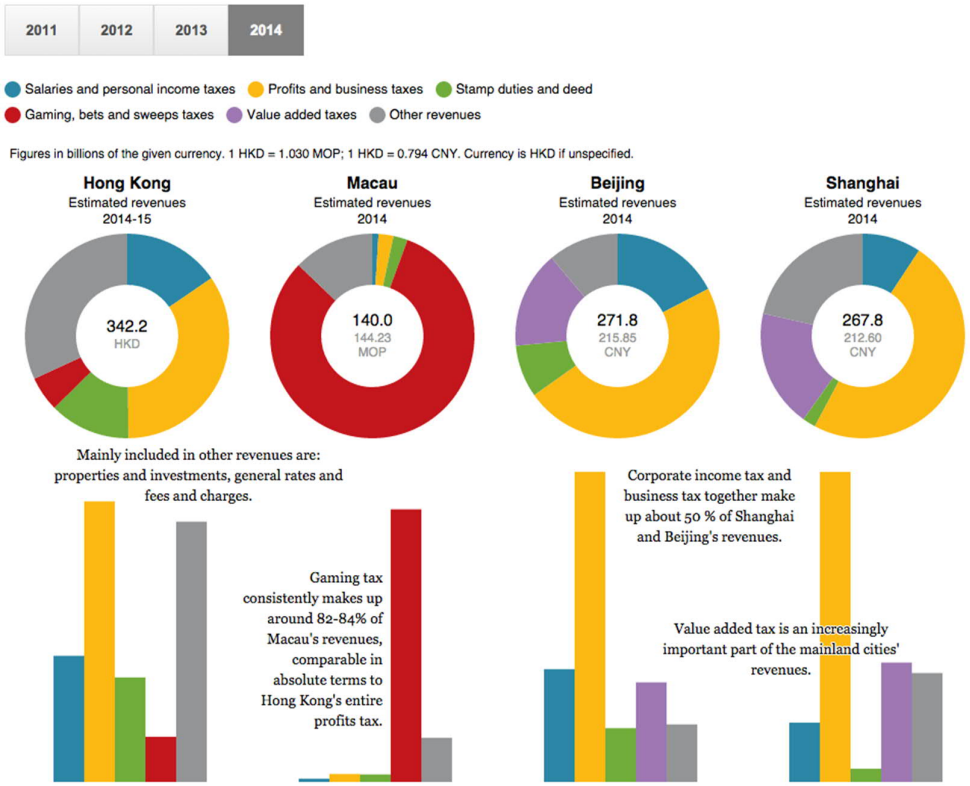


Figure 20 - http://www.scmp.com/infographics/article/1438790/deconstructing-hong-kong-budget

1.2.3.8 The Guardian: "EU budget 2010: what does the European Union spend and where does the money come from?" (Europe)

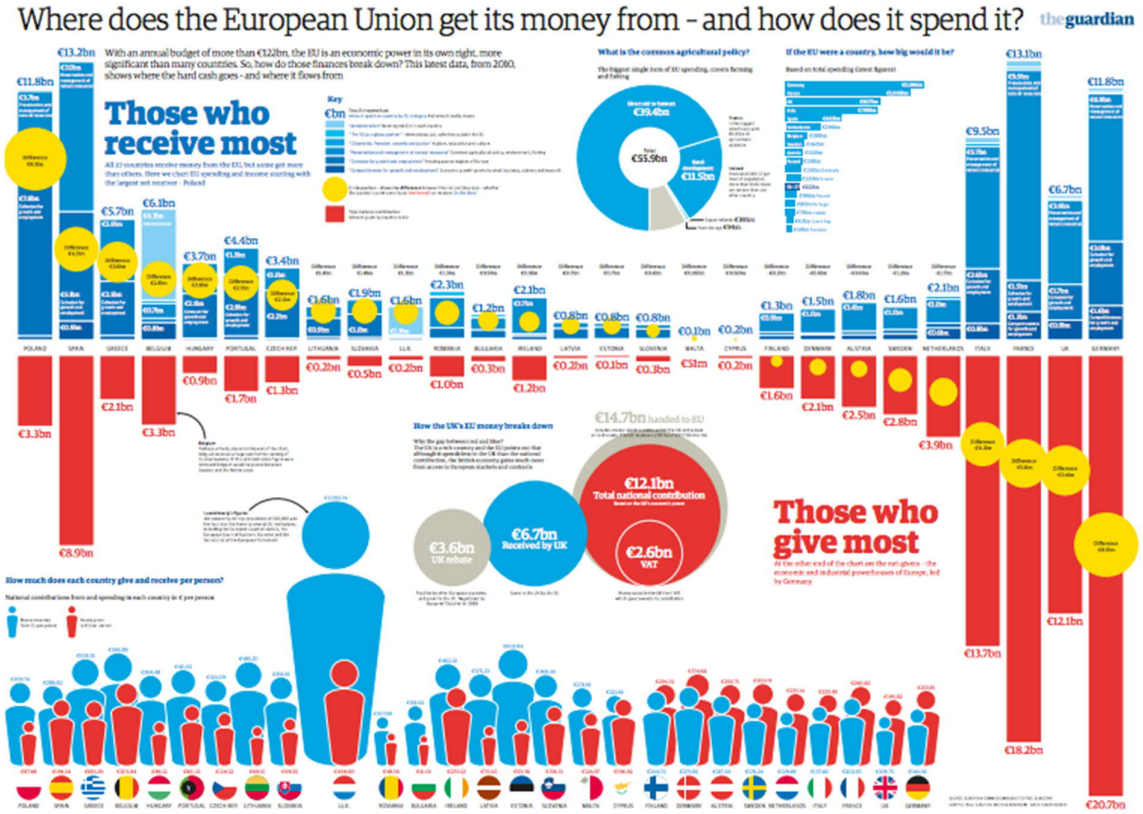


Figure 21- http://www.theguardian.com/news/datablog/2012/jan/26/eu-budget-european-union-spending

1.2.3.9 Chloropleth – Regards Citoyens: NosFinancesLocales.fr (France)

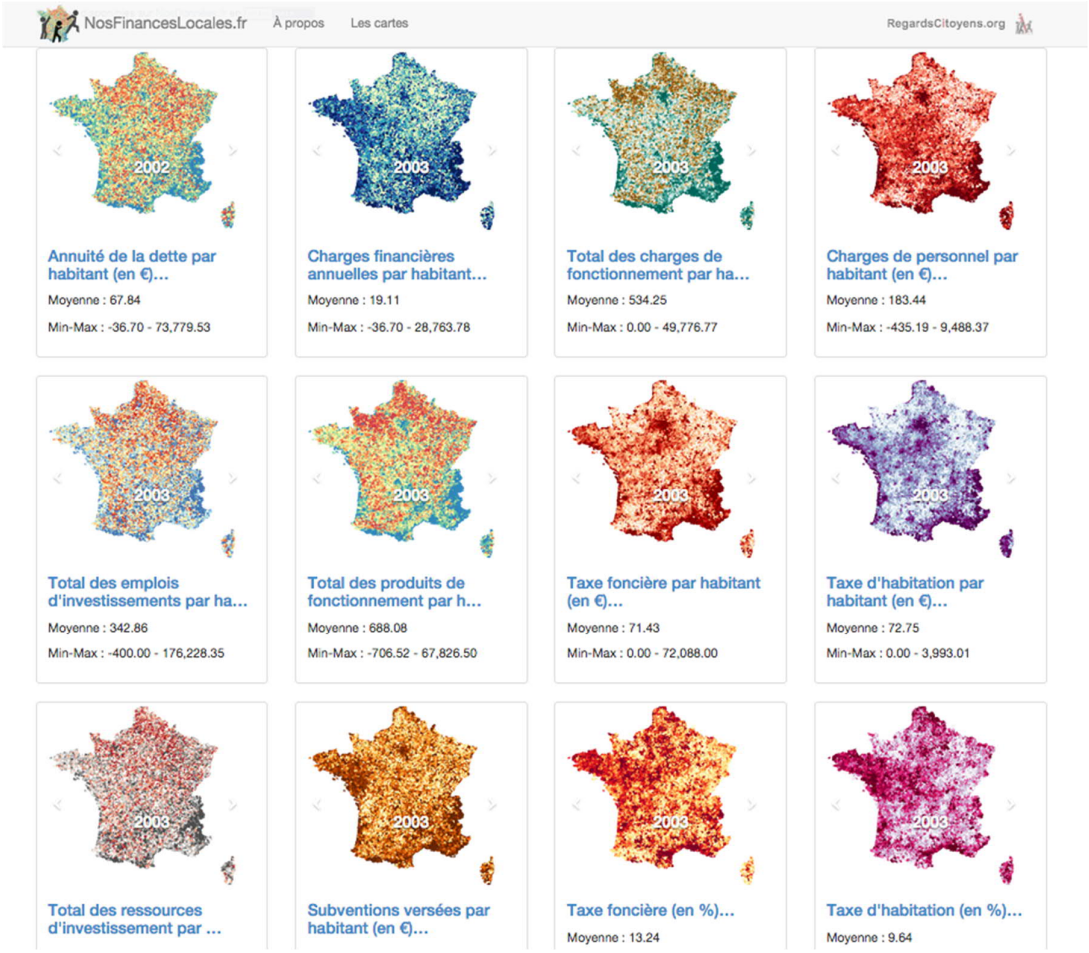


Figure 22 - http://www.nosfinanceslocales.fr/#/

1.2.3.10 Chloropleth: The Guardian – "School spending: what do we know?" (UK)

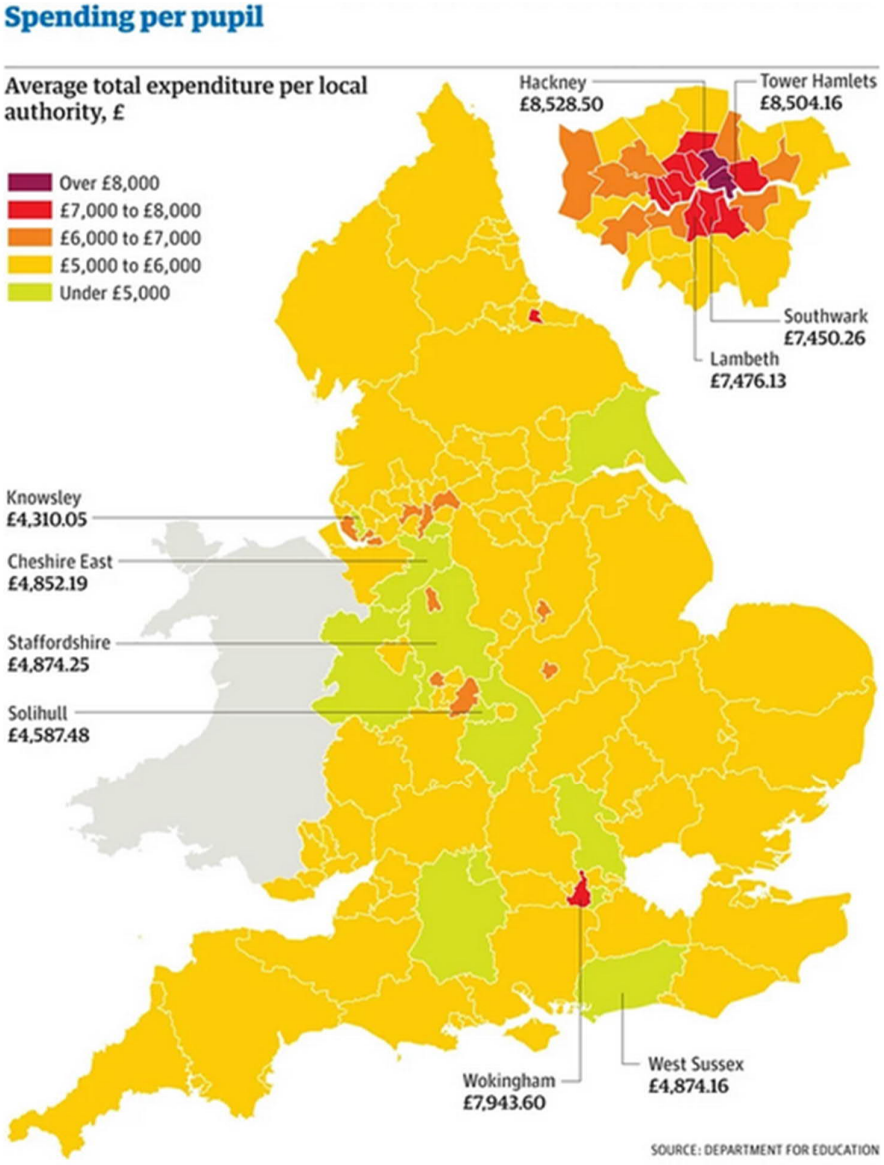


Figure 23 - http://www.theguardian.com/news/datablog/2011/feb/24/school-funding-taxpayers-alliance

1.2.3.11 Chloropleth – Interactive Things: Tax Freedom Day (Switzerland)

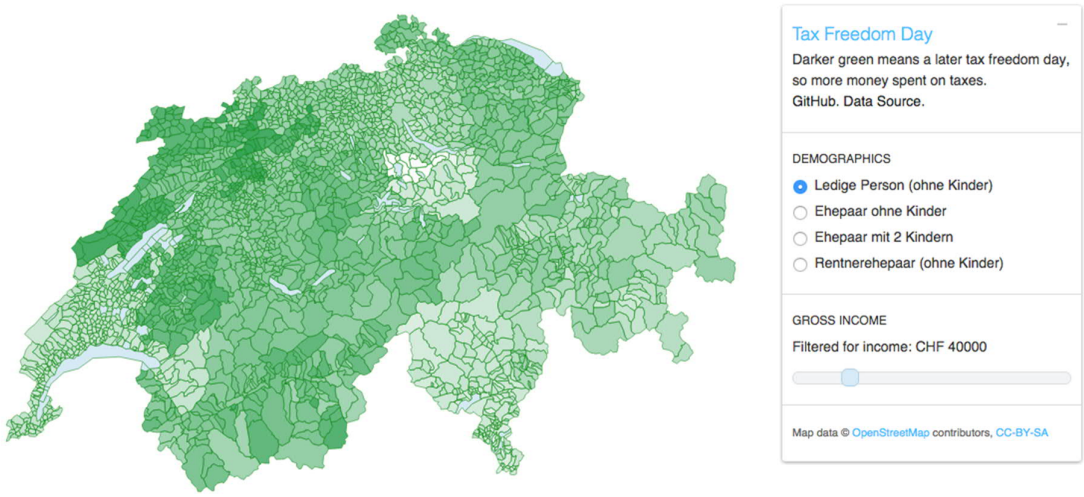


Figure 24 - https://interactivethings.github.io/make-opendata-finance/map.html

1.2.3.12 Le Temps: Crans-Montana, la station accro aux forfaitaires (Switzerland)

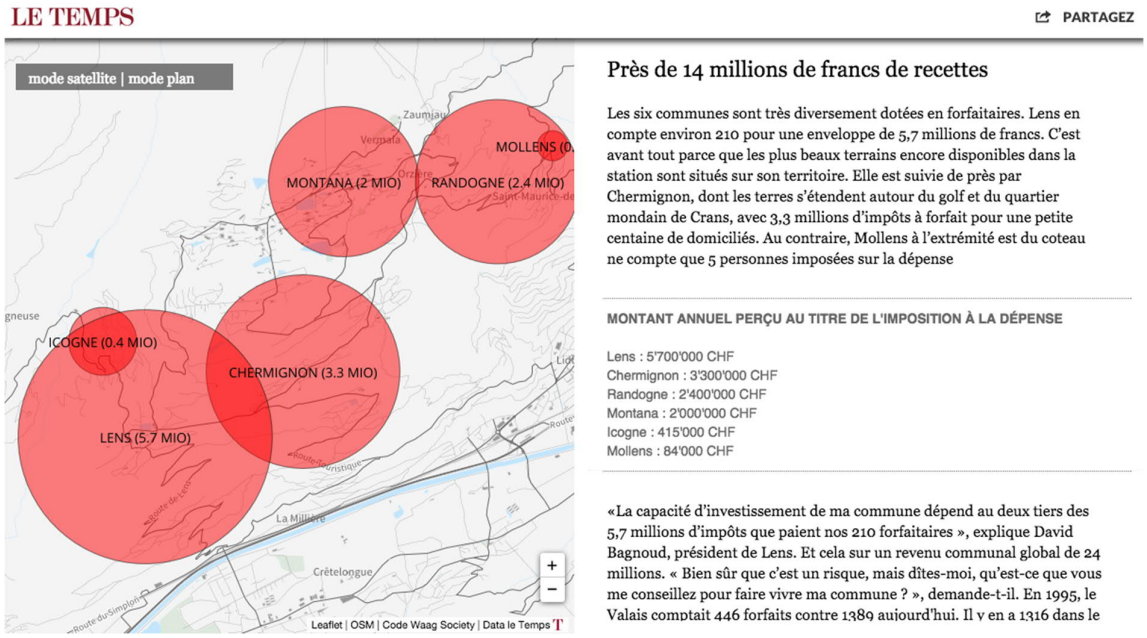


Figure 25 - http://www.letemps.ch/interactive/2014/crans-montana-forfaits-fiscaux/

1.2.4 Showing trends over time

1.2.4.1 Fiscal Chart of the United States Showing the Course of the Public Debt by Years 1789 to 1870, Together with the Proportion of the Total (United States)

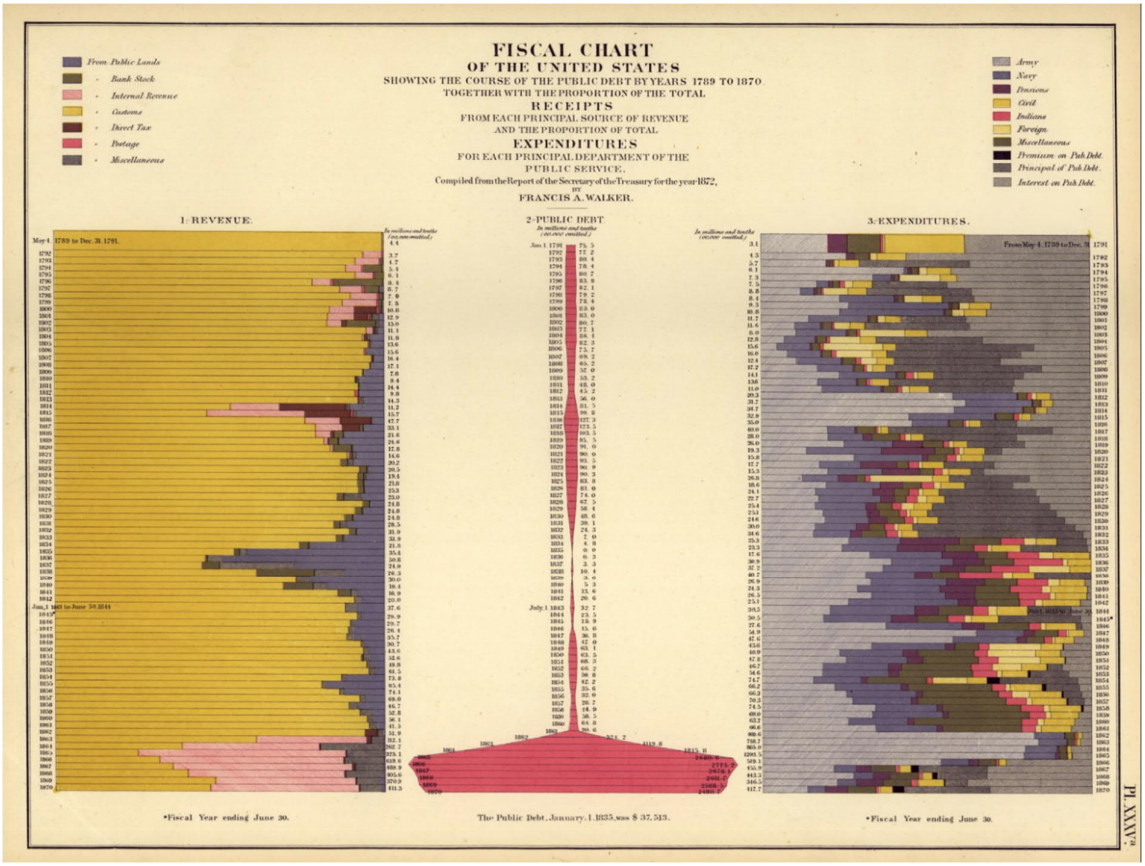


Figure 26 - http://assets.timoelliott.com/docs/1830censusfiscalchart.jpg

1.2.4.2 Aid Data Dashboard (International)

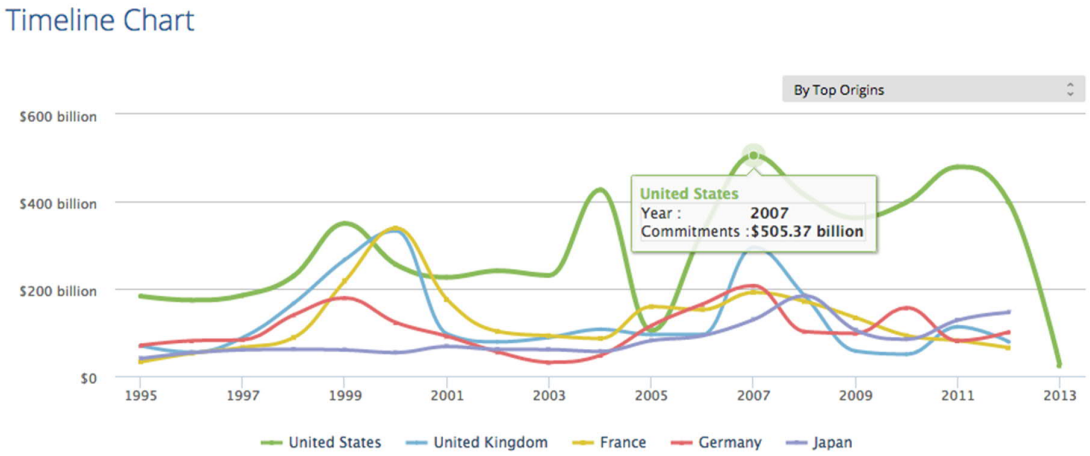


Figure 27 - http://aiddata.org/dashboard

1.2.4.3 New York Times: "Four Ways to Slice Obama's 2013 Budget Proposal" (United States)

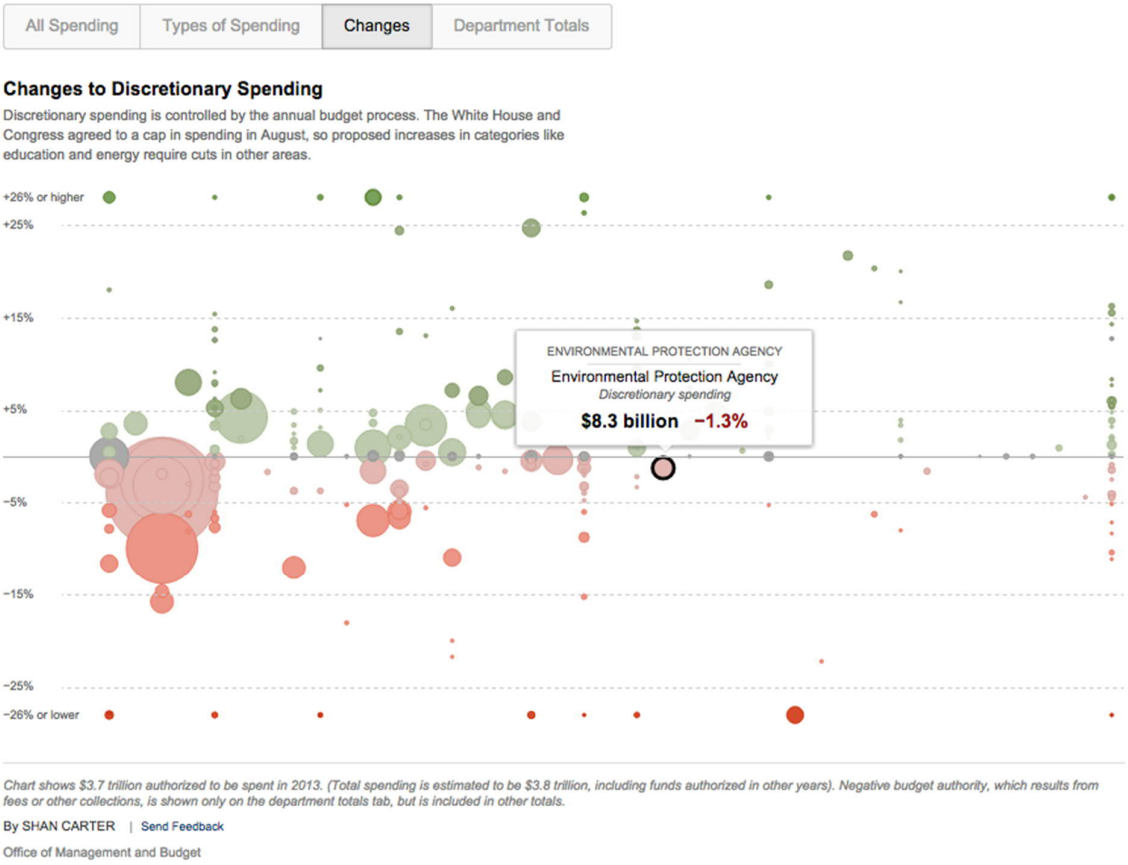


Figure 28 - http://www.nytimes.com/interactive/2012/02/13/us/politics/2013-budget-proposal-graphic.html?_r=0

1.2.4.4 La Dirección Nacional de Contrataciones Públicas (Paraguay)

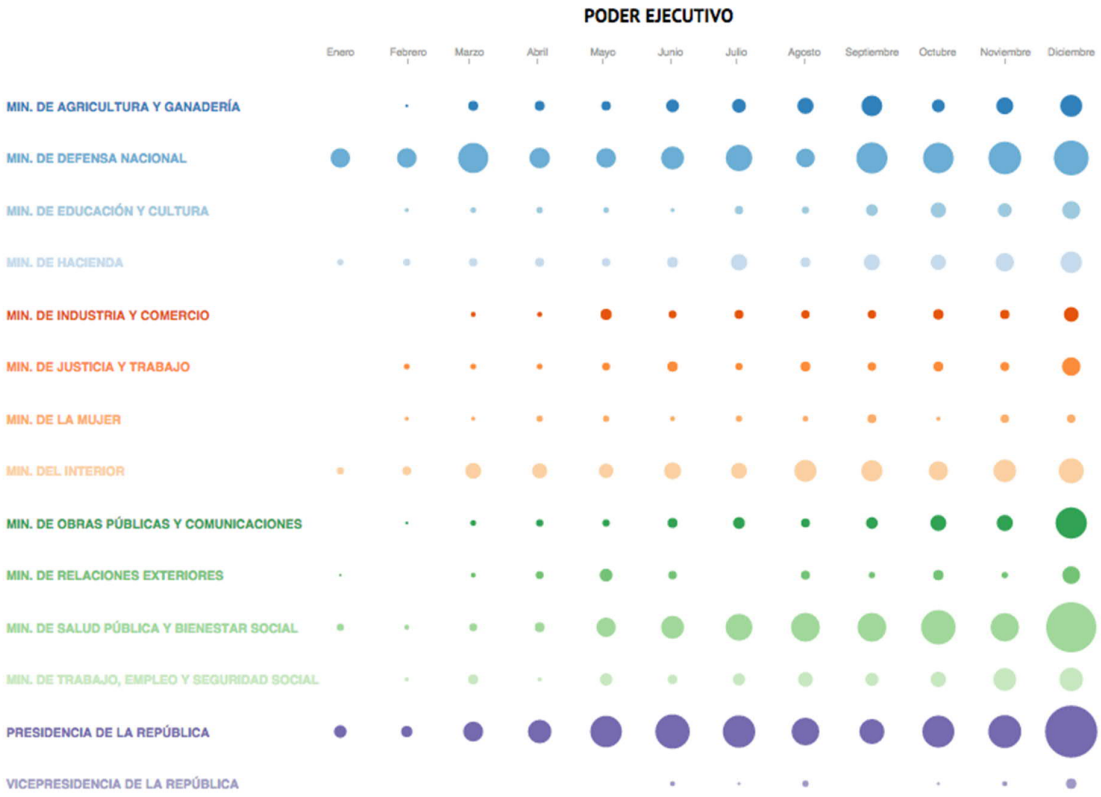


Figure 29 - https://www.contrataciones.gov.py/datos/visualizaciones/contratos

1.2.4.5 Ejecución Financiera Proyecto Ñamopora Ñanderape (Paraguay)

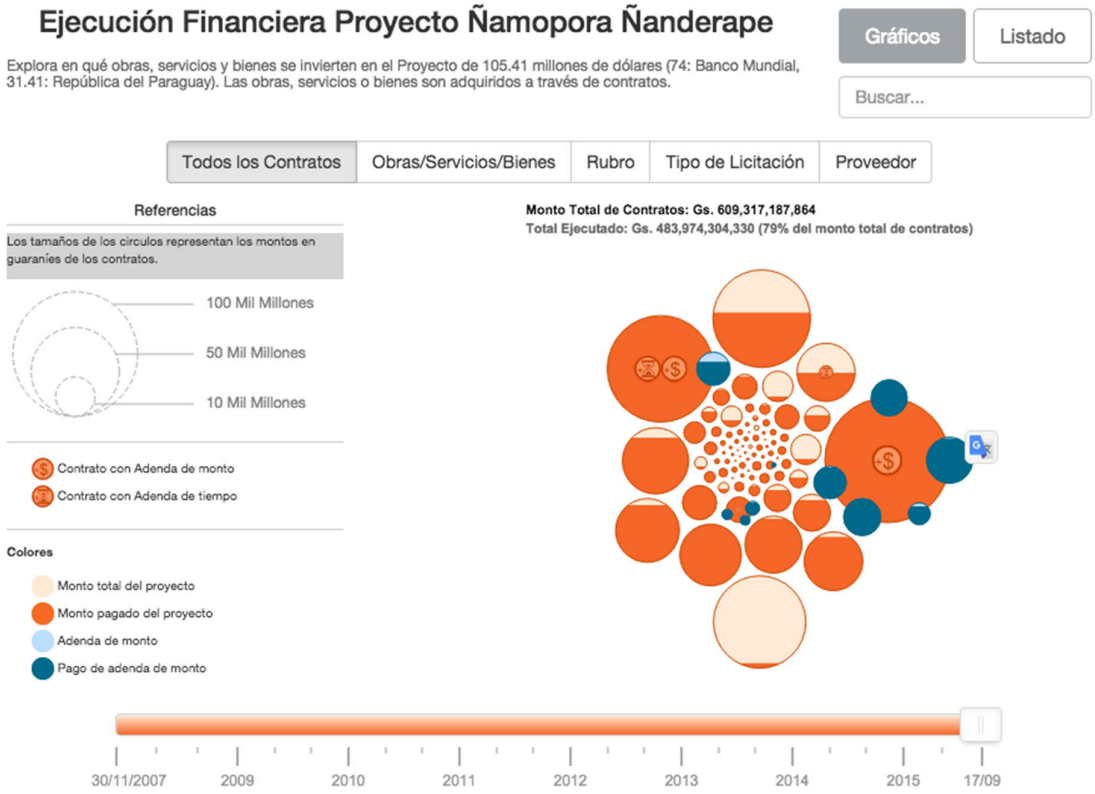


Figure 30 - http://www.mopc.gov.py/mopcweb/BM/IGAP/index.html

1.2.4.6 Gapminder World: Health Spending (International)

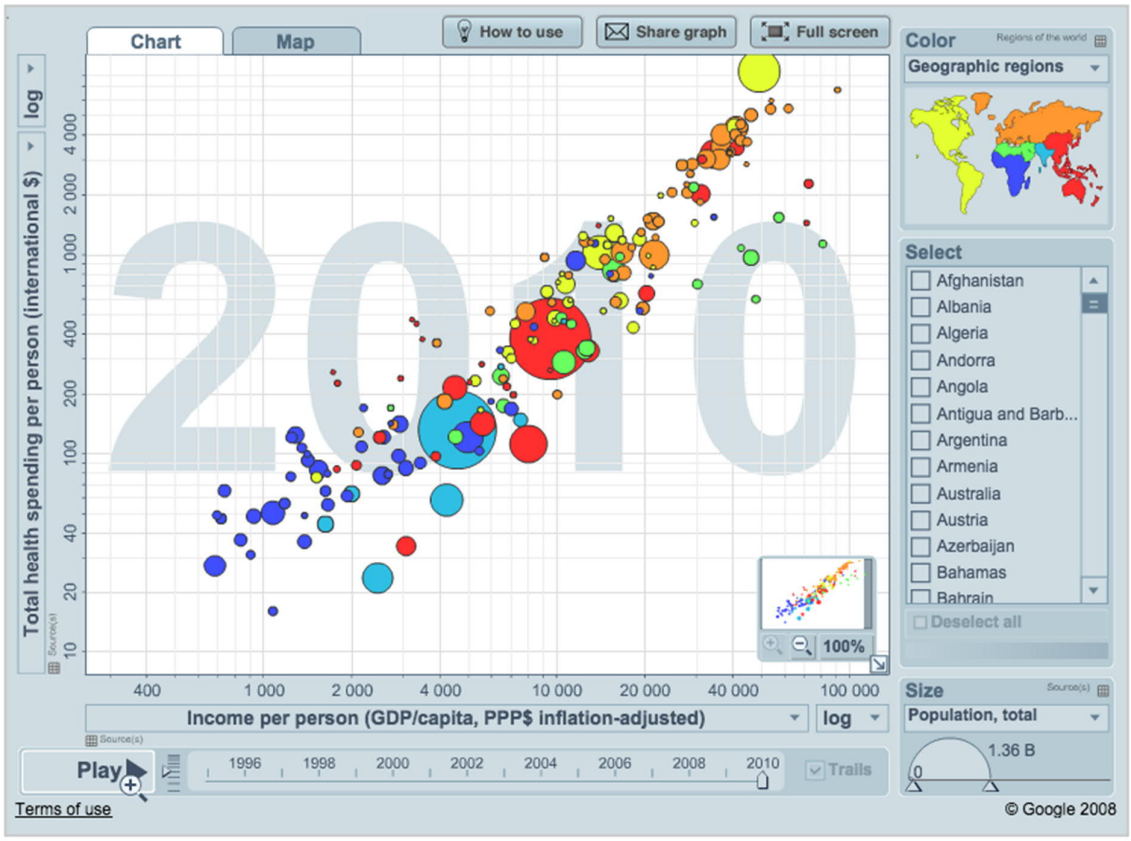


Figure 31 - http://www.gapminder.org/world

1.2.4.7 How the Singapore Government is spending its dollars in 2015 (Singapore)

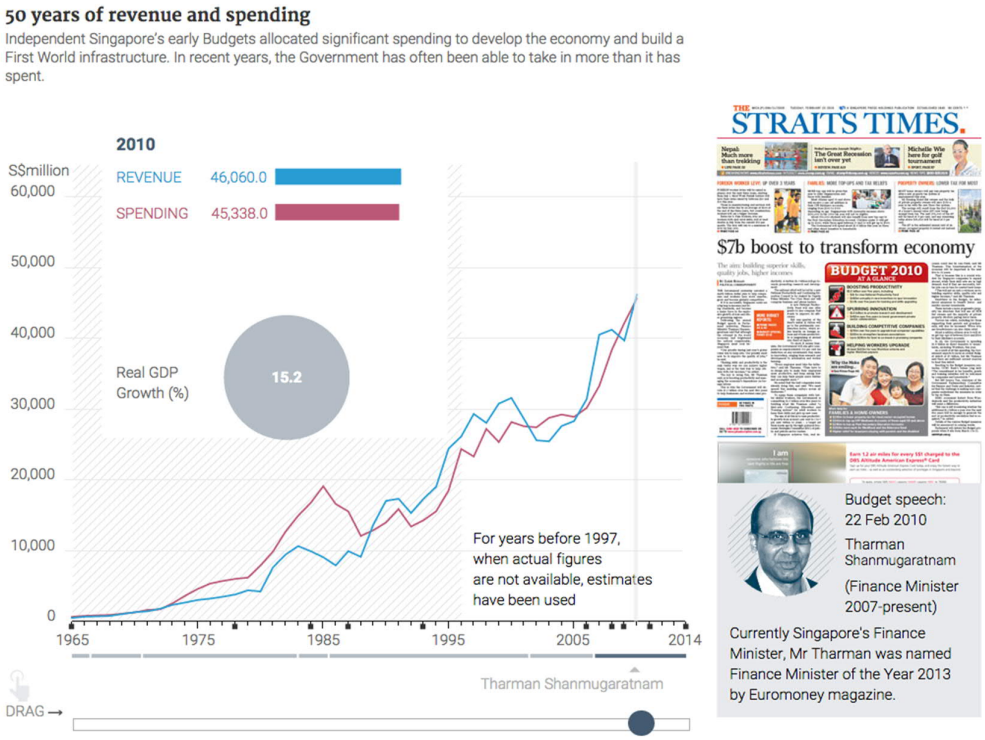


Figure 32 – http://graphics.straitstimes.com/STI/STIMEDIA/Interactives/2015/02/budget_singapore_2015/index.html

1.2.4.8 Budget Key (Israel)

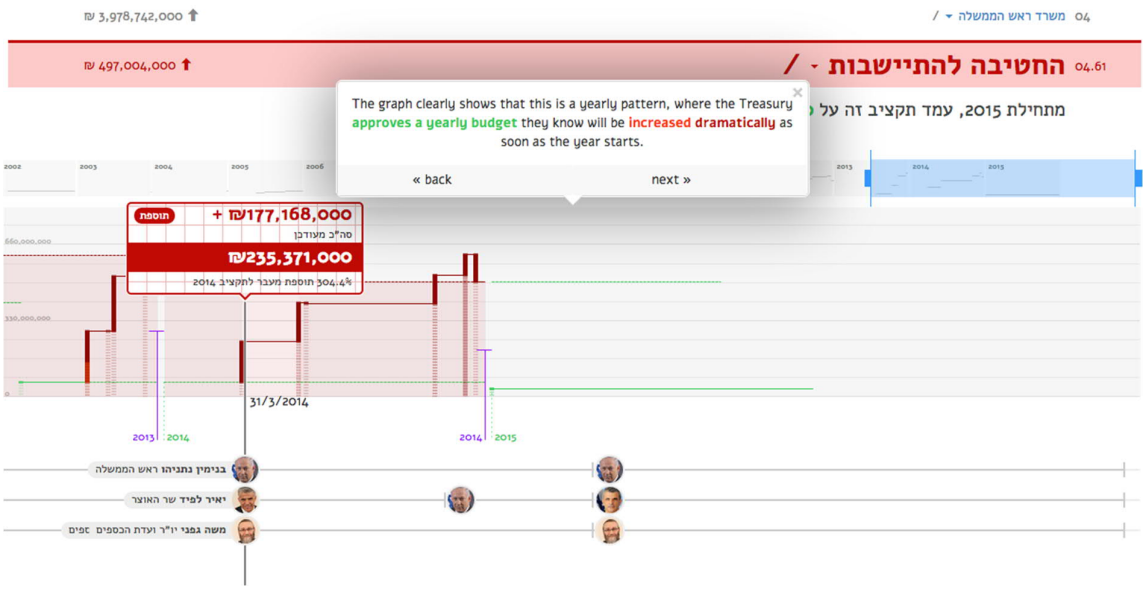


Figure 33 - http://www.obudget.org/

1.2.4.9 Coloured Bubbles – 203 millions de francs (Switzerland)

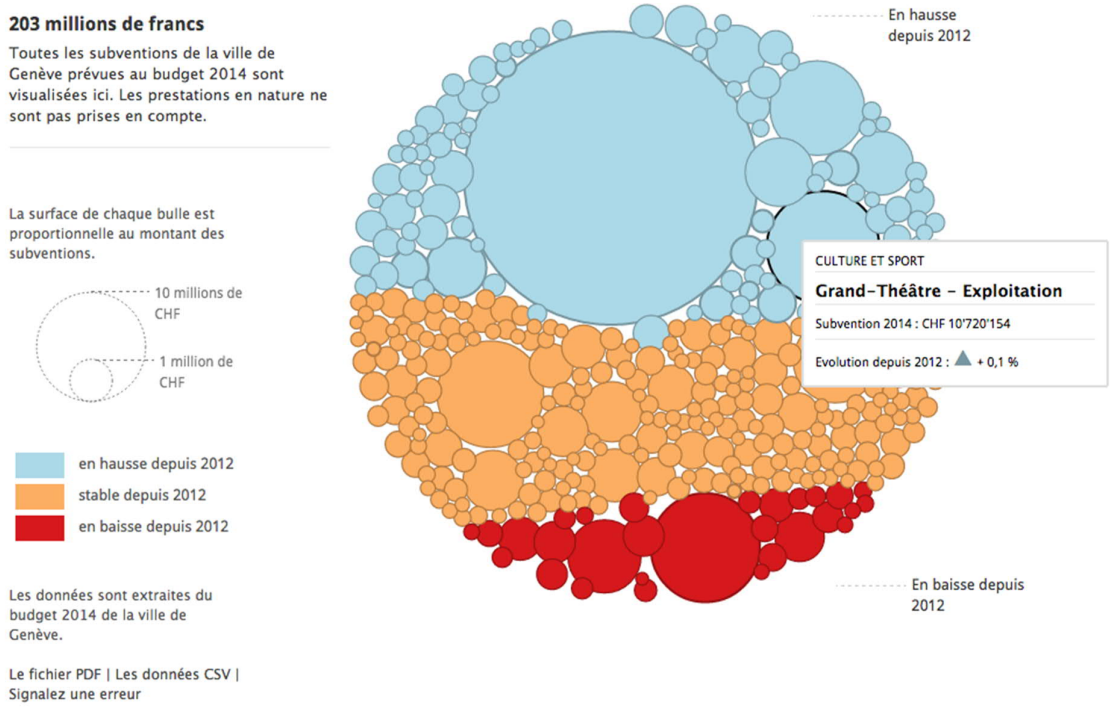


Figure 34 - http://labs.letemps.ch/interactive/2015/subventions-geneve/

1.2.4.10 Spending comparisons over time – OpenAid.se (Sweden)

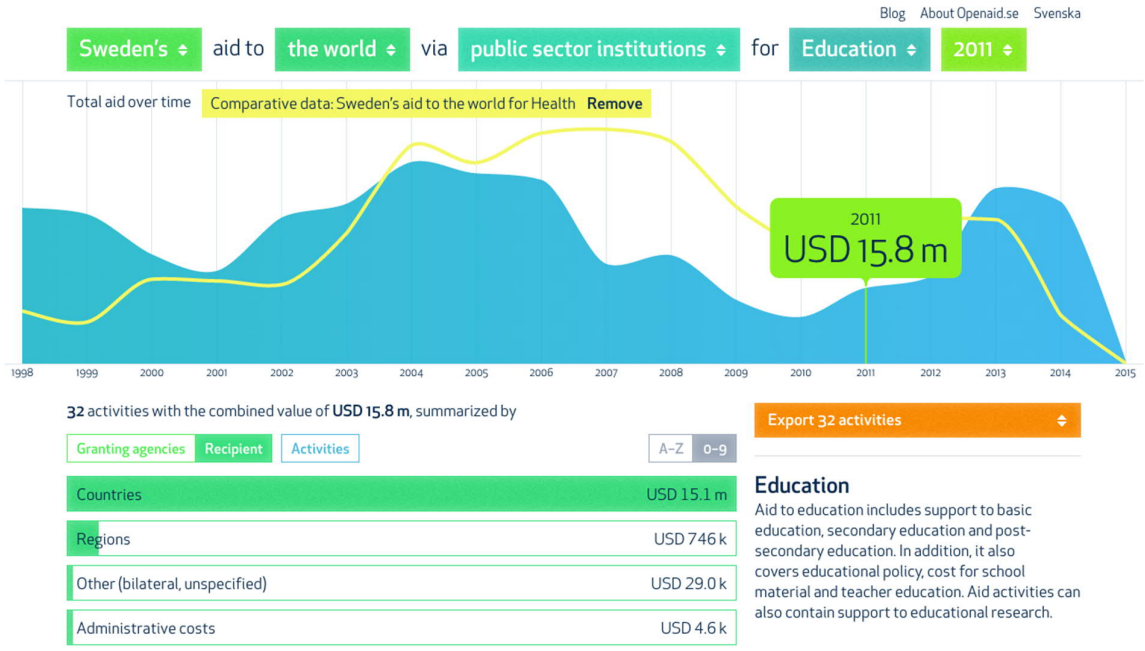


Figure 35 - http://www.openaid.se/aid/sweden/world/public-sector-institutions/education/2011/

1.2.4.11 g0v.tw: Taiwan Central Government Budget and Spending (Taiwan)

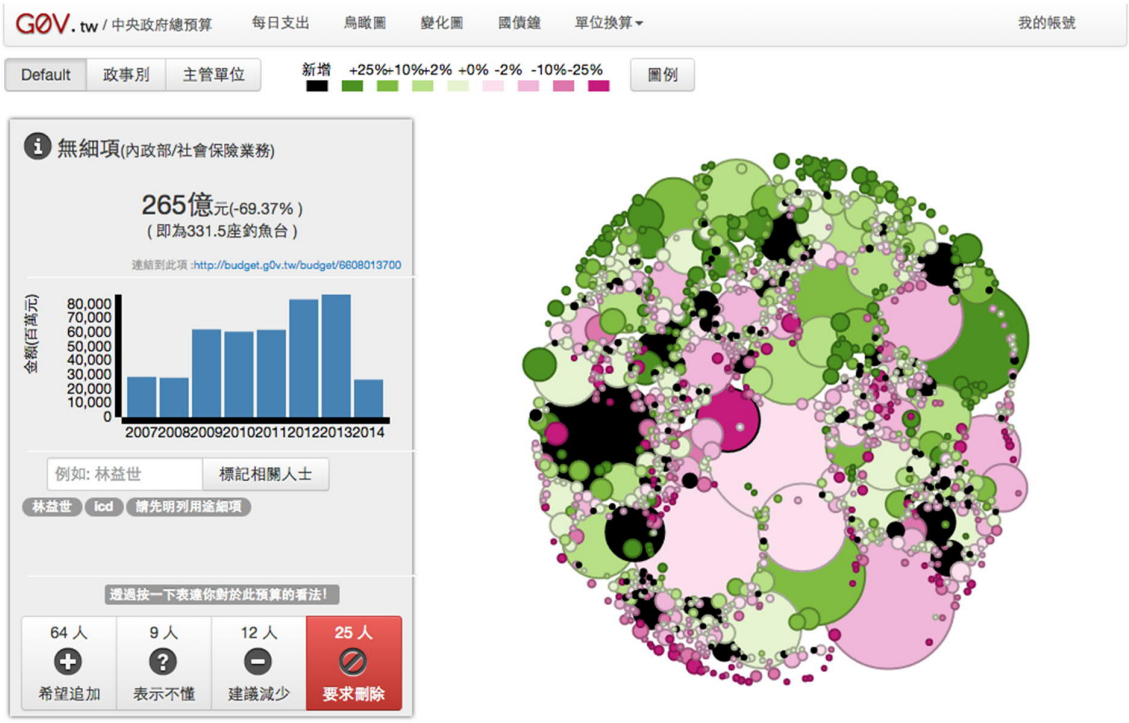


Figure 36 - http://budget.g0v.tw/budget

1.2.4.12 Financial Times: "Austerity State: how has your council's budget changed?" (UK)

Figure 37 - http://www.ft.com/ig/sites/2015/local-cuts-checker/

1.2.4.13 OpenGov: City of New Haven (United States)

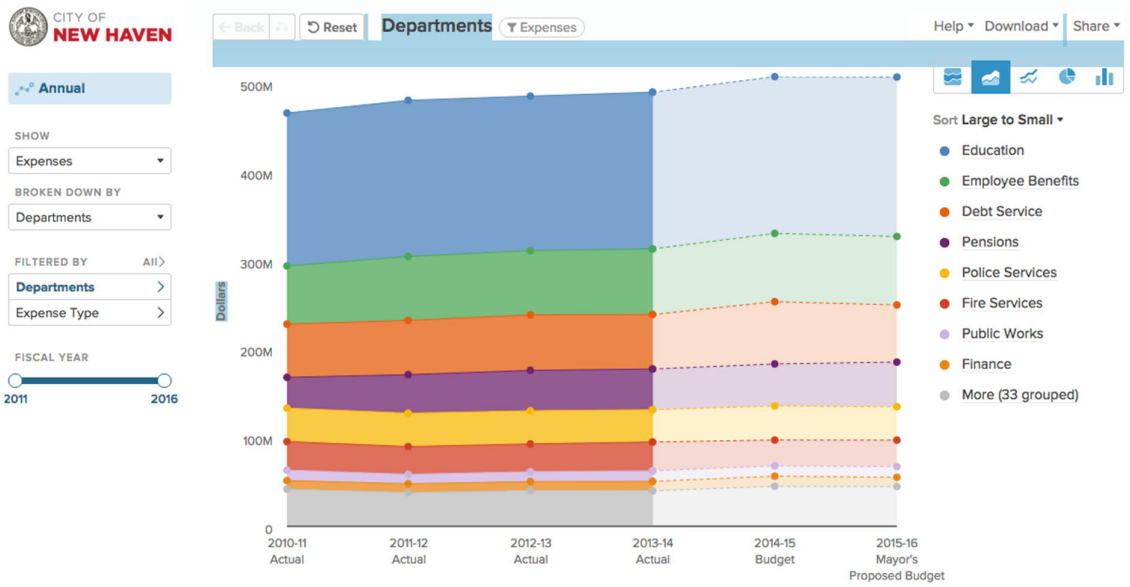


Figure 38 - https://newhavenct.opengov.com/transparency

1.2.4.14 govMapper: “How big should the government be?” (United States)

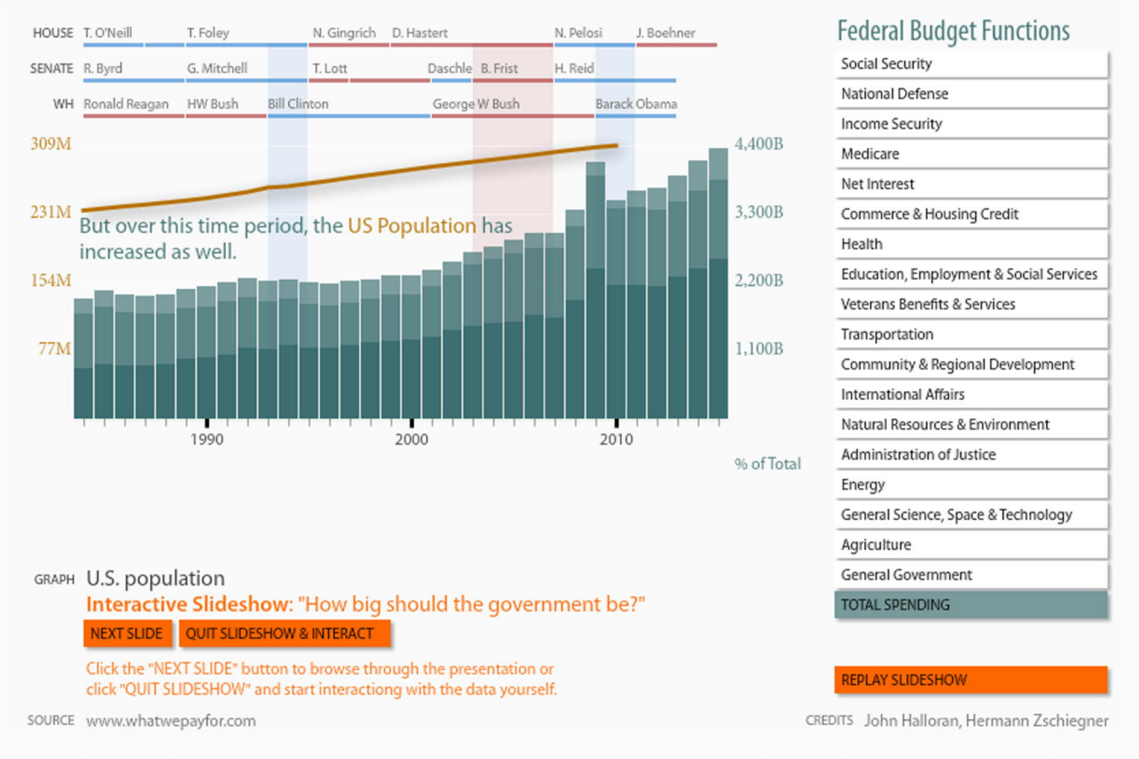


Figure 39 - http://govmapper.org/?page_id=180

1.2.4.15 Washington Post: “The Black Budget” (United States)

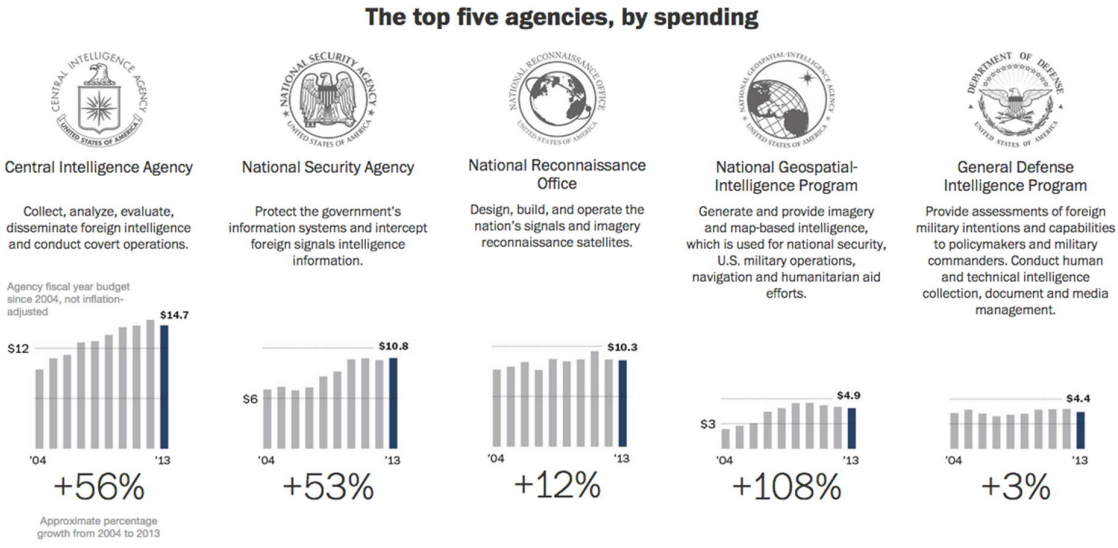


Figure 40 - https://www.washingtonpost.com/wp-srv/special/national/black-budget/

1.2.4.16 Presidential Costs (United States)

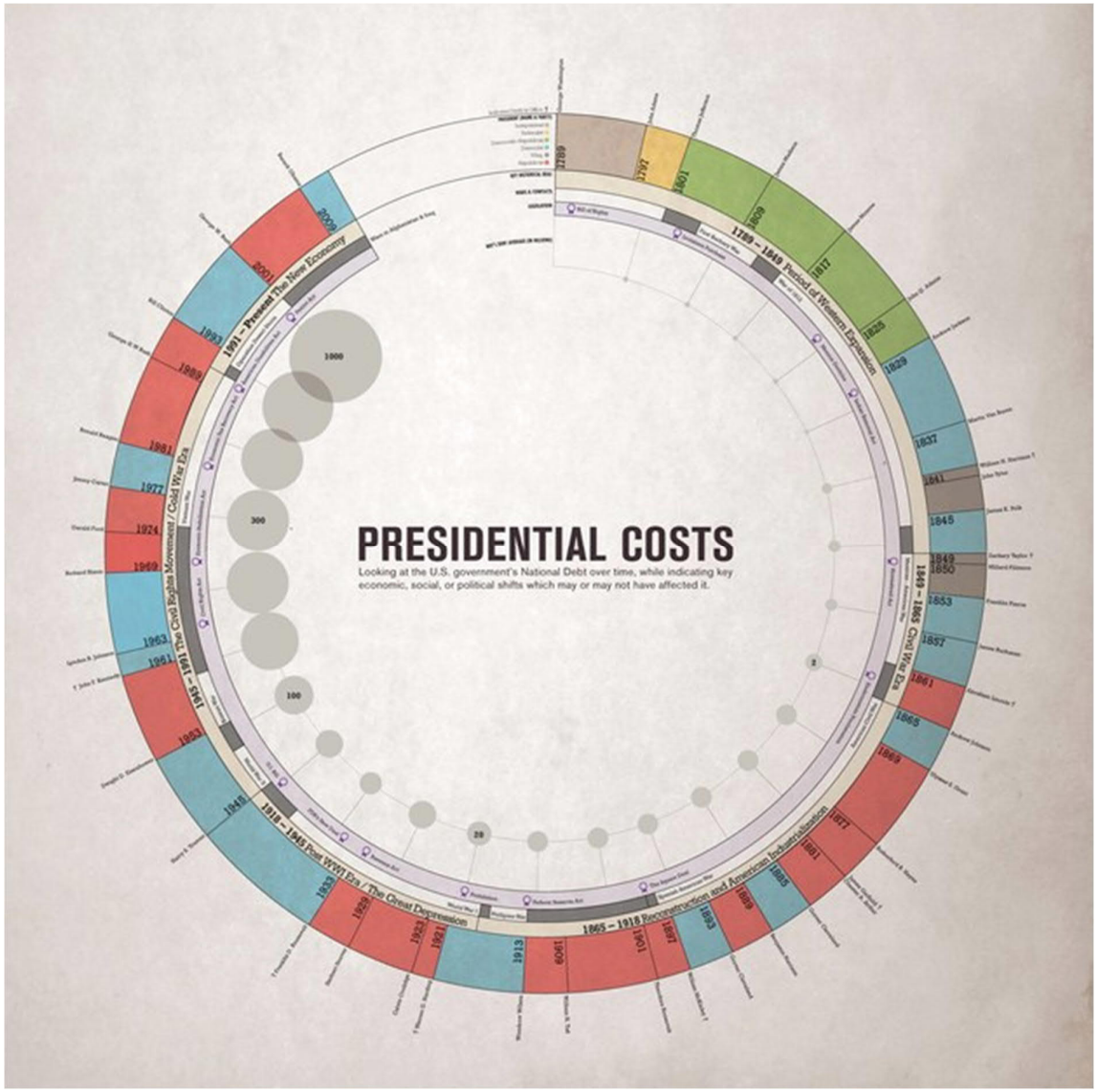


Figure 41 - http://portfolio.rachelmercer.org/projects/2666196

1.2.4.17 ProPublica: "The Millions New York Counties Coulda Got" (United States)

Figure 42 - https://projects.propublica.org/graphics/ny-millions

1.2.4.18 New York Times: Obama's 2012 Budget Proposal: How $3.7 Trillion Is Spent (United States)

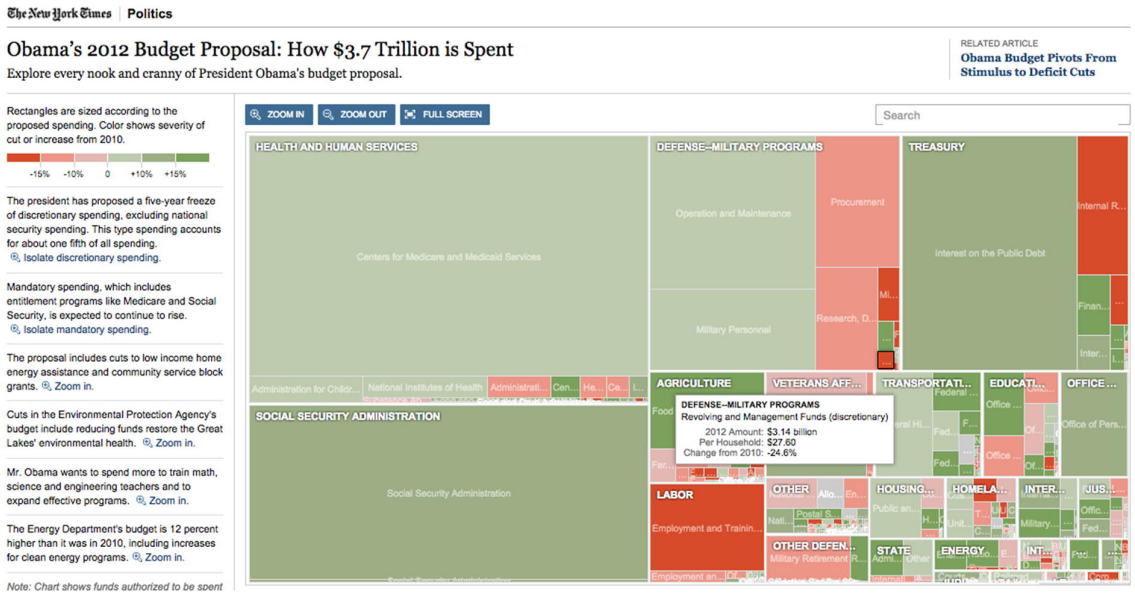


Figure 43 - http://www.nytimes.com/packages/html/newsgraphics/2011/0119-budget/index.html

1.2.5 Showing breakdown of funds by sector or recipient

1.2.5.1 Checkbook NYC (United States)

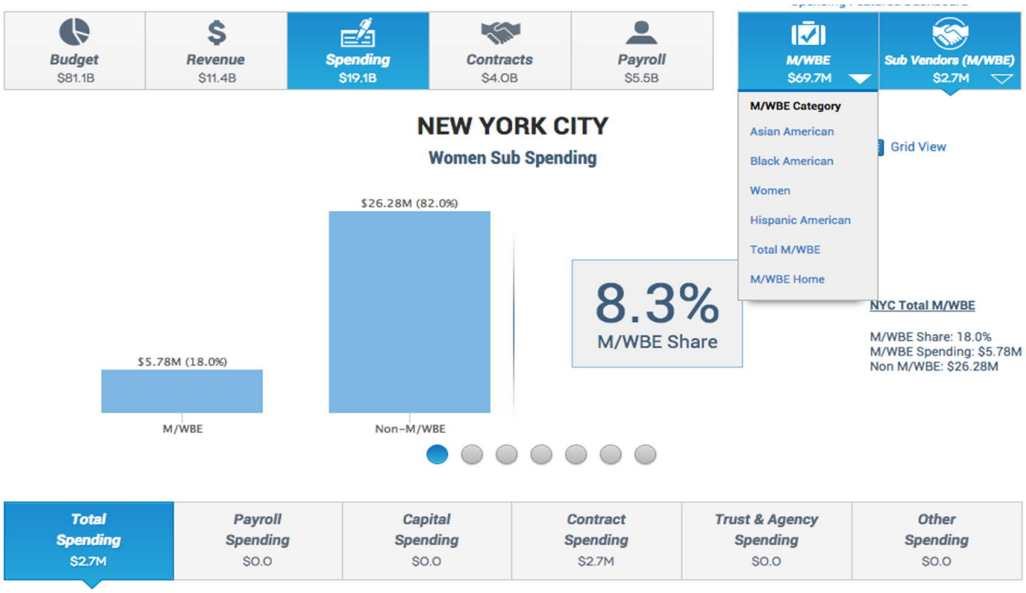


Figure 44 - http://www.checkbooknyc.com/spending_landing/yeartype/B/year/117/mwbe/9/dashboard/sp

1.2.5.2 Bankwatch: New Money, Old Ideas (Europe)

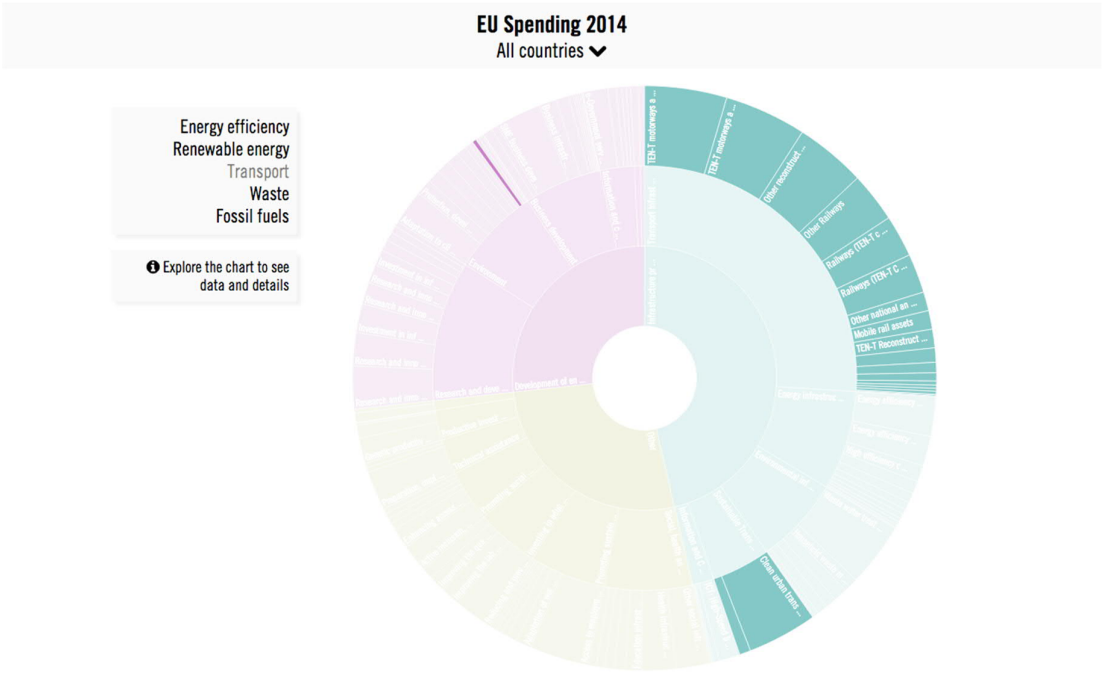


Figure 45 - http://bankwatch.live.kiln.it/2014/

1.2.5.3 The Guardian: "Government spending: What happens to our money?" (UK)

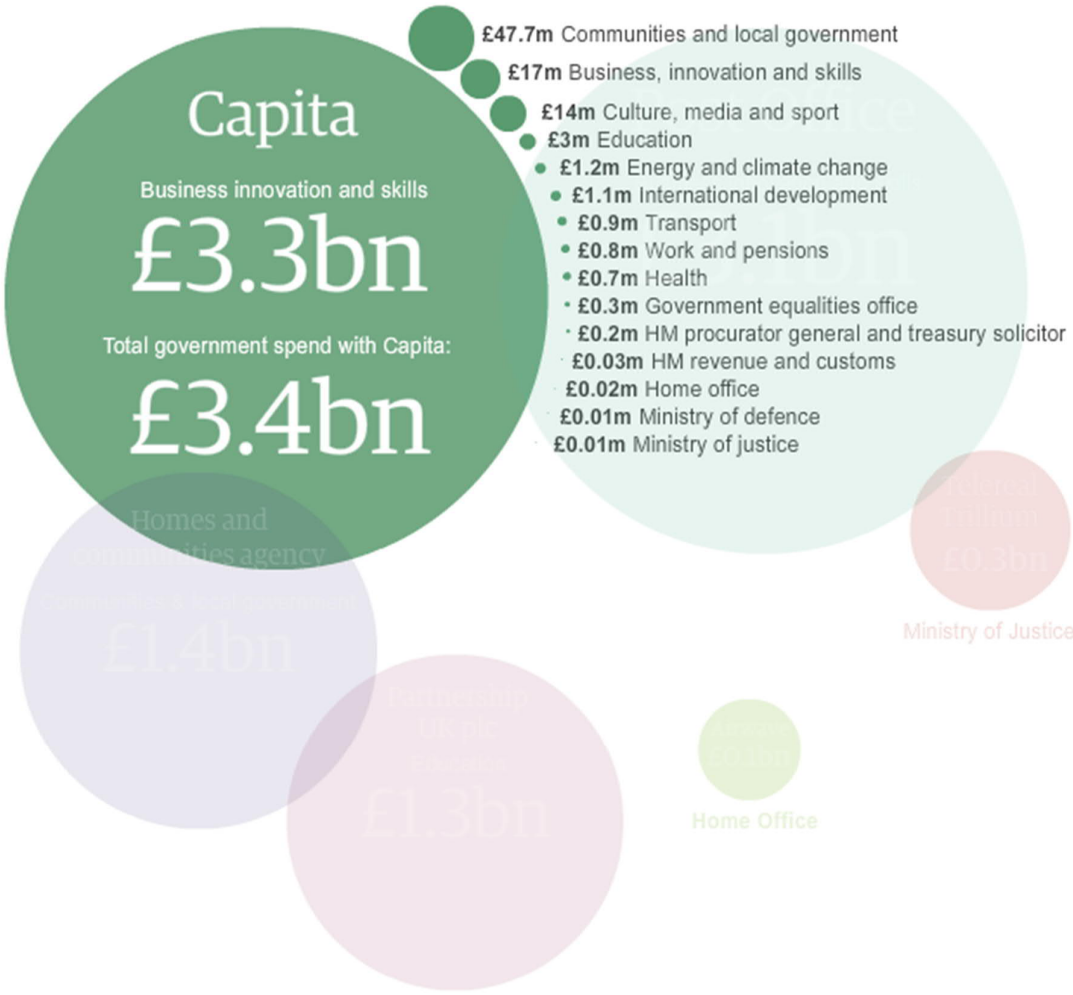


Figure 46 - http://www.theguardian.com/politics/interactive/2010/nov/19/government-data-interactive-guide

1.2.5.4 The Guardian: "Government spending over £25,000: Information is Beautiful on the bean counters" (UK)

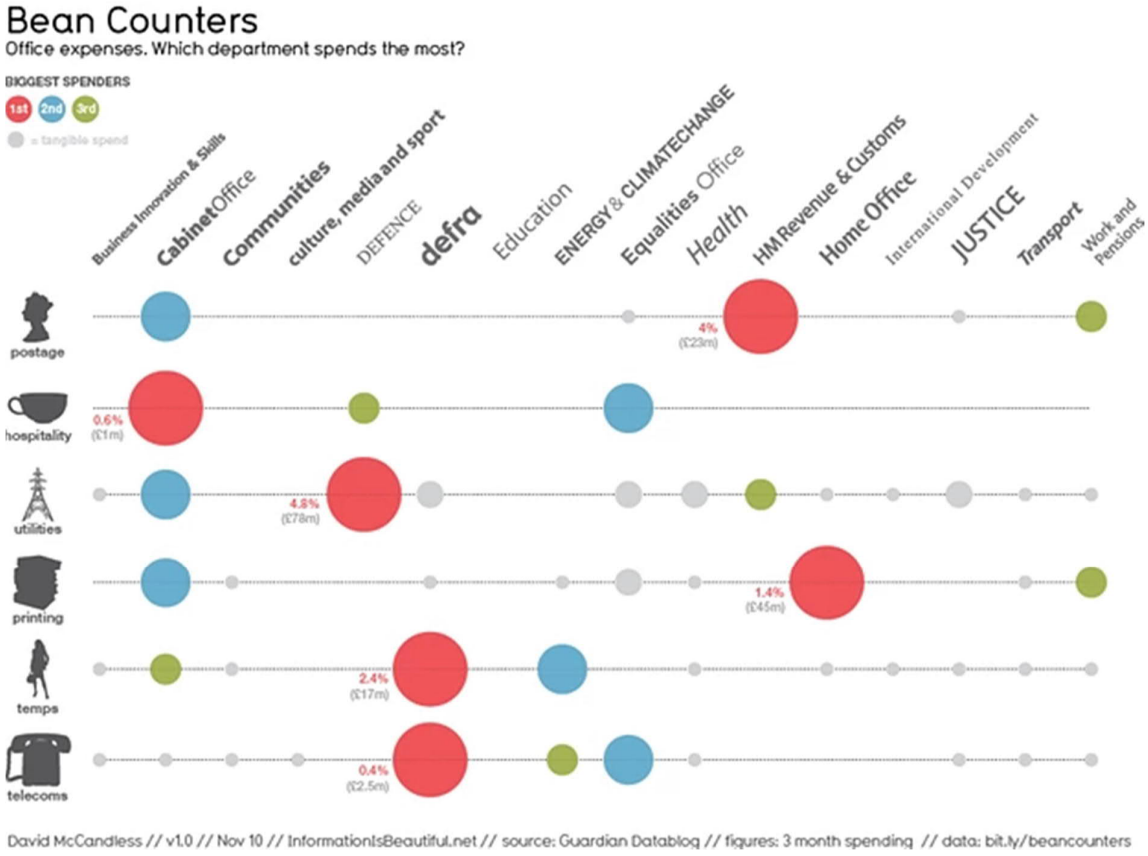


Figure 47 - http://www.theguardian.com/news/datablog/2010/nov/19/government-spending-information-beautiful

1.2.6 Showing networks of financial flows

1.2.6.1 New York Times: "It's All Connected: An Overview of the Euro Crisis" (United States)

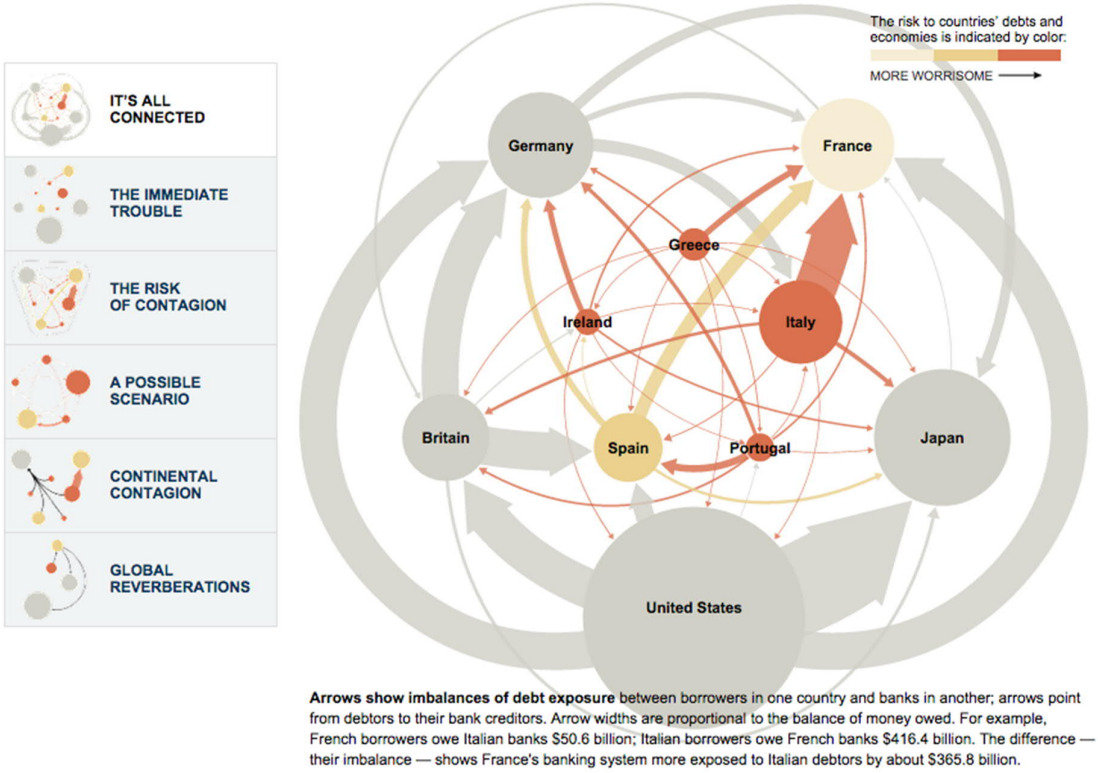


Figure 48 - http://www.nytimes.com/interactive/2011/10/23/sunday-review/an-overview-of-the-euro-crisis.html

1.2.6.2 Transparency International: “Visualisation of EU Funds Helps to Fight Corruption in the EU” (Europe)

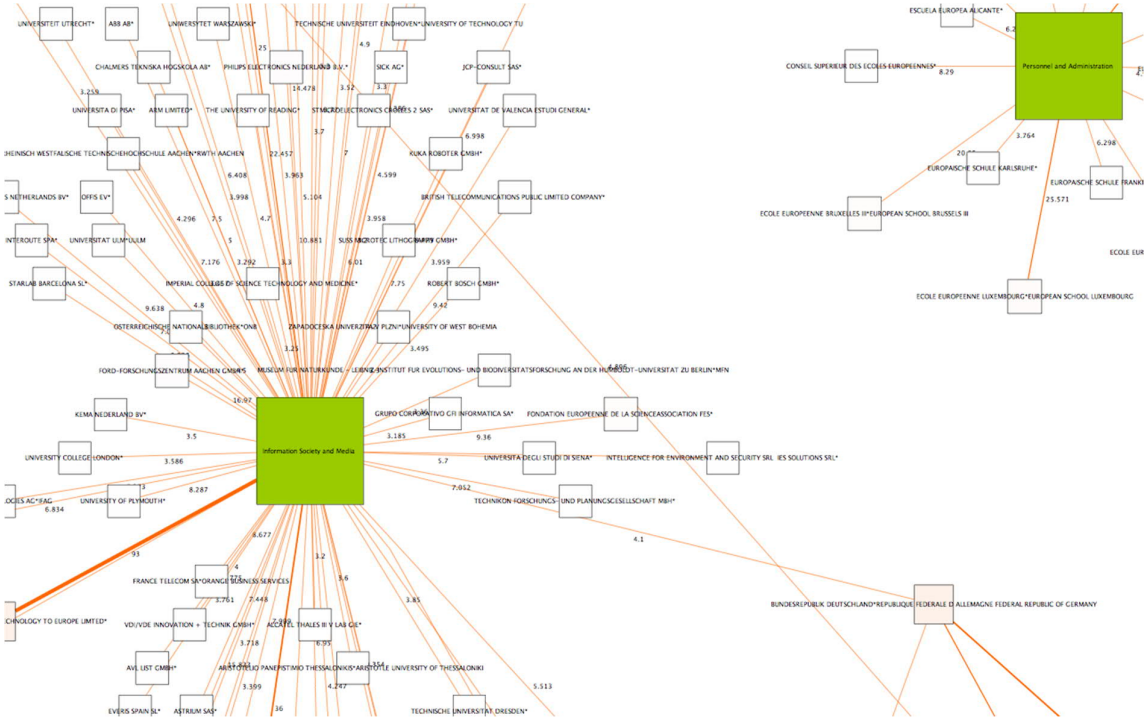


Figure 49 - http://blog.transparency.org/2010/08/19/visualisation-of-eu-funds-helps-to-fight-corruption-in-the-eu/

1.2.6.3 Network of Dutch public spending on IT services and software between 2012 and 2014 (Netherlands)

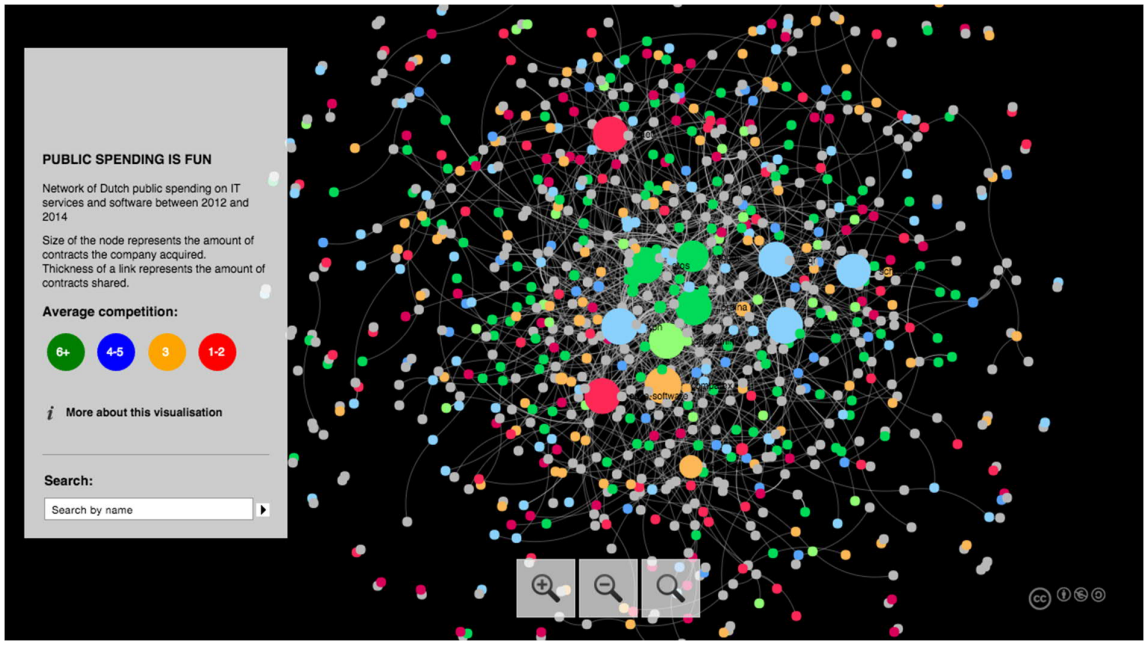


Figure 50 - http://www.homolova.sk/dh/it/#

1.2.6.4 Copinage Dans Les Hautes Sphères (Switzerland)

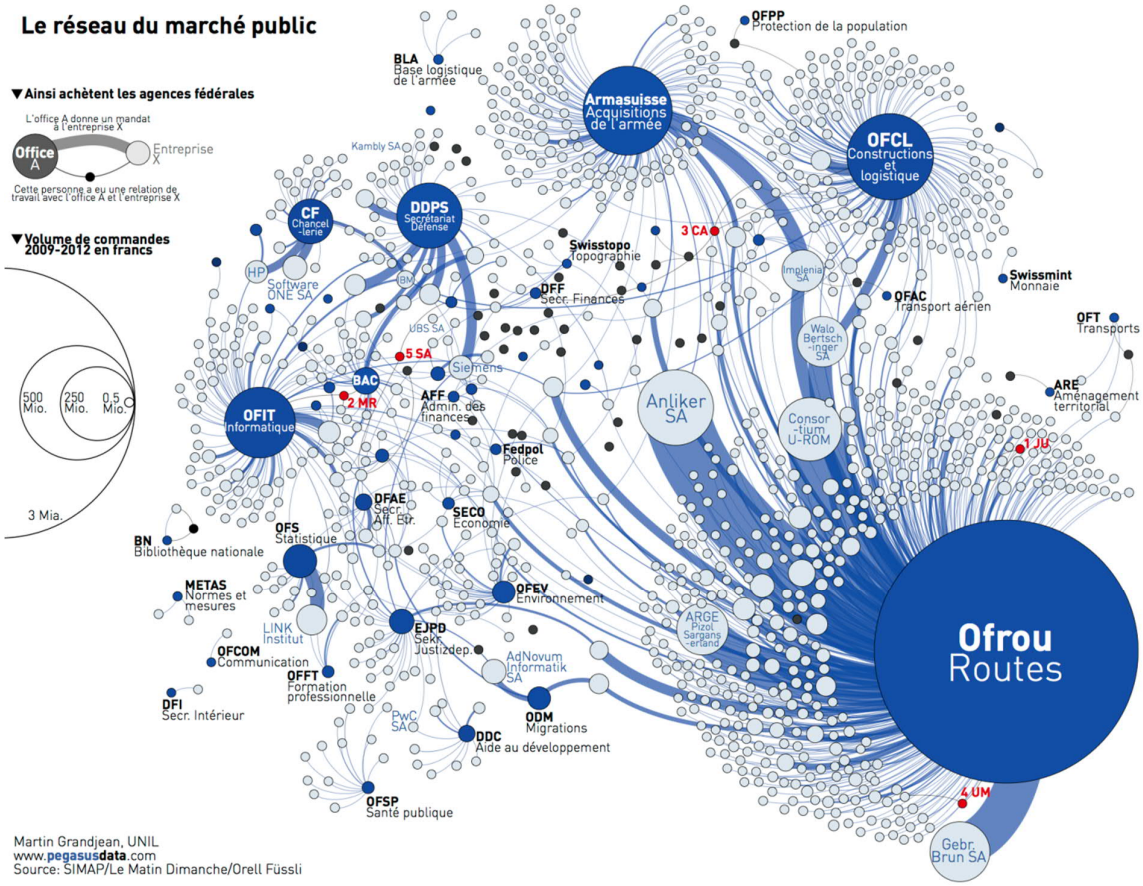


Figure 51 - http://pegasusdata.com/2012/11/25/opendata-copinage-au-gouvernement-quand-lanalyse-de-reseau-vient-en-aide-au-journalisme-dinvestigation/

1.2.6.5 All Together Now (United States)

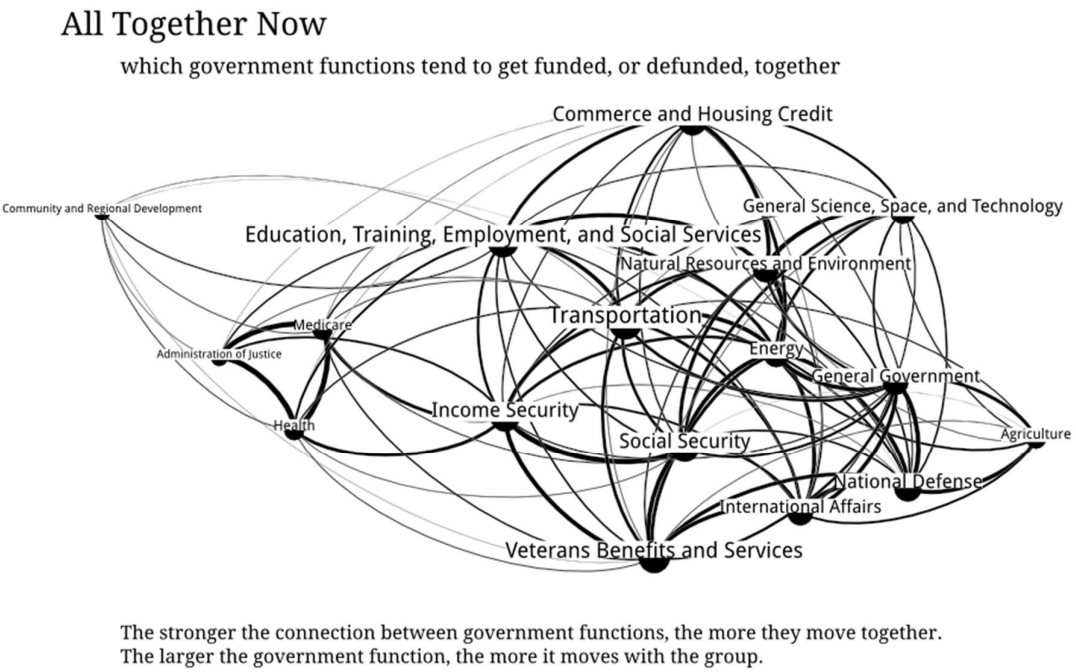


Figure 52 - http://explainwell.com/budget/#AllTogetherNow

1.2.7 Following financial flows

1.2.7.1 Veropuu (Finland)

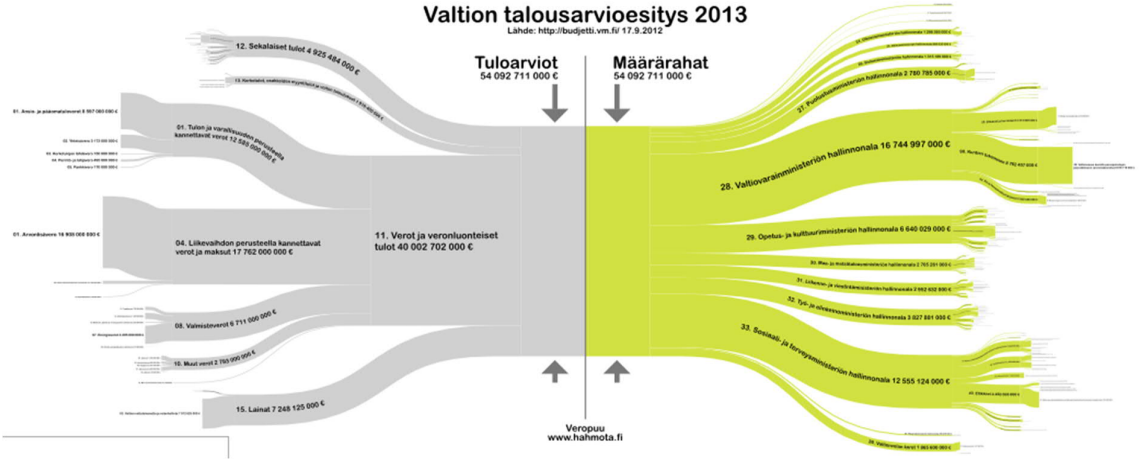


Figure 53 - http://www.hahmota.com/veropuu.html

1.2.7.2 Gobierno del País Vasco (Spain)

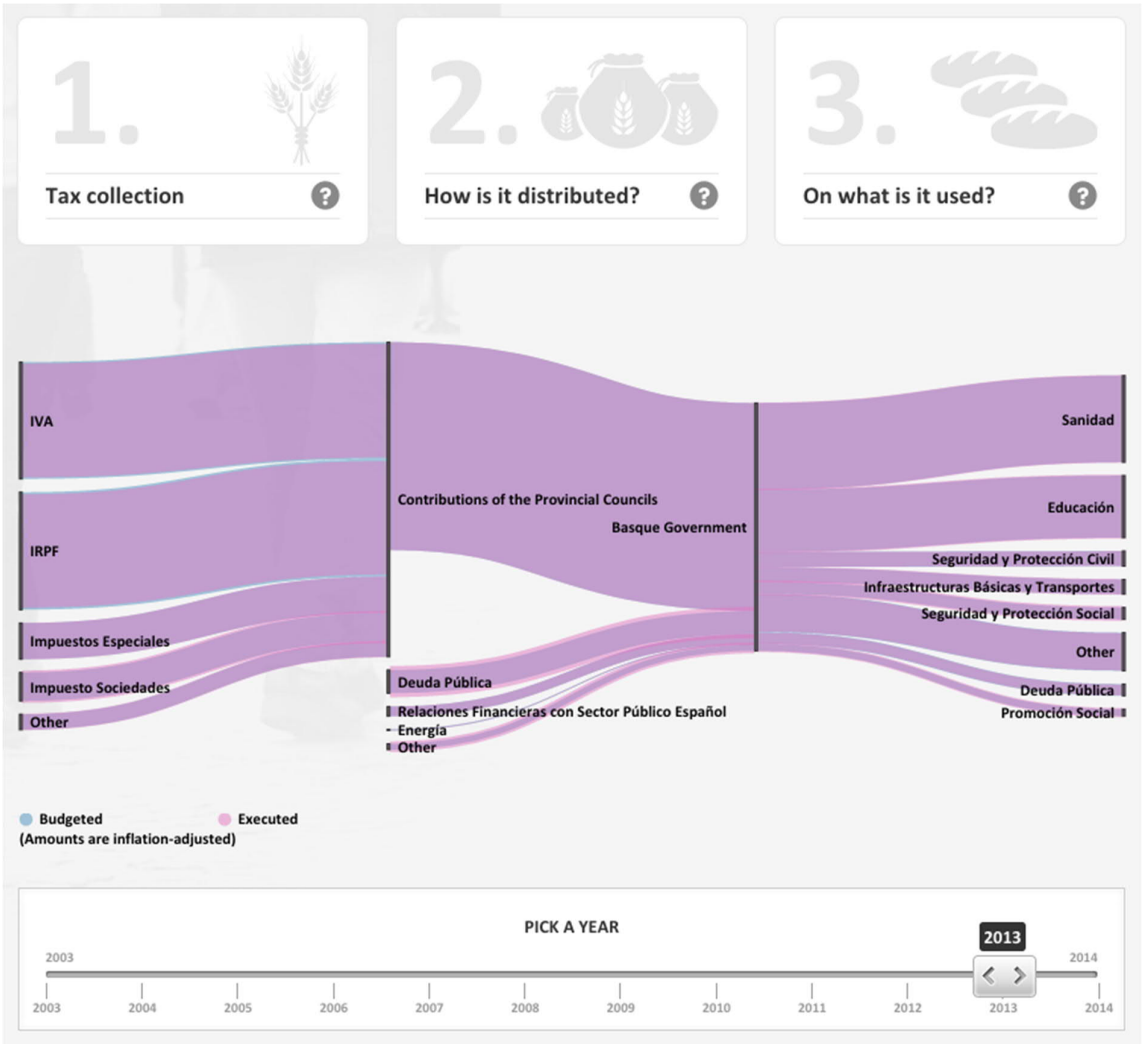


Figure 54 - http://aurrekontuak.irekia.euskadi.eus/

1.2.7.3 Kultur-O-Meter (Spain)

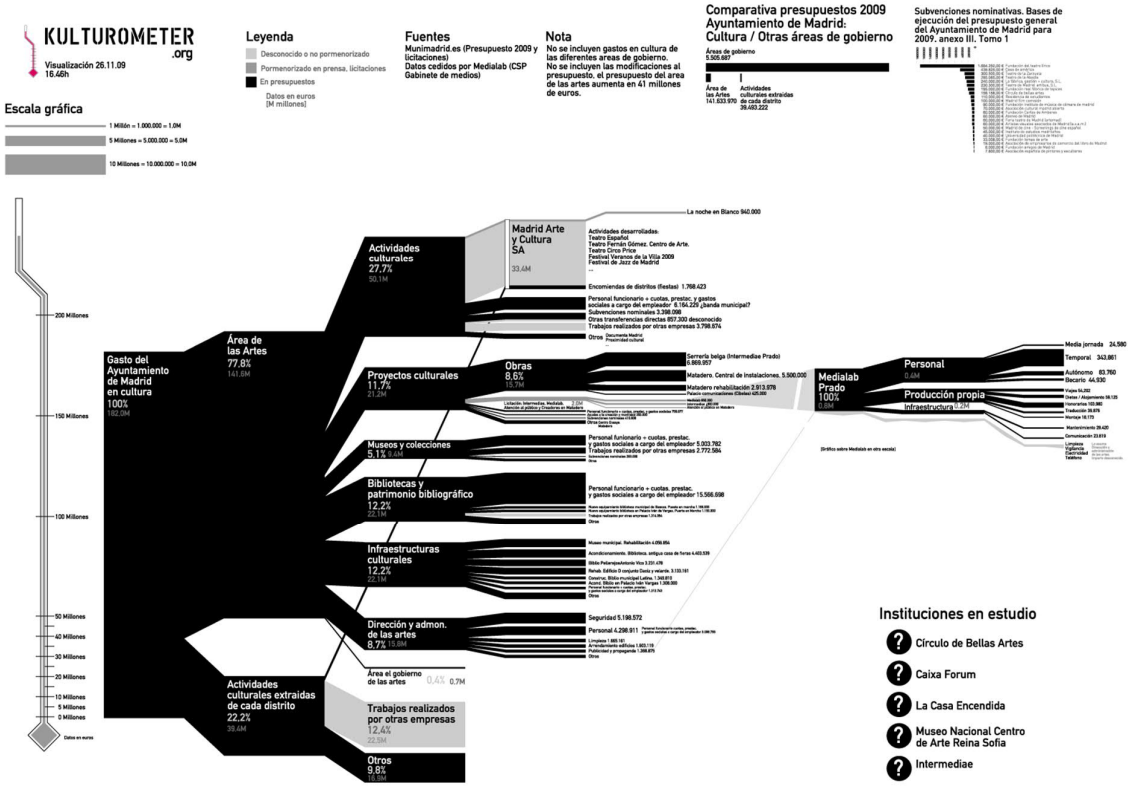


Figure 55 - http://kulturometer.org/2009/11/grafico-1-presupuesto-ayuntamiento-de-madrid-2009/

1.2.7.4 Climate Policy Initiative: Landscape of Climate Finance 2014 (International)

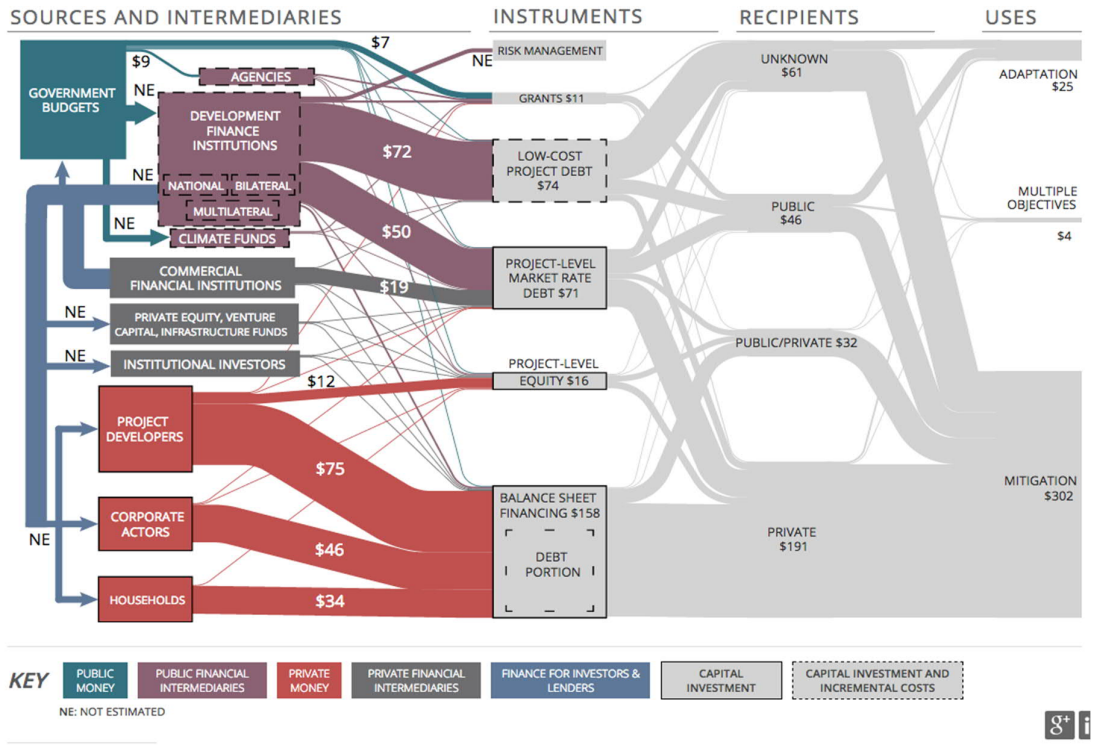


Figure 56 - http://www.climatefinancelandscape.org/flows-diagram/index.html

1.2.7.5 wikiBudgets (UK)

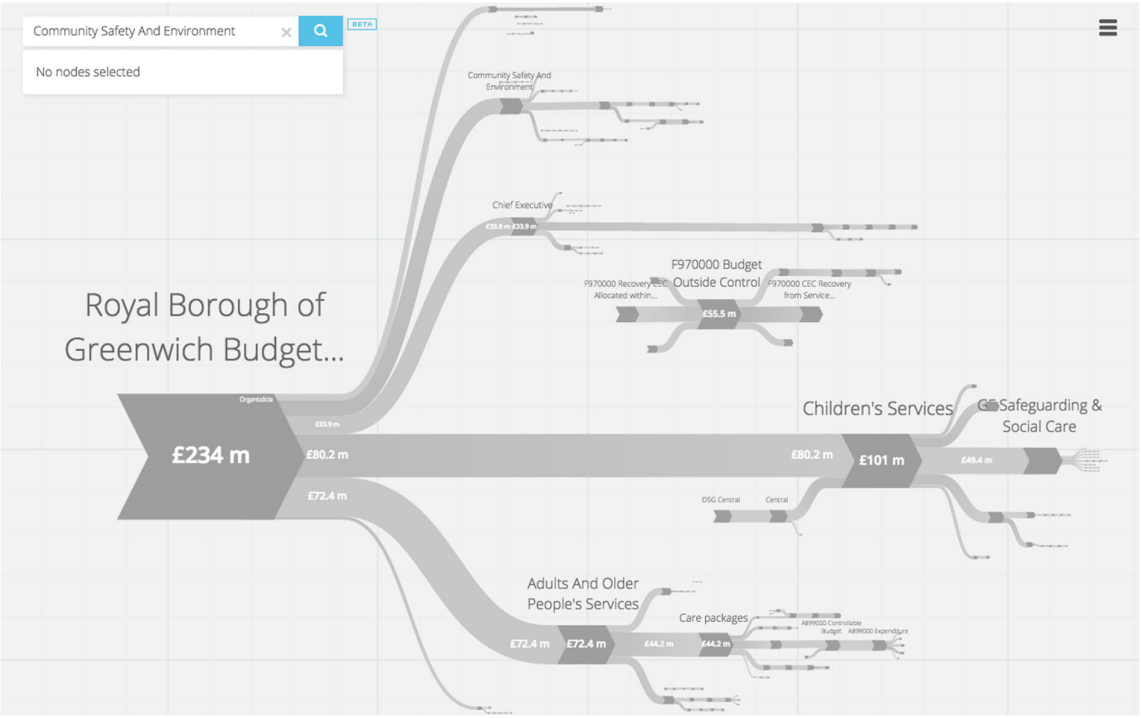


Figure 57 - http://wikibudgets.org/w/uk/london/greenwich/2015/

1.2.7.6 Bright Point – Federal Budget 2013 (United States)

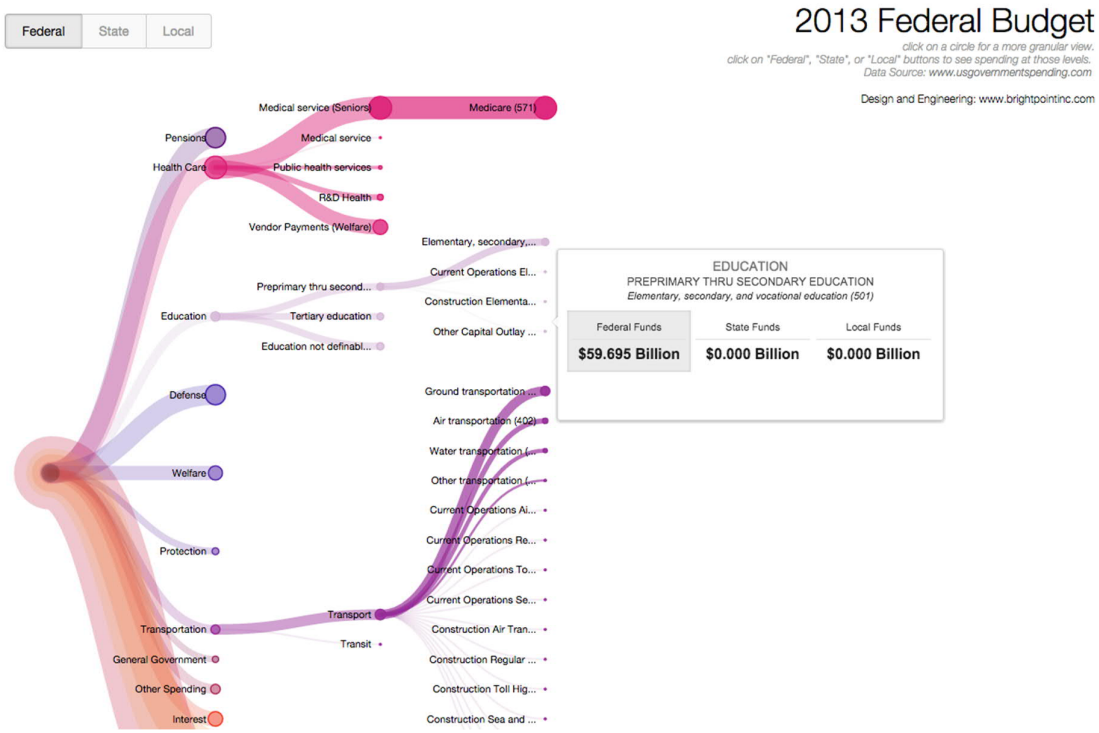


Figure 58 - http://www.brightpointinc.com/interactive/budget/index.html?source=d3js

1.2.7.7 Open Budget: Oakland (United States)

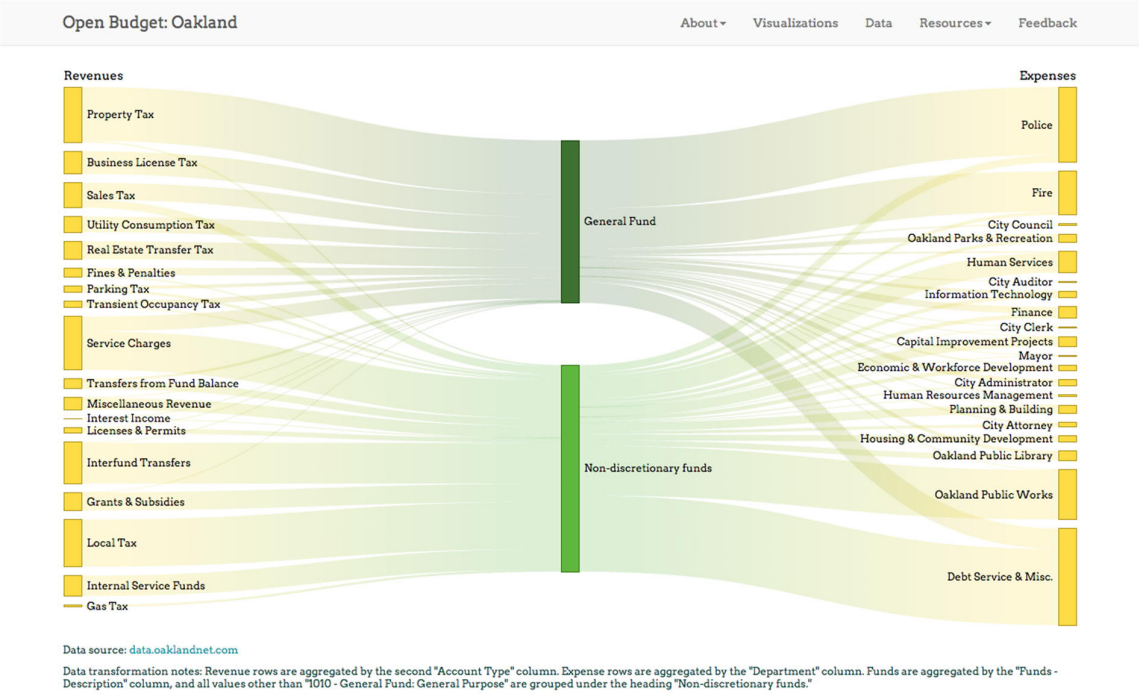


Figure 59 - http://openbudgetoakland.org/2015-17-proposed-budget-flow.html

1.2.8 Comparing budgeting, commitment and execution

1.2.8.1 Observatorio presupuestario (Argentina)

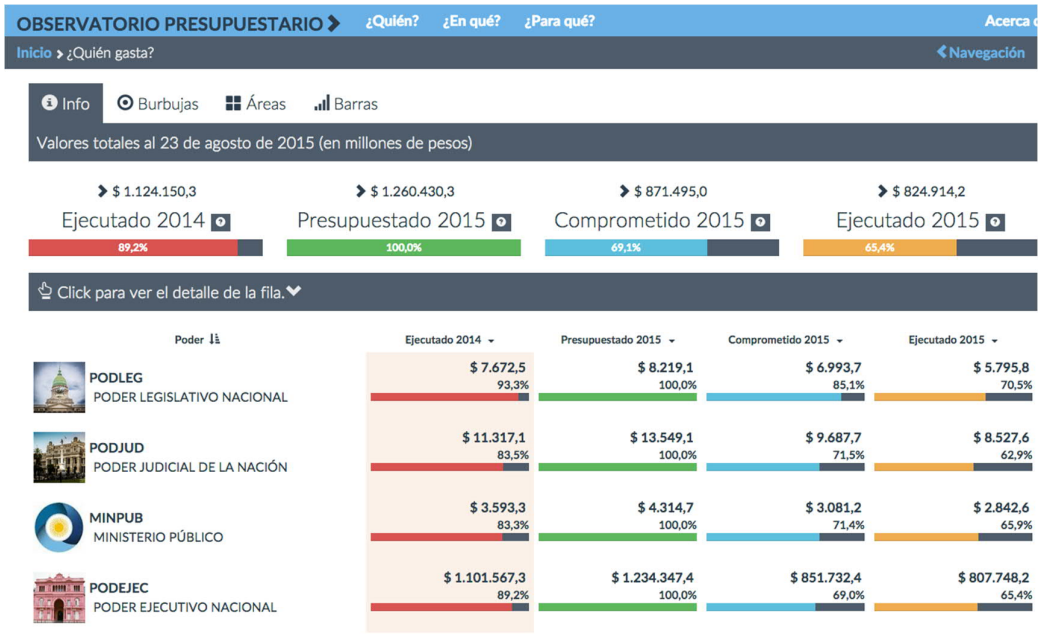


Figure 60 - http://asap.org.ar/observatorio/#/quien

1.2.8.2 Deconstructing the Hong Kong Budget – South China Morning Post (China)

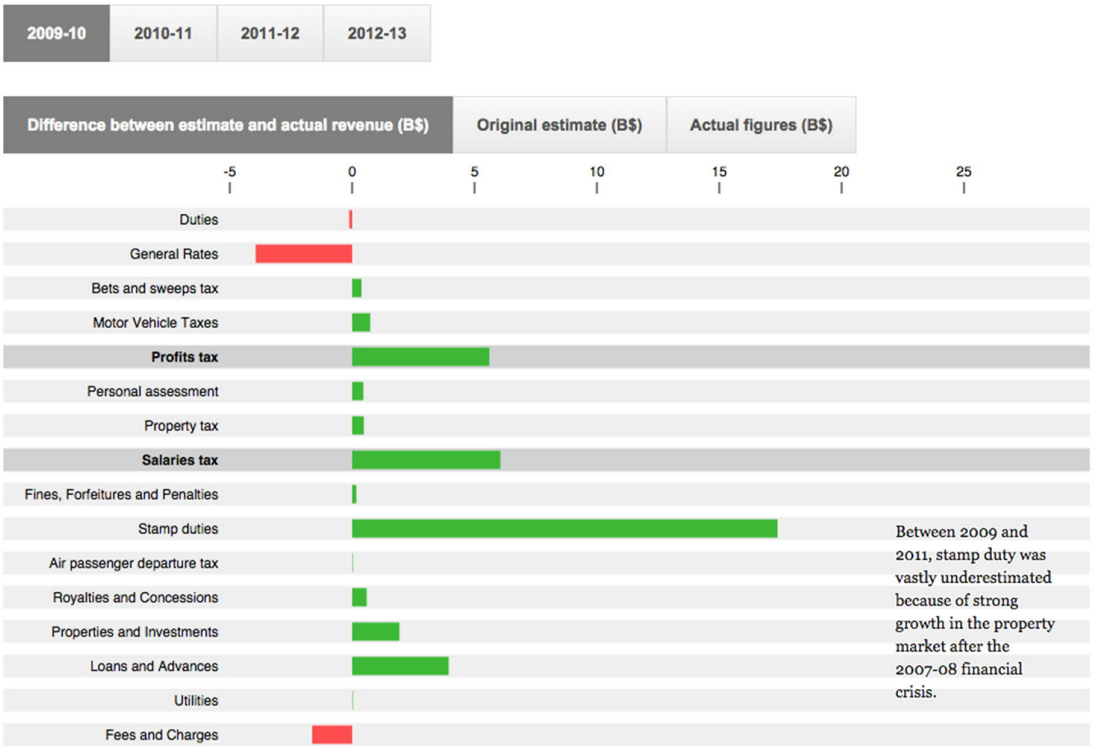


Figure 61 - http://www.scmp.com/infographics/article/1438790/deconstructing-hong-kong-budget

1.2.8.3 The Guardian: "Which is the real budget? How to find the real budget in the spending review" (UK)

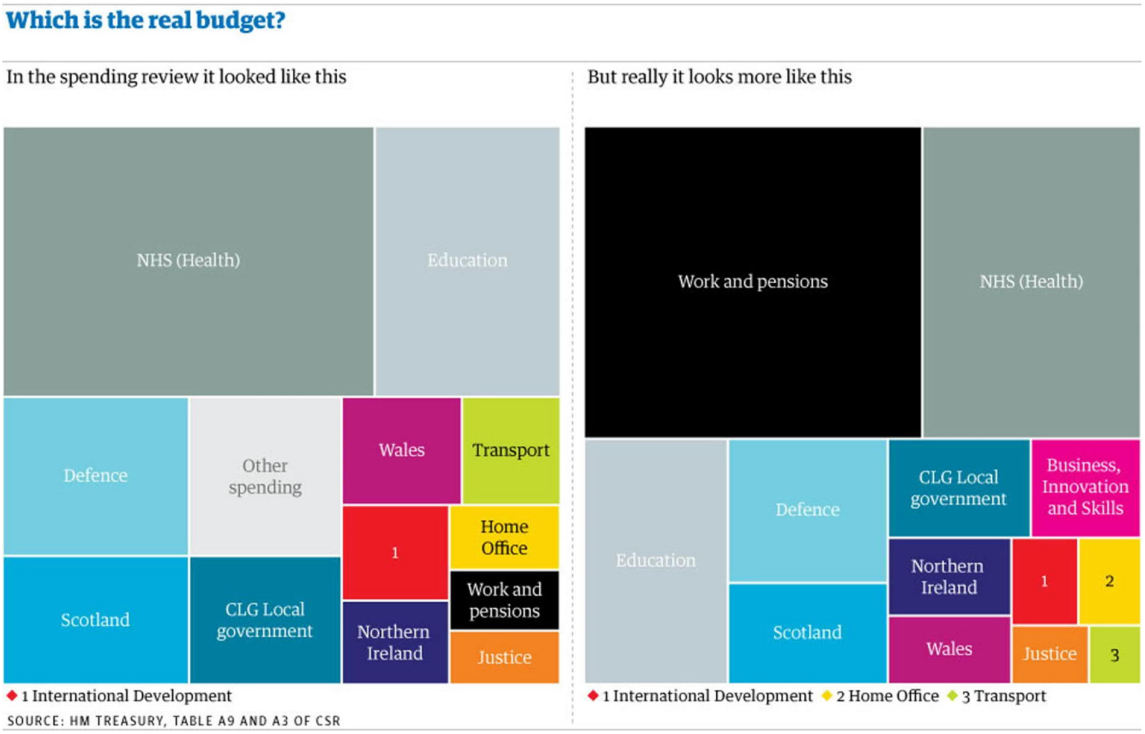


Figure 62 - http://www.theguardian.com/news/datablog/2010/nov/05/budget-spending-review

1.2.8.4 New York Times: "Budget Forecasts, Compared With Reality" (United States)

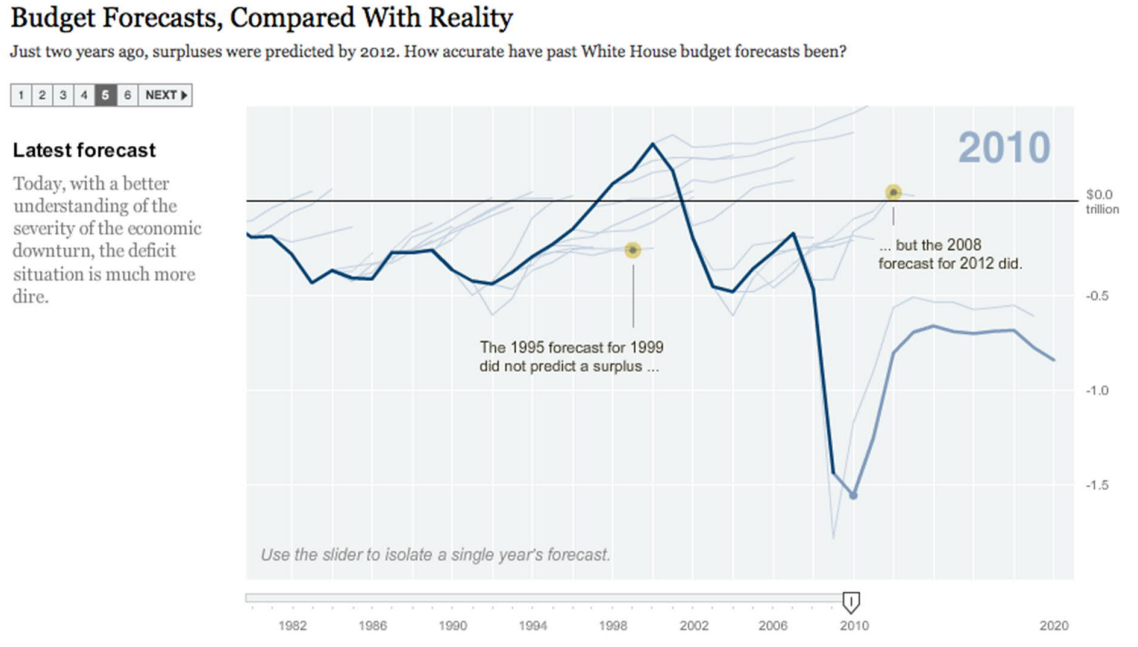


Figure 63 - http://www.nytimes.com/interactive/2010/02/02/us/politics/20100201-budget-porcupine-graphic.html

1.2.9 Comparison of revenues, expenditures and debts

1.2.9.1 Volkskrant Data: “Fiscal avalanche in tax haven the Netherlands” (Netherlands)

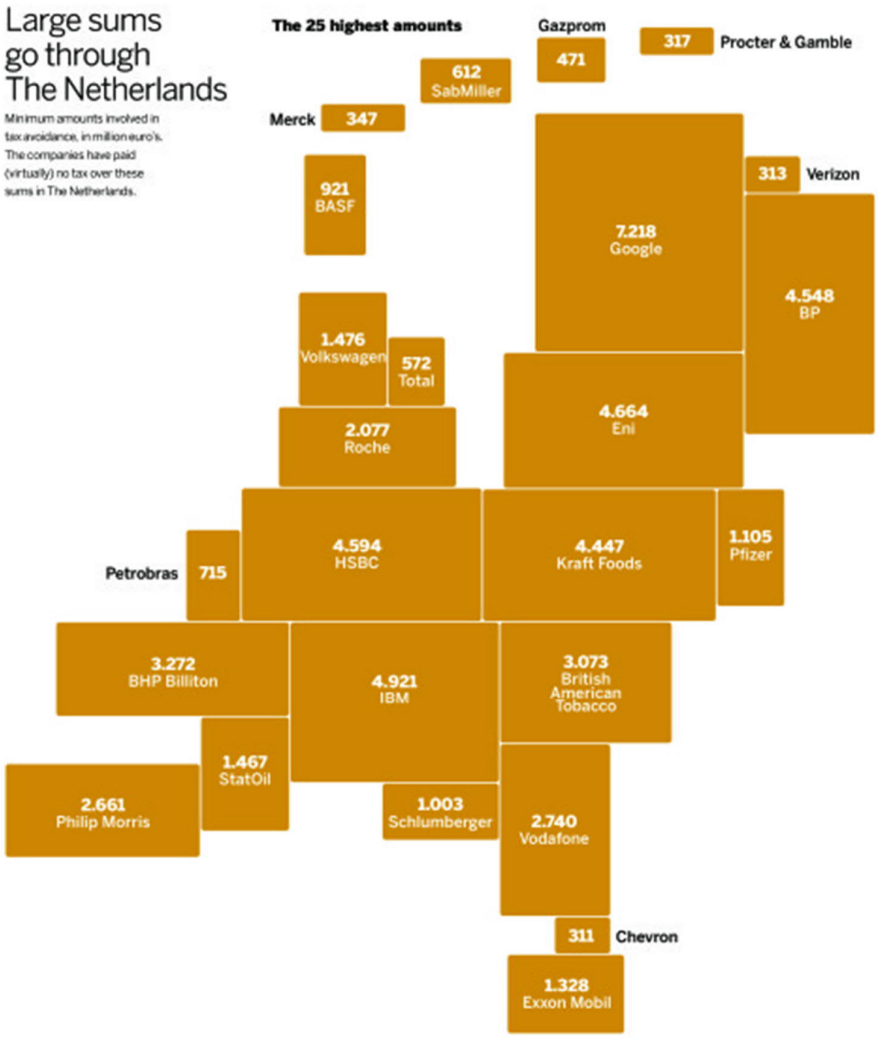


Figure 64 - https://vkdata.wordpress.com/2013/04/05/fiscal-avalanche-in-tax-haven-the-netherlands/comment-page-1/#comment-47

1.2.9.2 The Guardian/Information is Beautiful: The Tax Gap (UK)

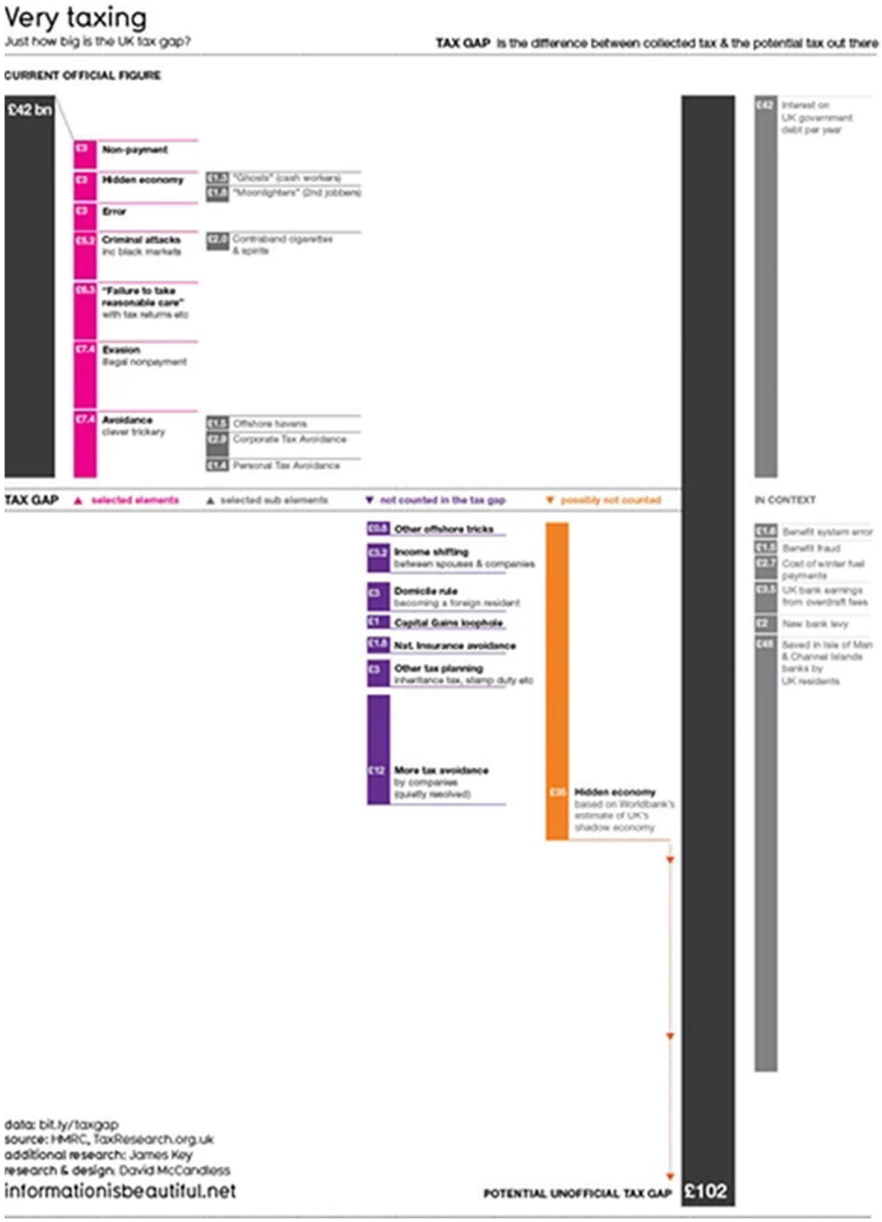


Figure 65 - http://www.theguardian.com/news/datablog/2010/sep/22/tax-gap-information-beautiful

1.2.9.3 The Guardian: "Budget 2014: the government's spending and income visualised" (UK)

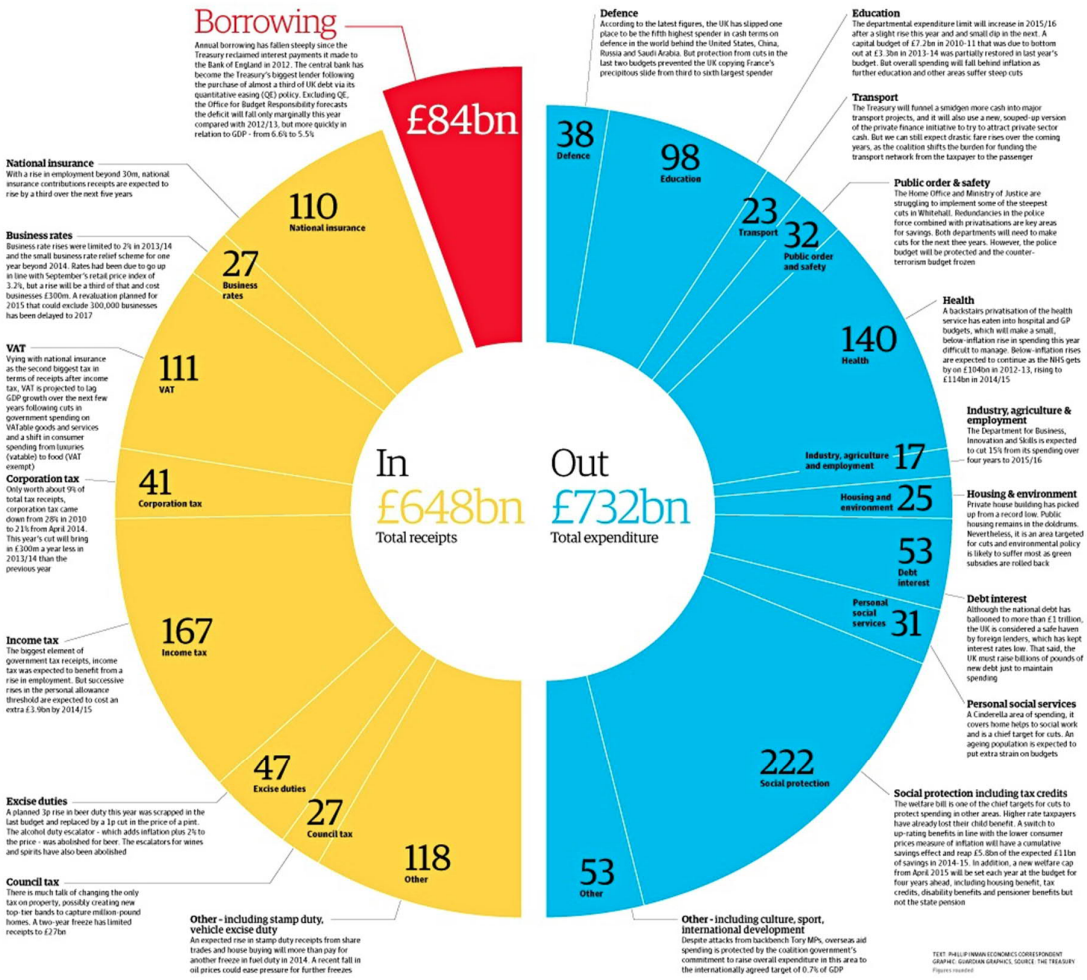


Figure 66 - http://www.theguardian.com/news/datablog/2014/mar/21/budget-2014-tax-spending-visualised

1.2.9.4 The Times: "The Wall of Debt" (UK)

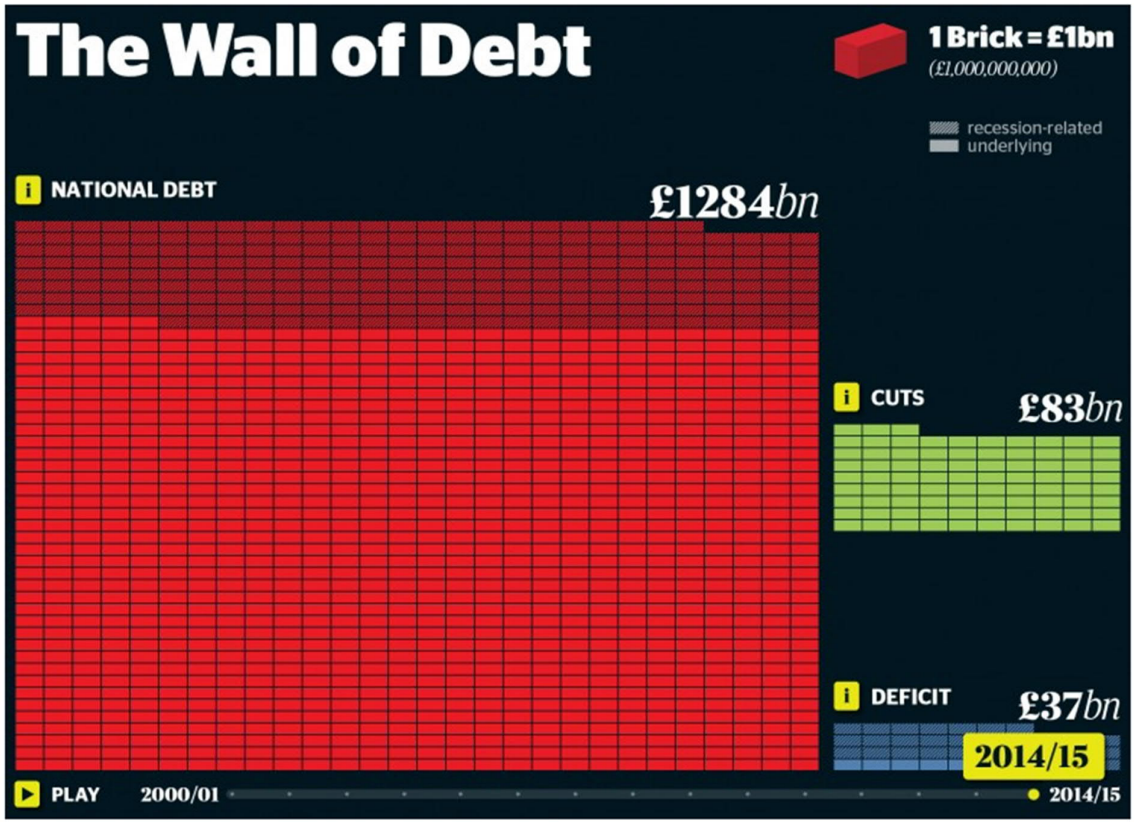


Figure 67 - http://appliedworks.co.uk/work/the-times-defining-a-new-era-of-data-journalism/

1.2.9.5 The Guardian: "Deficit, national debt and government borrowing - how has it changed since 1946?" (UK)

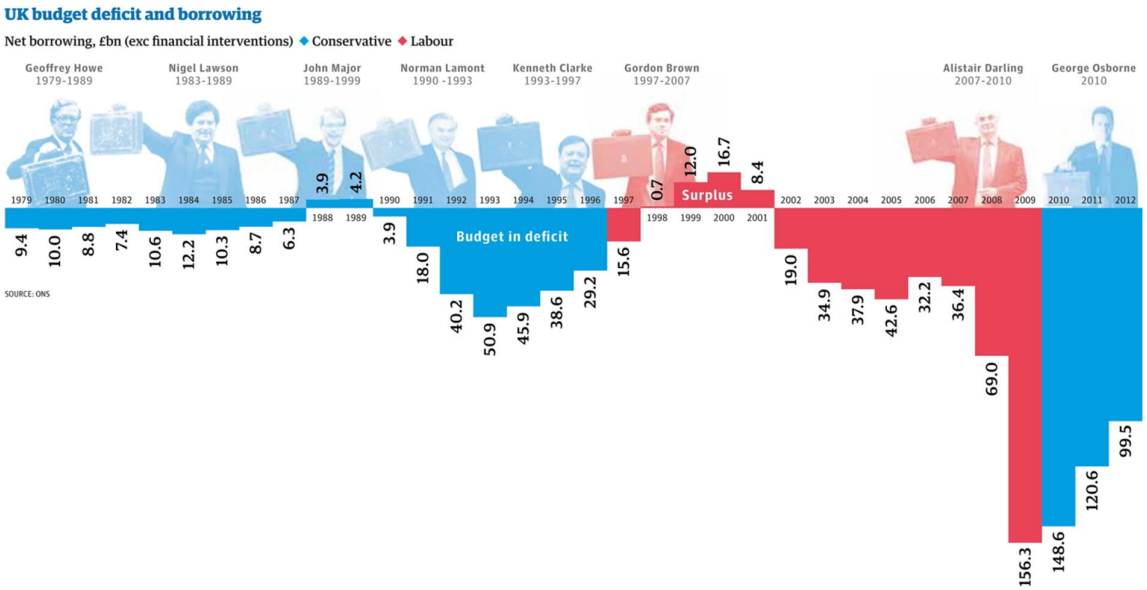


Figure 68 - http://www.theguardian.com/news/datablog/2010/oct/18/deficit-debt-government-borrowing-data

1.2.9.6 New York Times: "Across U.S. Companies, Tax Rates Vary Greatly" (United States)

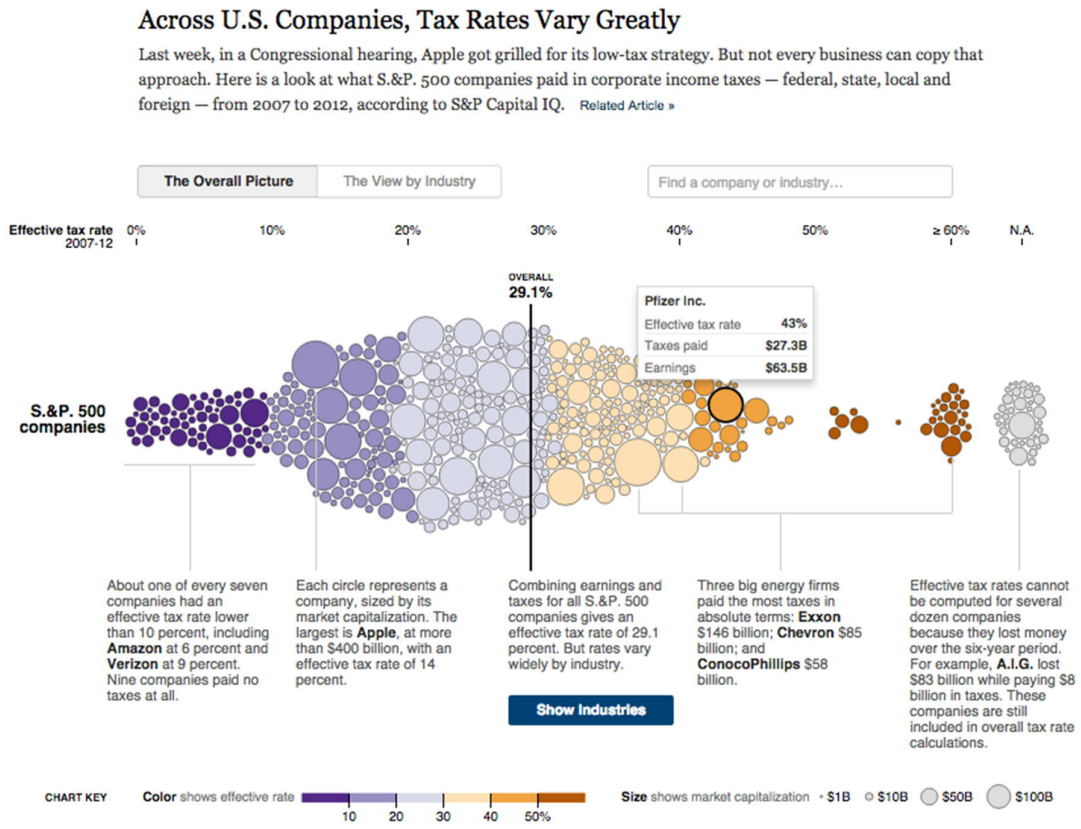


Figure 69 - http://www.nytimes.com/interactive/2013/05/25/sunday-review/corporate-taxes.html

1.2.9.7 The Seattle Times: "How would you balance the state budget and fund education?" (United States)

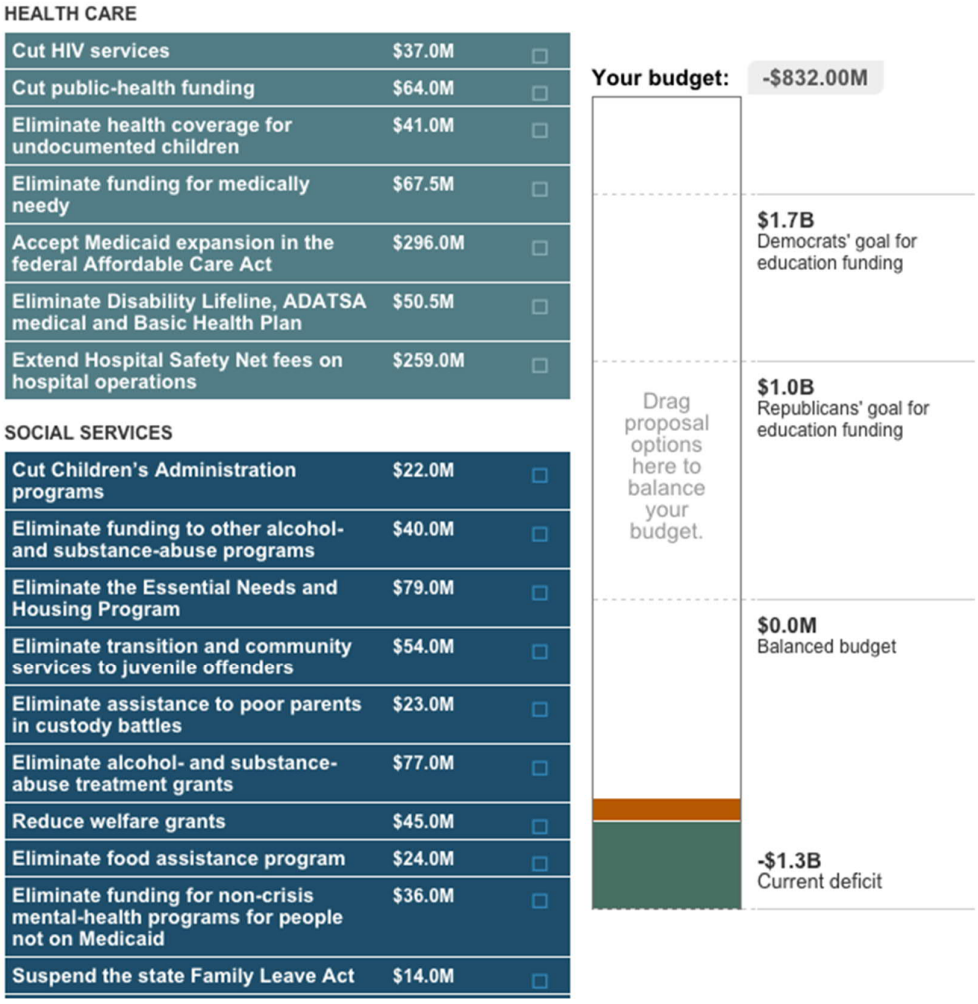
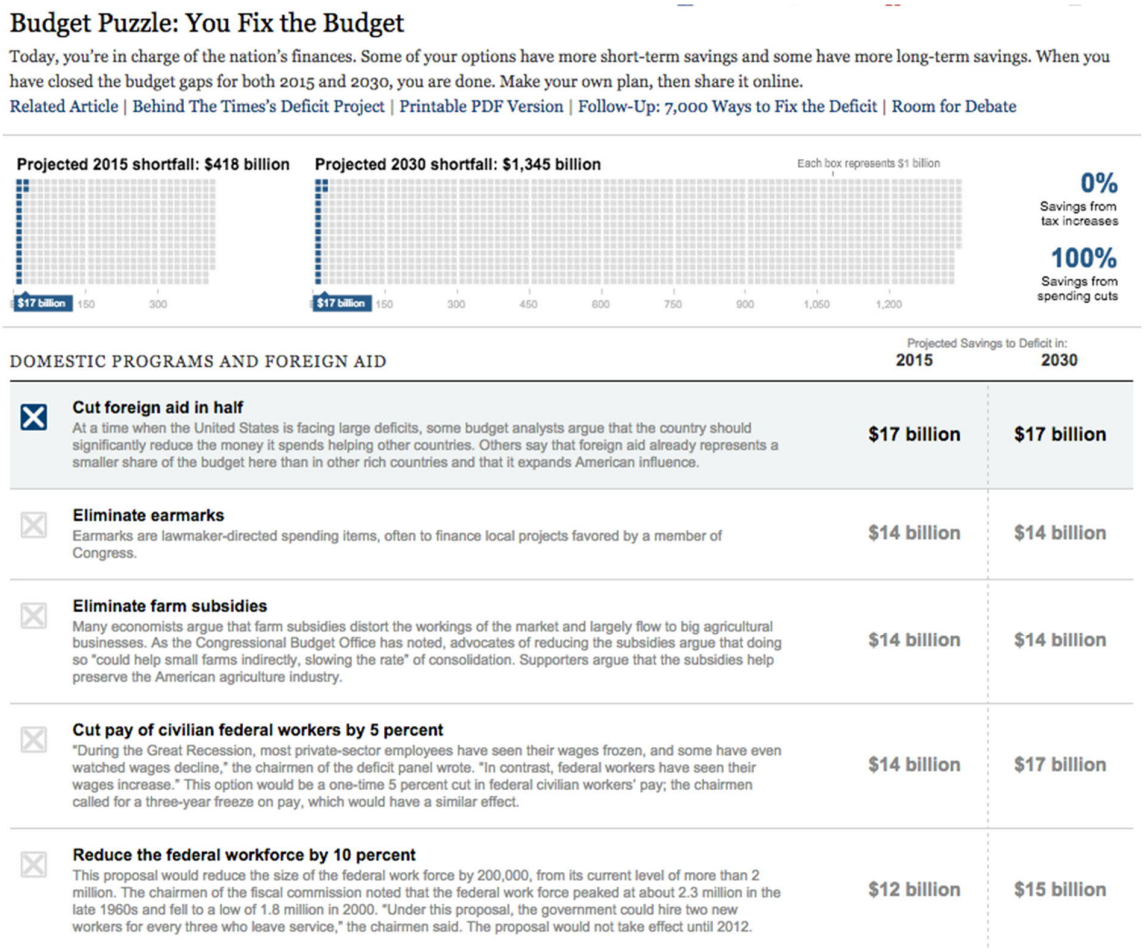


Figure 70 - http://old.seattletimes.com/flatpages/local/balance-washington-state-budget-game.html

1.2.9.8 New York Times: “Budget Puzzle: You Fix the Budget” (United States)



Budget Puzzle: You Fix the Budget

Today, you're in charge of the nation's finances. Some of your options have more short-term savings and some have more long-term savings. When you have closed the budget gaps for both 2015 and 2030, you are done. Make your own plan, then share it online.

Related Article | Behind The Times's Deficit Project | Printable PDF Version | Follow-Up: 7,000 Ways to Fix the Deficit | Room for Debate

Projected 2015 shortfall: $418 billion

Projected 2030 shortfall: $1,345 billion

Each box represents $1 billion

$17 billion 150 300 450 600 750 900 1,050 1,200

0% Savings from tax increases

100% Savings from spending cuts

DOMESTIC PROGRAMS AND FOREIGN AID	Projected Savings to Deficit in: 2015	2030
Cut foreign aid in half At a time when the United States is facing large deficits, some budget analysts argue that the country should significantly reduce the money it spends helping other countries. Others say that foreign aid already represents a smaller share of the budget here than in other rich countries and that it expands American influence.	$17 billion	$17 billion
Eliminate earmarks Earmarks are lawmaker-directed spending items, often to finance local projects favored by a member of Congress.	$14 billion	$14 billion
Eliminate farm subsidies Many economists argue that farm subsidies distort the workings of the market and largely flow to big agricultural businesses. As the Congressional Budget Office has noted, advocates of reducing the subsidies argue that doing so "could help small farms indirectly, slowing the rate" of consolidation. Supporters argue that the subsidies help preserve the American agriculture industry.	$14 billion	$14 billion
Cut pay of civilian federal workers by 5 percent "During the Great Recession, most private-sector employees have seen their wages frozen, and some have even watched wages decline," the chairmen of the deficit panel wrote. "In contrast, federal workers have seen their wages increase." This option would be a one-time 5 percent cut in federal civilian workers' pay; the chairmen called for a three-year freeze on pay, which would have a similar effect.	$14 billion	$17 billion
Reduce the federal workforce by 10 percent This proposal would reduce the size of the federal work force by 200,000, from its current level of more than 2 million. The chairmen of the fiscal commission noted that the federal work force peaked at about 2.3 million in the late 1960s and fell to a low of 1.8 million in 2000. "Under this proposal, the government could hire two new workers for every three who leave service," the chairmen said. The proposal would not take effect until 2012.	$12 billion	$15 billion

Figure 71 - http://www.nytimes.com/interactive/2010/11/13/weekinreview/deficits-graphic.html?_r=0

1.2.10 Public finances per person

1.2.10.1 Scienceogram (UK)

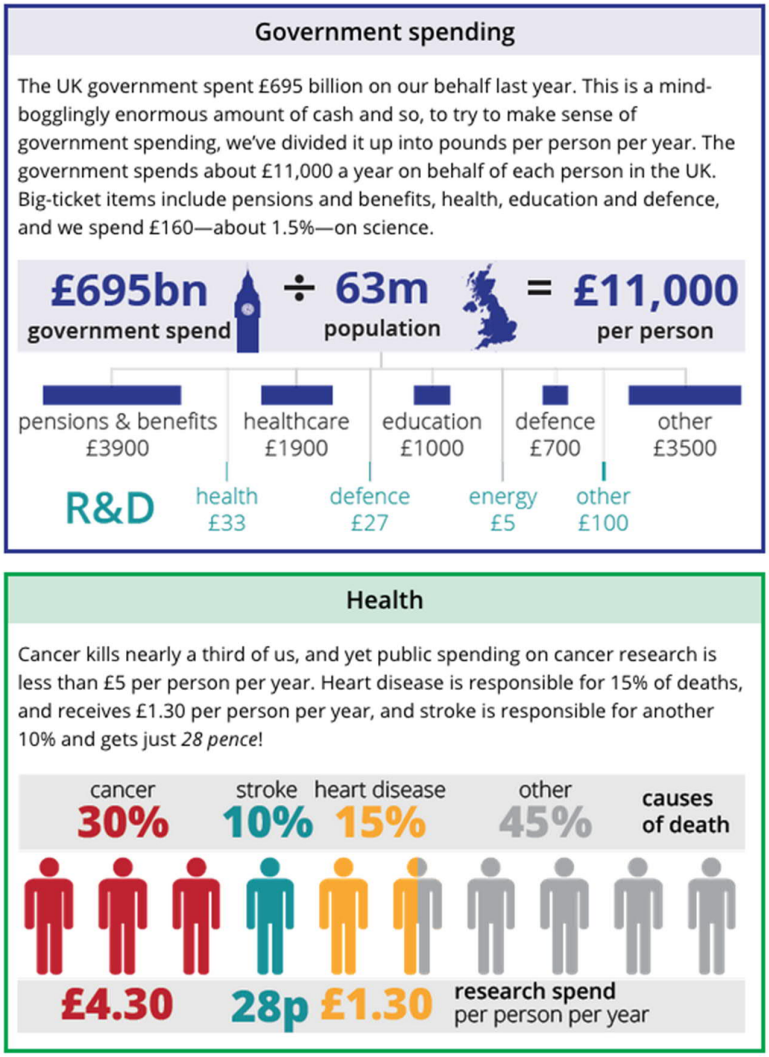


Figure 72 - http://scienceogram.org/summary/

1.2.10.2 Where Does My Money Go? – "Daily Bread" (UK)

Figure 73 - http://wheredoesmymoneygo.org/dailybread.html

1.2.10.3 I Like Taxes, They Buy Things (United States)

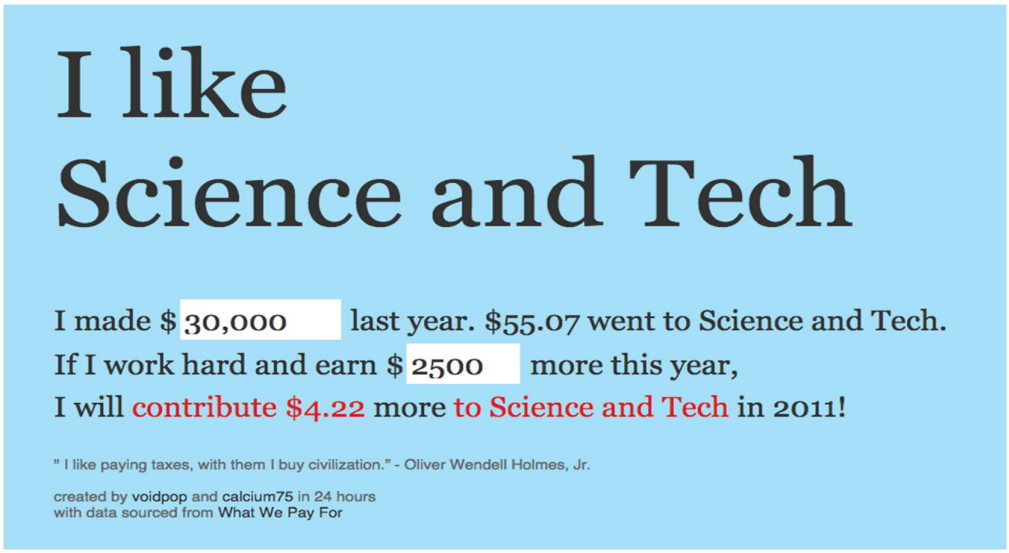


Figure 74 - http://www.meghantosh.com/datavizchallenge/

1.2.10.4 The Guardian: "EU budget 2010: what does the European Union spend and where does the money come from?" (Europe)

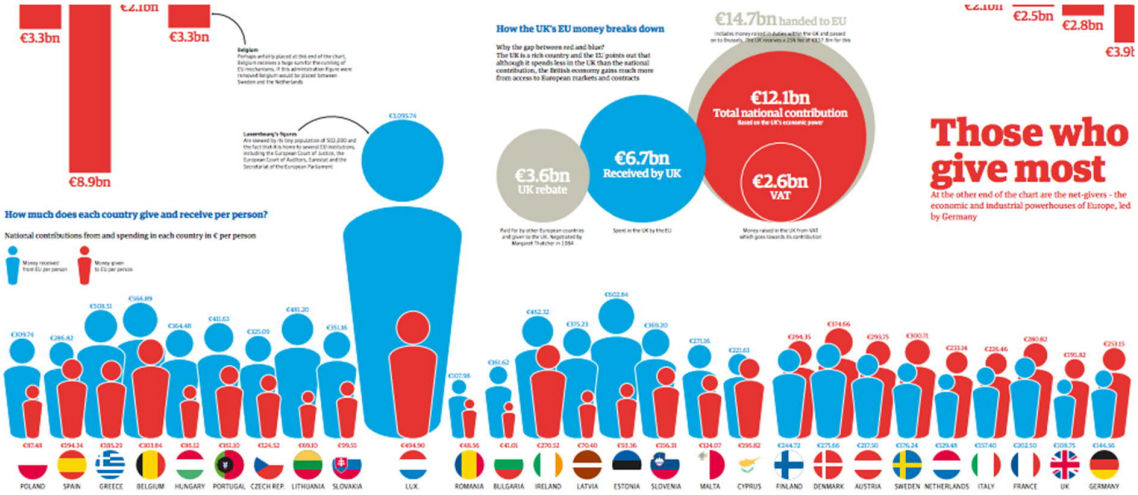


Figure 75 - http://www.theguardian.com/news/datablog/2012/jan/26/eu-budget-european-union-spending

1.2.10.5 Every Day is Tax Day (United States)

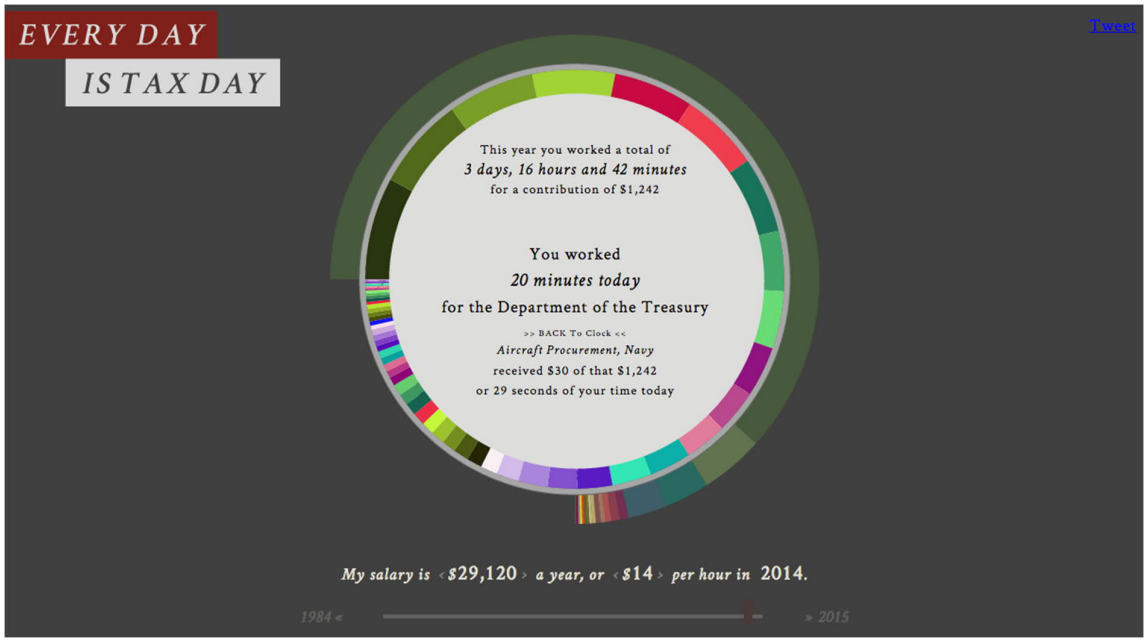


Figure 76 - http://fchasen.com/taxday/

2 Section B: Getting Users' Feedback Through Hackathons

2.1 Methodology

In Wikipedia Hackathons are defined as events in which computer programmers and others involved in software development and hardware development, including graphic designers, interface designers and project managers, collaborate intensively on software projects.[1] Hackathons have become a major part of the modern tech world, providing developers with a place and time to work on projects. Lately, hackathons are becoming even more popular since they are organised also in different contexts than IT. All hackathons have the same conceptual framework which is to invite a large number of individuals to identify possible solutions in a well-defined issue/project providing them the necessary space and tools.

Understanding the importance and capabilities of crowd to enhance the efforts of the consortium partners searching and collecting various budget and spending visualisation use-cases that can be found online in the context of the project openbudgets.eu hackathons are organised to gather feedback and improve the OpenBudgets.eu repository's features and usability.

OK Greece has organized the first hackathon during 17-18 June 2015 in Thessaloniki. This hackathon has been organised upon the methodology proposed on The Open Data Hackathon How to Guide by Kevin McArthur, Herb Lainchbury and Donna Horn.

The guide describes in detail three main stages:

Figure 77 - Main stages for implementing a hackathon

2.2 Preparation

The first set of actions that have been performed are related to the preparation stage of the hackathon. Preparation stage include the following tasks:

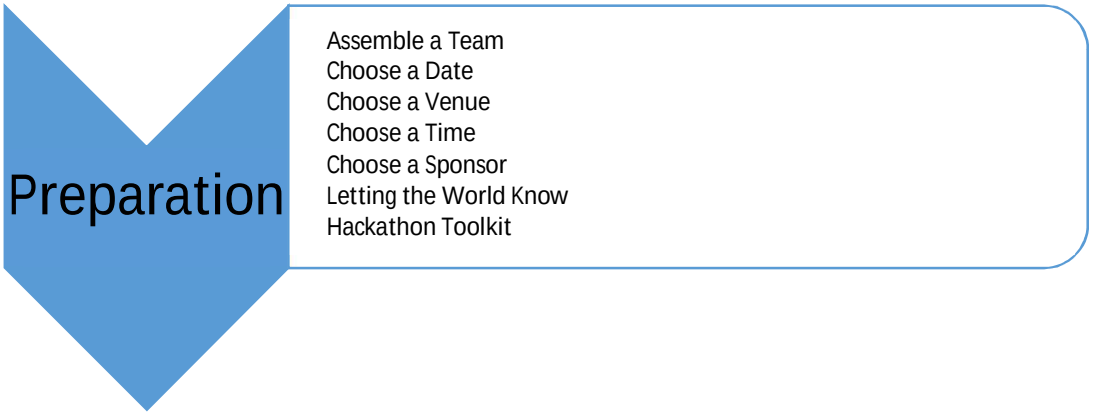


Figure 78 - Tasks to be implemented during the preparation

The team that supported the implementation of the hackathon included experts actively involved in the OpenBudgets.eu project; volunteers that support the activities of OK Greece and students from the Aristotle University of Thessaloniki.

As it is mentioned in the guide choosing the date of the hackathon is one of the most important tasks for the success of it. OK Greece is in very strong collaboration with different Schools and departments of Aristotle University of Thessaloniki. Between the 17th and 18th of June 2015 two major training events were taking place in Aristotle University attracting a very large number of external participants.

The first has been the “FOSTER – School of data” organised under the EU funded project FOSTER, by OK Greece in collaboration with the School of Journalism and Mass Communications (http://www.jour.auth.gr/en/) of the Aristotle University of Thessaloniki. The project "FACILITATE OPEN SCIENCE TRAINING FOR EUROPEAN RESEARCH - FOSTER" is a two year project aiming to set in place sustainable mechanisms for EU researchers to FOSTER OPEN SCIENCE in their daily workflow, thus supporting researchers optimizing their research visibility and impact, the adoption of EU open access policies in line with the EU objectives on Responsible Research & Innovation. Open Access and Open Science principles are an essential part of knowledge creation and sharing. They directly support the researchers need for greater impact, optimum dissemination of research, while also enabling the engagement of citizen scientists and society at large on societal challenges.

FOSTER provides financial support for different types of training events and strategies, ranging from short (one or two-hour) workshops to multiple day workshops, from face-to-face training to e-learning sessions. FOSTER also provides assistance in shaping the training programme, selecting training materials and recommending speakers/trainers.

The second has been CAMEI summer school which aimed to train the trainers and the healthcare workforce on new and open technologies enhancing the provision of IT skills to healthcare workforce, by means of sharing, reuse, repurposing and creation of open educational material applied in different contexts. The summer school focused to encourage participants to better appreciate the critical role of Open Education and technologies in providing opportunities for health education and the potential of these opportunities for both learners and educators. The summer school provided a stimulating atmosphere enforced by interactive sessions co-ordinated by well-known experts and an enthusiastic international technical team that guided participants during the hands-on sessions, so that they maximise their technical skills and competencies, increase their knowledge base, receive expert advice and collaborate and share with others contemporary medical education resources/material by means of open educational repositories.

OK Greece had the opportunity to incorporate the hackathon in the program of the above 2 day training event. The hackathon has been organised on 18th of June 2015 at 11:45 as one of the parallel sessions of the training event (see agenda in Figure 82). This concluded to be a very successful decision and action for a number of reasons such as: the visibility of the hackathon through the promotion of the event in the OK Greece website at http://foster.okfn.gr/, the attraction of attendees from the audience of both FOSTER and CAMEI events.

The training venue has been the KEDEA Conference Centre (Aristotle University’s Research Dissemination Center). Aristotle University’s Research Dissemination Center (KEDEA) founded in 2006 and opened its doors for the first time in April 2011. The Conference Center has three ultra-modern auditoriums, exhibition space of 300 sq.m. and public spaces ideal for hosting scientific conferences, symposiums and cultural events. The Conference halls are available, upon request, to departments and faculties of Aristotle University, as well as to third parties such as Associations, Organizations and individuals.

The III AMPHITHEATRE is located in Basement (-1) of KEDEA Conference Centre and has a capacity of 125 seats. The amphitheatre has the following facilities:

(1) sound installation

(2) Microphones for the audience

(3) Microphone Installation (Three fixed microphones at the presidium and a lectern to the speaker)

(4) Video projector

(5) Projection Screen (3 meters width 4: 3)

(6) Ergonomic seats with folding lectern

(7) air conditioning

(8) Wi-Fi

(9) Broadcast Video - Audio (Streaming)

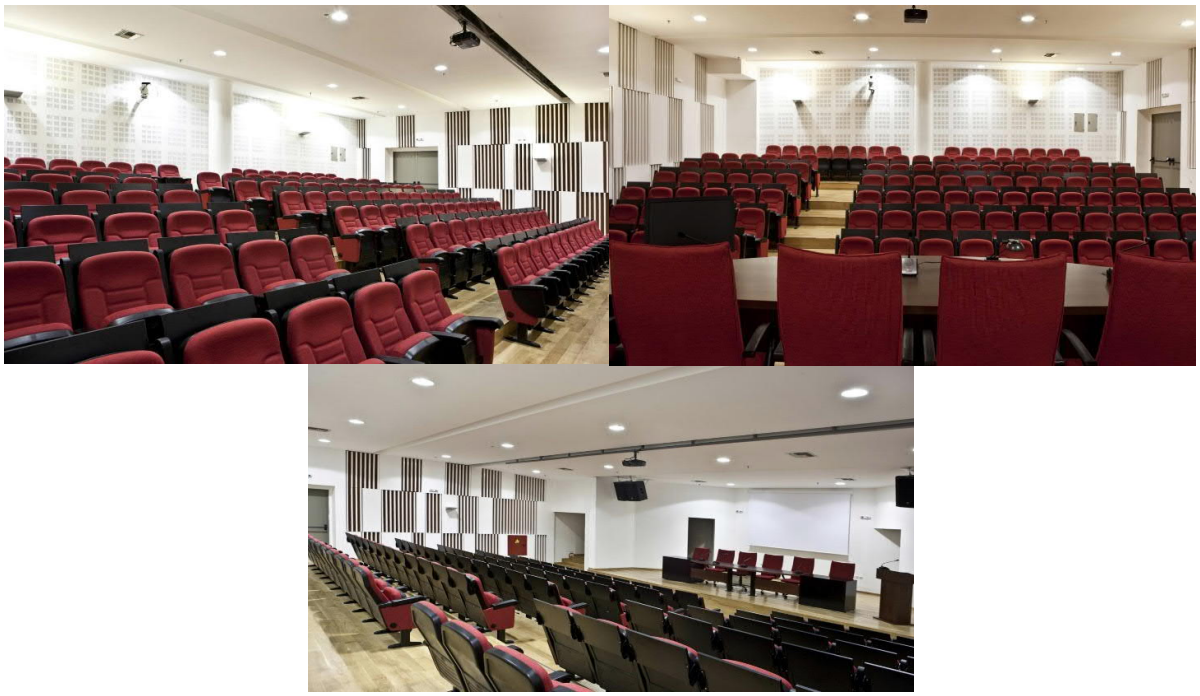


Figure 79 - KEDEA Amphitheatre III Photos

Figure 80 - KEDEA Basement Lobby – where the hackathon took place

To promote the hackathon effectively to get the mix of attendees that was required, OK Greece implemented a website to promote FOSTER and the hackathon. The URL of the website is http://foster.okfn.gr

Tools that haven been used to promote the hackathon, have been:

- Twitter – Using the @okfngr twitter account the world has been informed about the event.
- Facebook - The account https://www.facebook.com/okfngreece have been also used to promote the event.
- Blogs – OK Greece posted key info about the event in its main website. The post can be found on http://okfn.gr/2015/06/summer-school-of-data/. In the post briefly key information about the event has been provided so it can be read quickly and easily. A link to registration and FOSTER site was also included.
- Different mailing lists have been used. The total number of
- Except the “FOSTER” website that hackathon has been also presented in the website of Aristotle University of Thessaloniki https://www.auth.gr/news/conferences/18567 .
- Word of mouth

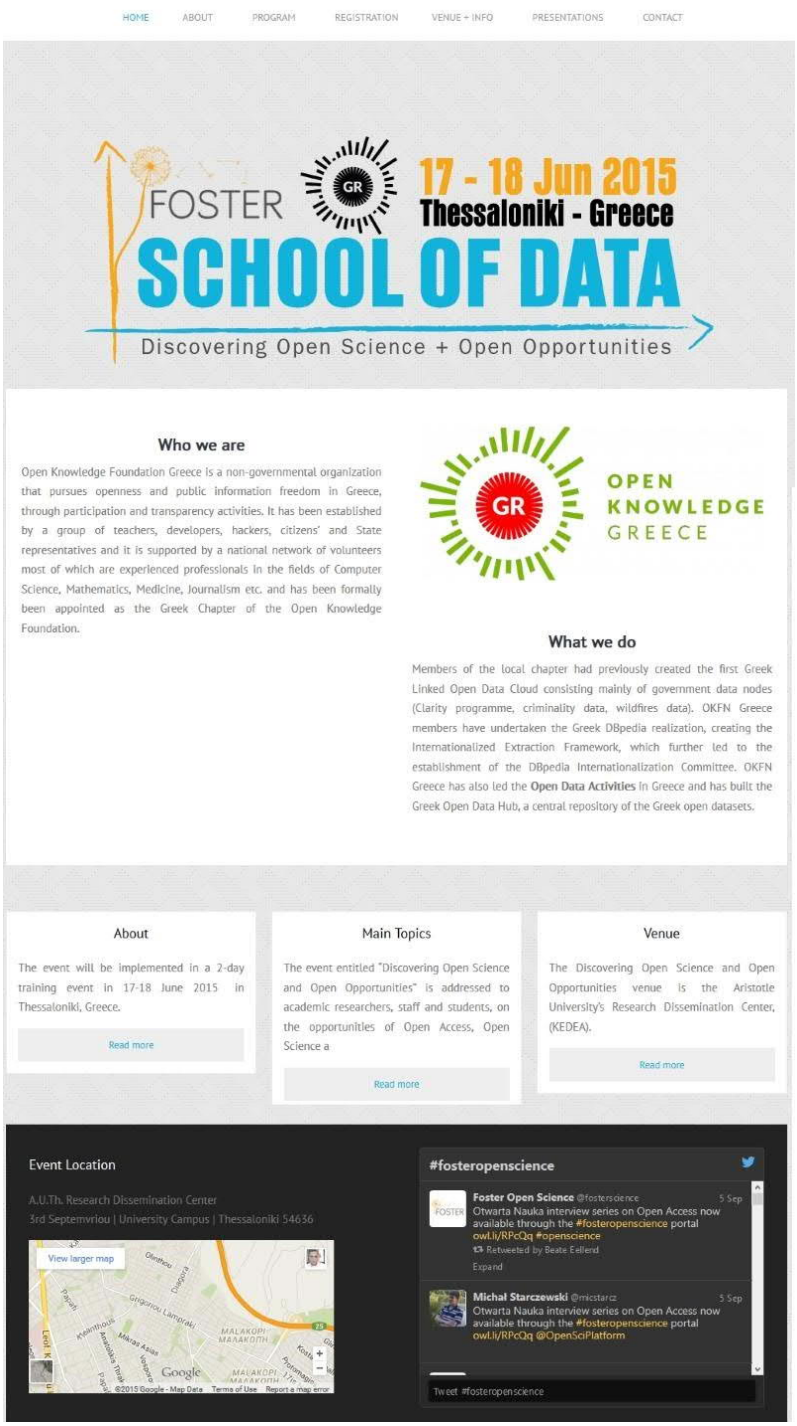


Figure 81 - FOSTER website

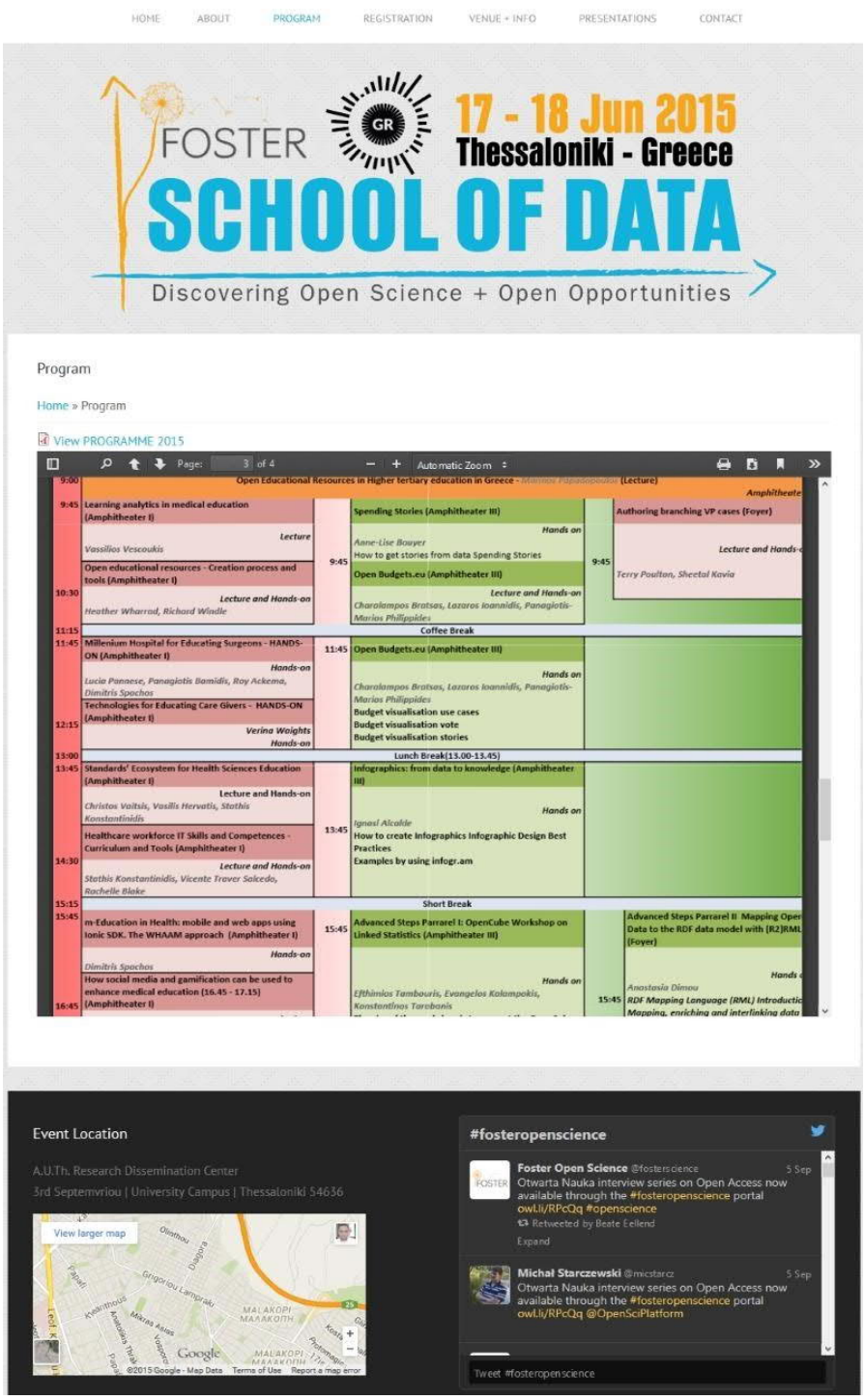


Figure 82 - FOSTER website Agenda of the session that Hackathon took place

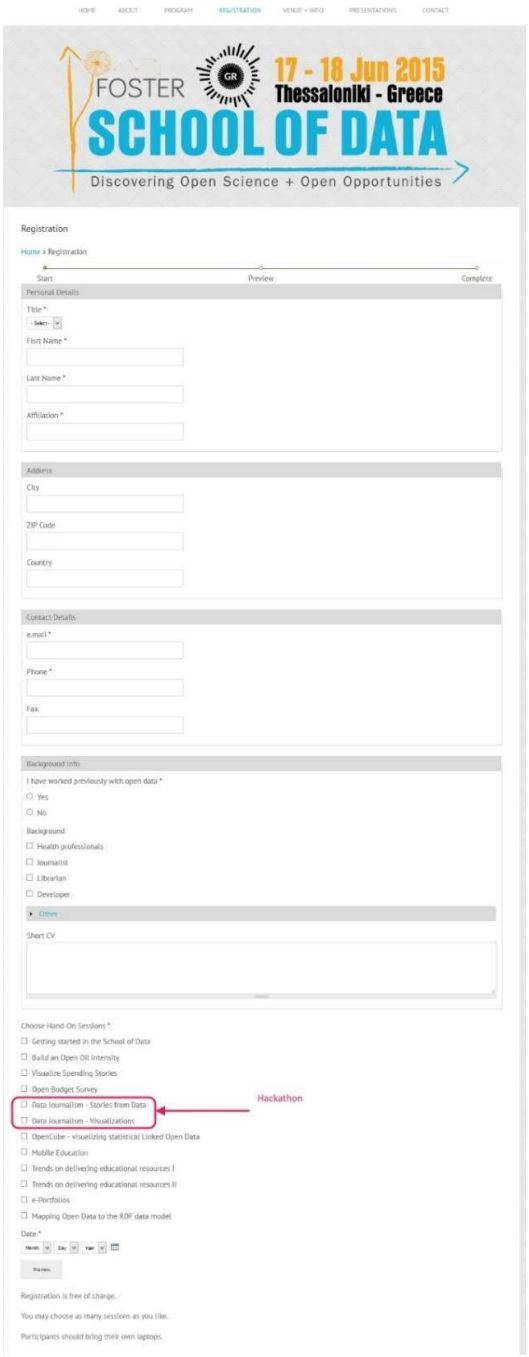


Figure 83 - FOSTER website registration form with the two sessions related to the hackathon

2.2.1 The Hackathon Day

The hackathon started with an introduction to Openbudgets.eu project, description of the framework and the scope of the hackathon. Mr. Cedric Lombion, Community Manager for School of Data, representing Open Knowledge Foundation International presented to the attendees the initiative “School of Data” and how hackathons have a major role in the activities of the School of Data. Mrs. Anne Lise Bouyer, from Journalism ++ presented “How to get stories form data”. Anne-Lise Bouyer is the project manager and the COO of Journalism++, an agency for data-driven stories.

Figure 84 - The hackathon day steps

2.2.2 Photos from the hackathon day

Figure 85 - Mentoring the teams during the hackathon

Figure 86 - Participants in the auditorium

Figure 87 - Hackathon team working on its story / case /visualisation + Mentoring

2.2.3 Results

More than 35 people attended the hackathon. They were devided in 7 groups of approximate 5 people each. Each group has been asked to come up with a case/story that would use open data to address any issue that they considered important. For each case they were asked to work on large piece of brainstorming paper, describe the datasets that they would use and propose different visualisation types.

OK Greece implemented a special online tool to assist the participants select and promote the stories/cases. Each group wrote a small descriptive paragraph about the case and the datasets and selected the related charts. After the submission of the

cases participants could vote for the story/case/visualisation they considered the most interesting.

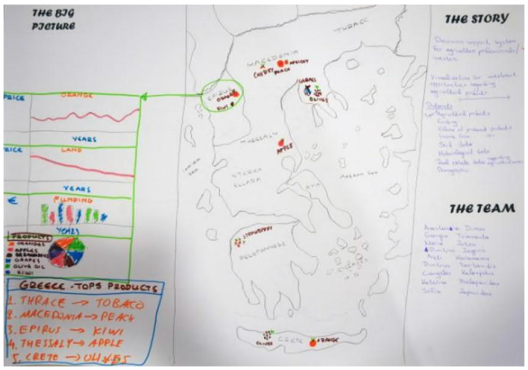
Stories	Users votes
Visualization opportunities regarding agricultural products	16
Arta Municipality Budget visualisation and public vote	13
How major spending's affect G.D.P	7
"War for education"	6
Are you among the green-conscious?	6
Military Transparency	7
The relationship of a country's education budget and spending. A Greek Example	4

The following table summarises the type of visualisations that have been used in the different cases. The visualization that was proposed in most of the cases has been "Bar chart". Other chart types that have been proposed are pie charts, heat-maps, tree-maps and geo mapping.

Chart type	Proposed in x number of stories
Pie chart	3
Bar chart	5
Heat map	3
Tree map	3
Dendrogram	1
Time series	1
Line chart	1
Donut	1
Scatter	1
Mapping	2

2.2.3.1 Visualisation opportunities regarding agricultural products

The case / story proposes a decision support system for agriculture professionals / investors based on data of European funding, demographics, meteorological, volume of produced products, soil, real estate and income from produced products. A use case example is that a young farmer could ask for information about what type of agricultural products should he / she cultivate, in which Greek region and what kind of European funding is currently available.



Datasets: Agricultural products; Funding; Volume of products; Income from products; Soil data; Meteorological data; Real estate data; Demographics

Visualisation types:

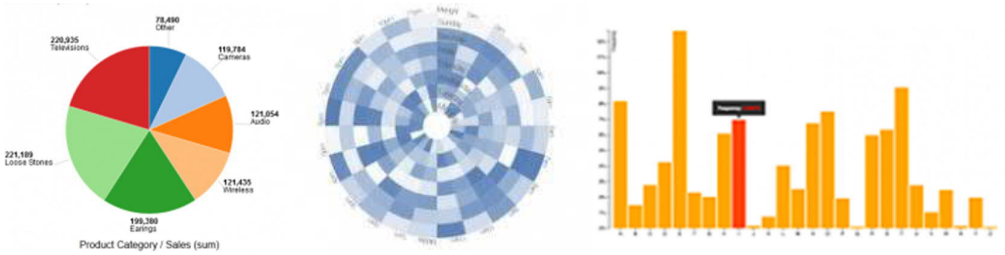


Figure 88 - Proposed visualisation types: pie chart, heatmap, bar chart

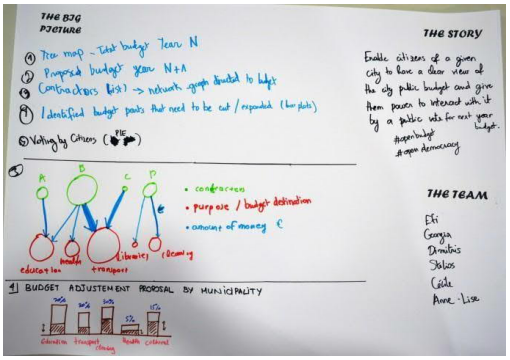
Contributors: Evangelos Kalampokis; Maria Zotou; Dimitrios Zegginis; Areti Karamanou; Georgia Tsiamanta; Anastasia Dimou; Sofia Zapounidou; Dimitrios Tsortanidis; Katerina Balapanidou.

2.2.3.2 Arta Municipality Budget visualisation and public vote

The story / case aims to enable citizens of the city of Arta to have a transparent view of their city budget for the current year, as well as for the previous year and give them power to interact with it through a public vote on a next year budget proposal.

On a central portal, citizens will be able to visualize different budget statements for year N and year N+1 and the municipality will propose specific public statements where it's possible to cut or expand.

Citizens would be able to vote for which kind of budget parts they will reduce or expand for next year public budget.



Visualisation types:

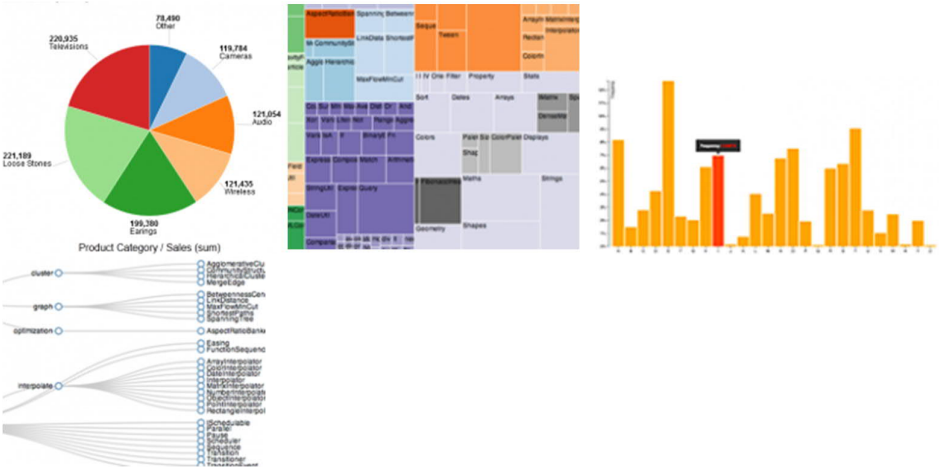


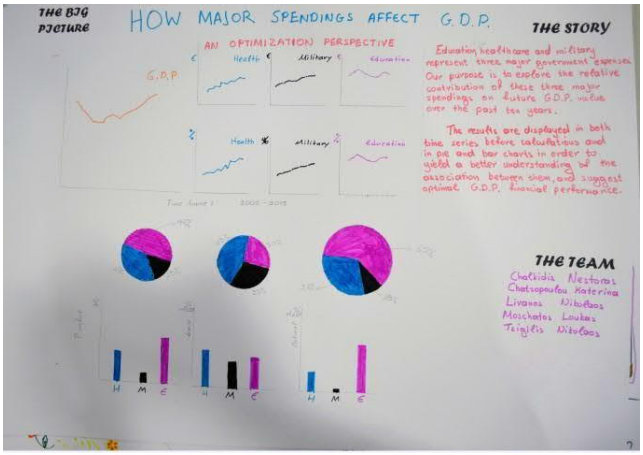
Figure 89 - Proposed visualisation types: pie chart, treemap, bar chart, dendogram

Contributors: Efi; Georgia; Dimitris; Stelios; Cecile LE GUEN; Anne Lise BOUYER

2.2.3.3 How major spending's affect G.D.P

Education, health care and military represent three major government category expenses. The case is to explore the relative contribution of these three major spending categories on future G.D.P's financial performance, over the past ten years.

The results are displayed in both time series before calculations and in pie and bar charts in order to yield a better understanding of association between them, and suggest optimal G.D.P financial performance.



Datasets: G.D.P longitudinal

Visualisation types:

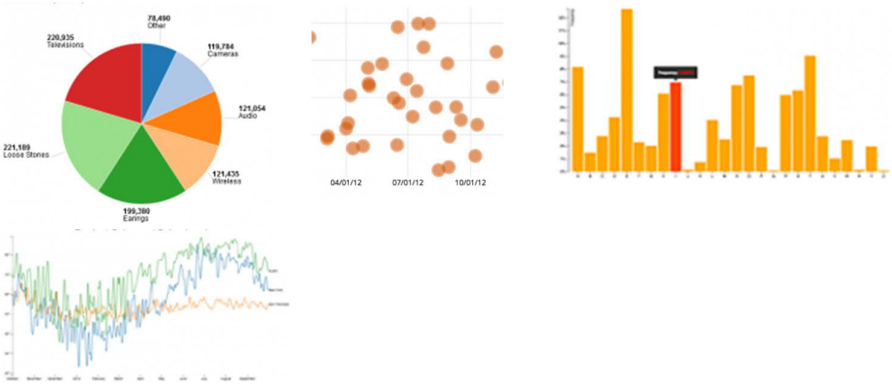
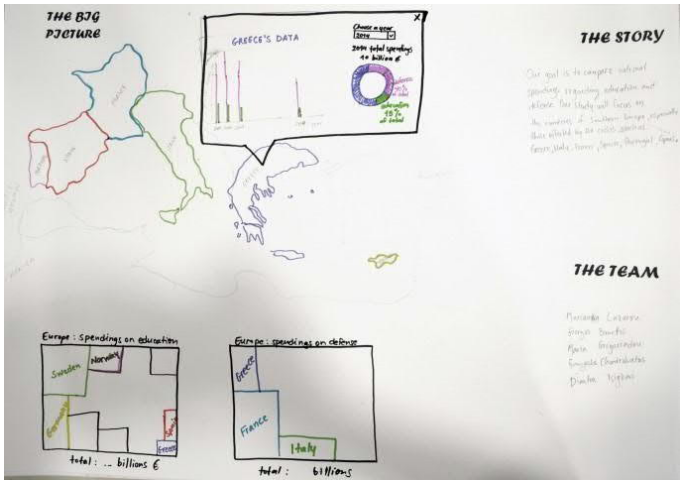


Figure 90 - proposed visualisation types: pie chart, time series, bar chart, line chart

Contributors: Chalkidis Nestoras; Moschatos Loukas; Chatzopoulou Katerina; Livanos Nikolaos; Tsigilis Nikolaos.

2.2.3.4 "War for education"

The aim of the case is to compare national spending regarding education and defence. The story focuses on the countries of southern Europe, especially those affected by the financial crisis, such as Greece, Italy, France, Spain, Portugal and Cyprus. It is aimed to investigate how the percentages for those two fields vary as the years go by.



Visualisation types:

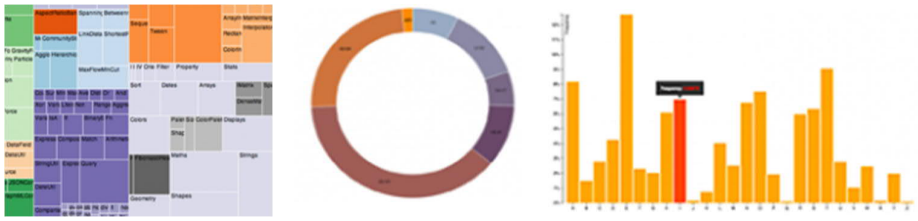


Figure 91 - Proposed visualisation types: treemap, donut, bar chart

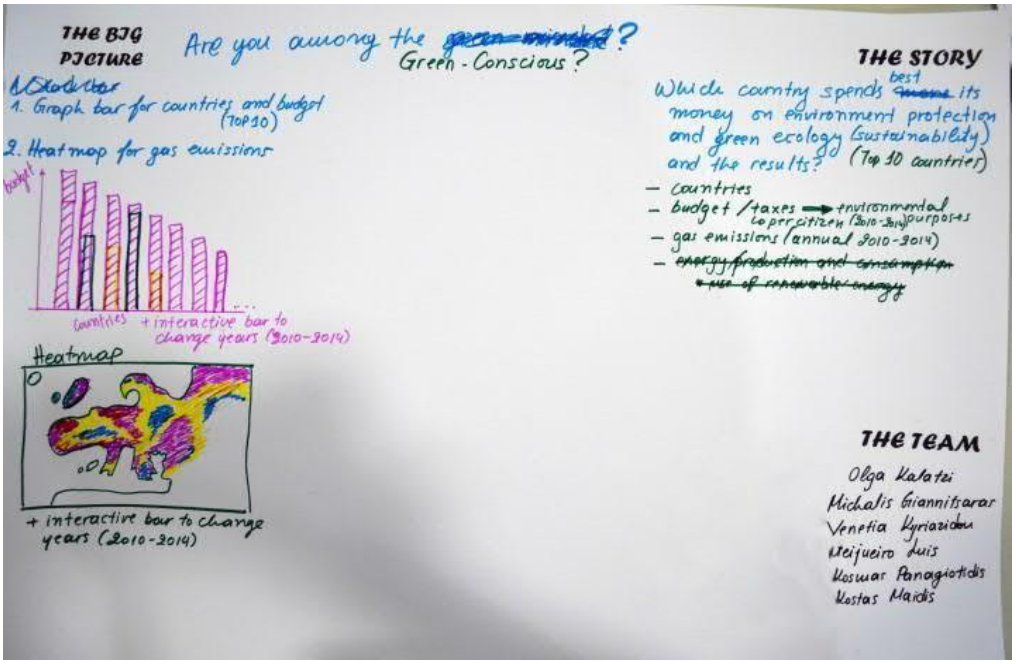
Contributors: Marianna Lazarou; Dimitra Tsigkari; Evangelos Chondrokostas; Giorgos Bountos; Grigoriadou Maria.

2.2.3.5 Are you among the green-conscious?

Which country spends most rationally and with the highest value added public money on environmental protection and green ecology (sustainability) and the results? (Top 10 countries)

The variables to be take account are: Countries; Budget/taxes per citizen for environmental purposes (annual data 2010-2014); and Gas emissions (annual data 2010-2014)

The case will investigate and attempt to answer the following questions: Which country spends more on environment solutions? What are the levels of gas emissions per country? Is there a relation between budget and emissions (Comparison of countries with best efficiency) And finally to compare the results in a 4-year timeline. (Trends and success rate).



Datasets: http://ec.europa.eu/eurostat/data/database

Visualisation types:

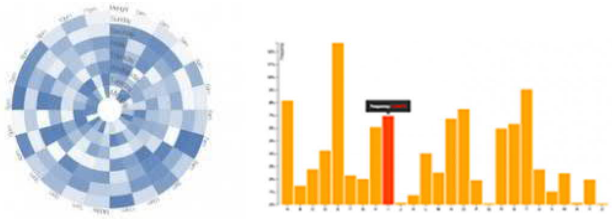
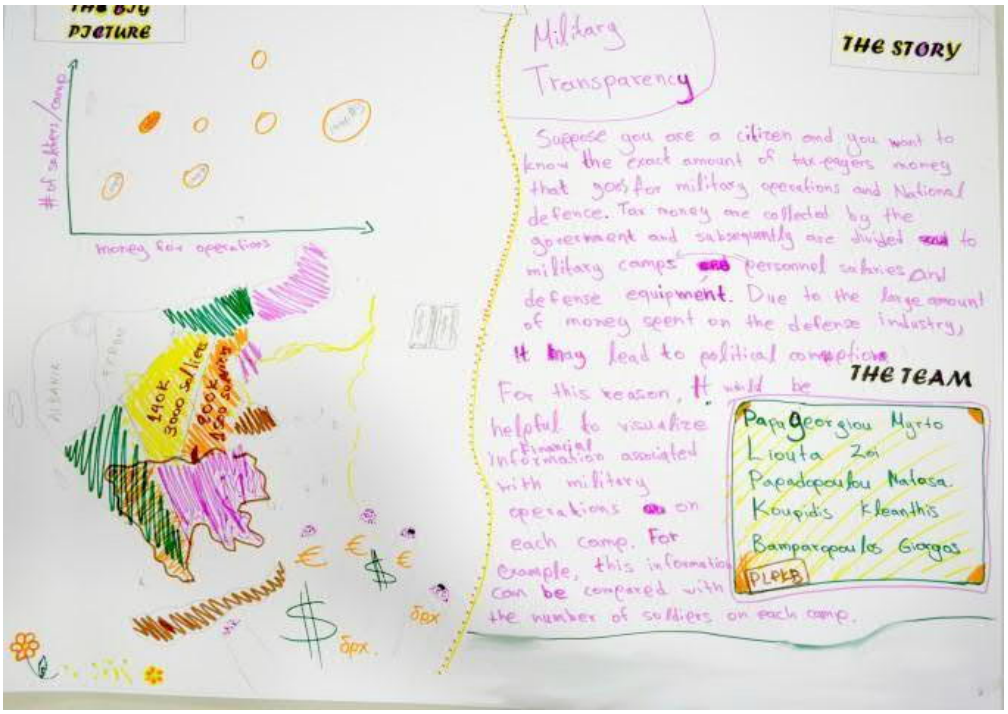


Figure 92 - proposed visualisations: heatmap, bar chart

2.2.3.6 Military Transparency

Suppose you are a citizen and you want to know the exact amount of tax-payers money that goes for military operations and national defence. Tax money are collected by the government and subsequently are divided to military camps, personnel salaries and defence equipment. Due to the large amount of money spent on the defence industry, it might lead to political corruption. For this reason, it would be helpful to visualize financial information associated with military

operations on each camp. For example, this information can be compared with the number of soldiers on each camp.



Datasets: Financial information; Capacity of military camps

Visualisation types:

Figure 93 - proposed visualisation types: scatter, mapping

2.2.3.7 The relationship of a country's education budget and spending. A Greek Example

The case explores the relationship between a country's national budget which is dedicated to Education and spending. The information that will be utilised are from sources such as: (1) the national budget breakdown; (2) the most recent country census and what it reveals about higher education; (3) the budget breakdown of all higher education institutions in Greece and associated institutions that receive funding from these budgets.

The following visualisation tools are used in our exploration:

- A Geomap will visualise census data
- A tree map will visualise the universities budget breakdowns
- A Heat Map that shows the relationship between budget and real spending

Visualisation types:

Contributors:

Isidoros Passas; Androniki Sapountzil; Dimitrios Gkatzopoulos; Stylianos Hatzipanagos

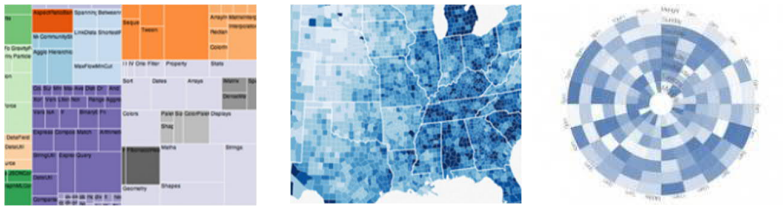


Figure 94 - proposed visualisation types: treemap, mapping, heatmap

Contributors: Isidoros Passas; Androniki Sapountzil; Dimitrios Gkatzopoulos; Stylianos Hatzipanagos.

3 Section C: Proposal for a Website to Promote All Hackathons

As it is described in previous sections of the deliverable, the hackathon's dissemination is eased through a website. It has been developed to promote the aims of the hackathon prior to the day the event is taking place, as well as, its results after its conclusion. The URL of the hackathons' website is: http://hackbudgets.okfn.gr/

As hackathons are foreseen to be organised regularly throughout the project duration, it is proposed to evolve this website so that all the hackathons that are foreseen can be included and promoted in a common way. This website may also be proved valuable for the presentation of the hackathons as well as for the continuous update of this deliverable (as described in the DoA) which could be used even after the ending of OpenBudgets.eu project to promote hackathons related to open budgets. In Appendix I the proposed structure and block diagram of the site are presented.

3.1 Version 1.0 17/09/2015

3.1.1 Home page

A website dedicated to hackathons to be organized may be proved quite helpful for the participants as well as for dissemination of the results. This website may complement the events section of the main project website, or be incorporated within it. In the currently available hackathons' website that has been created, there exist basic functions such as:

(1) Each partner has a user account to describe and upload related material for the hackathon that they plan to organise.

(2) After the end of each hackathon, their section will be categorised under the section "past hackathons" which can be edited again, while new photos, images and results can be uploaded.

(3) A calendar of the hackathons exists, so that visitors know what happens where and when.

(4) Any stakeholder, such as for example a municipality or a regional authority or other, might run their own hackathon. In order to perform their hackathon they may apply to the consortium partners a request for using the project datasets together with the data and structure of the website, as well as, the knowhow and expertise of openbudgets.eu.

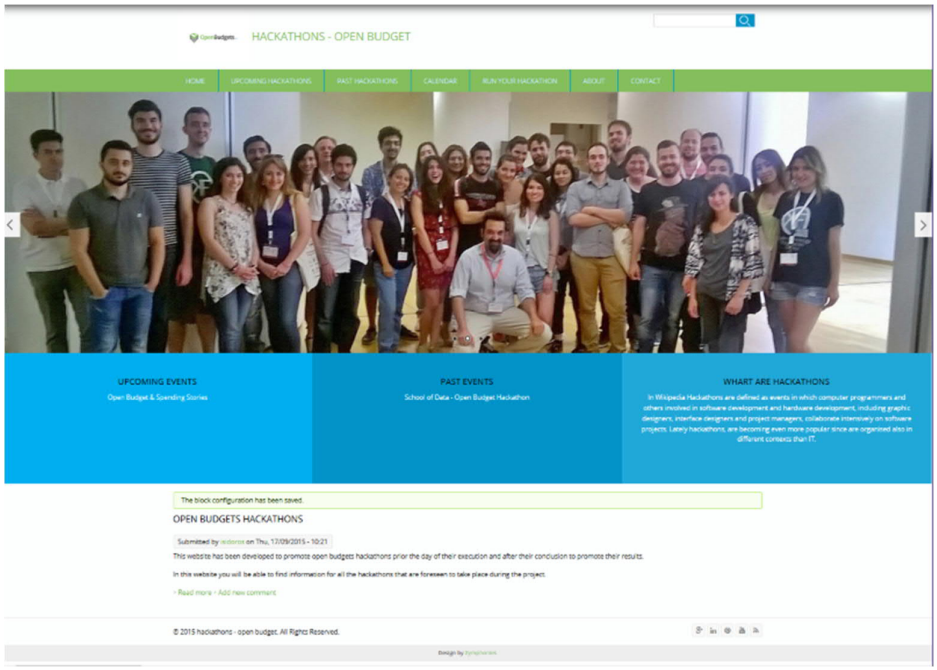


Figure 95 - developed website

The home-page contains a slideshow for the promotion of the upcoming hackathons and/or pictures of hackathons that have been completed. In addition there are three block areas. The first presents titles for quick access to the latest upcoming events and the second one to those that have been completed. The third block contains general information about hackathons.

3.1.2 Upcoming and past hackathons

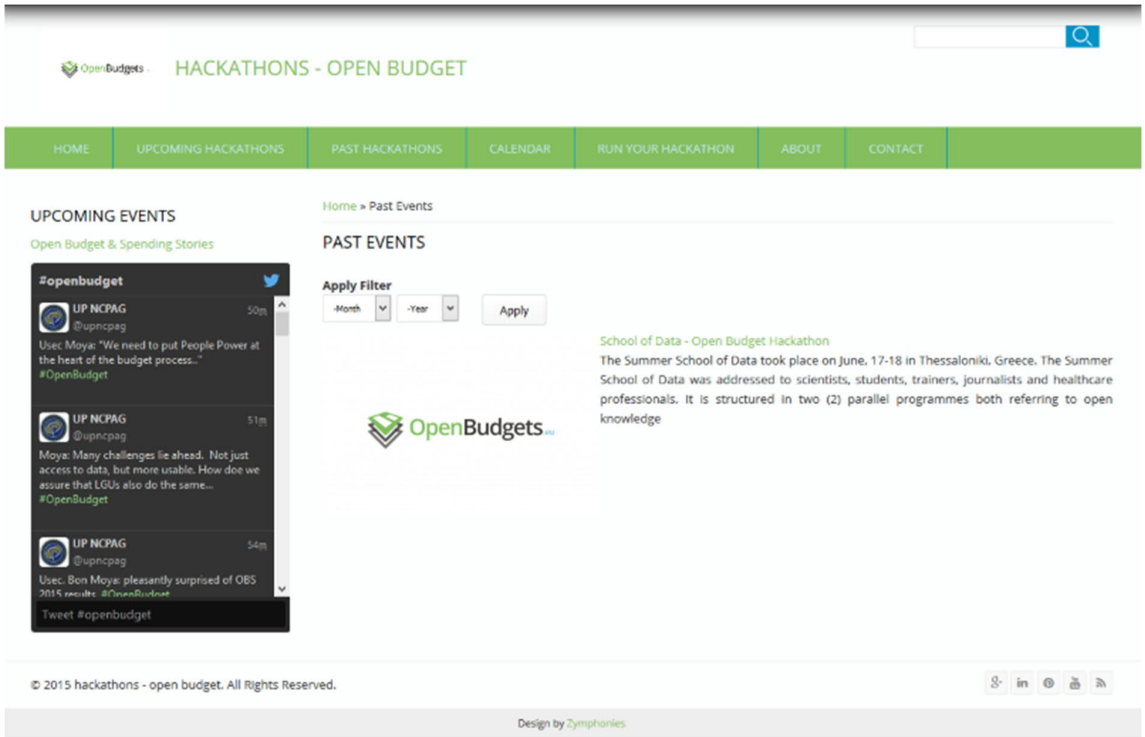


Figure 96 - past hackathons

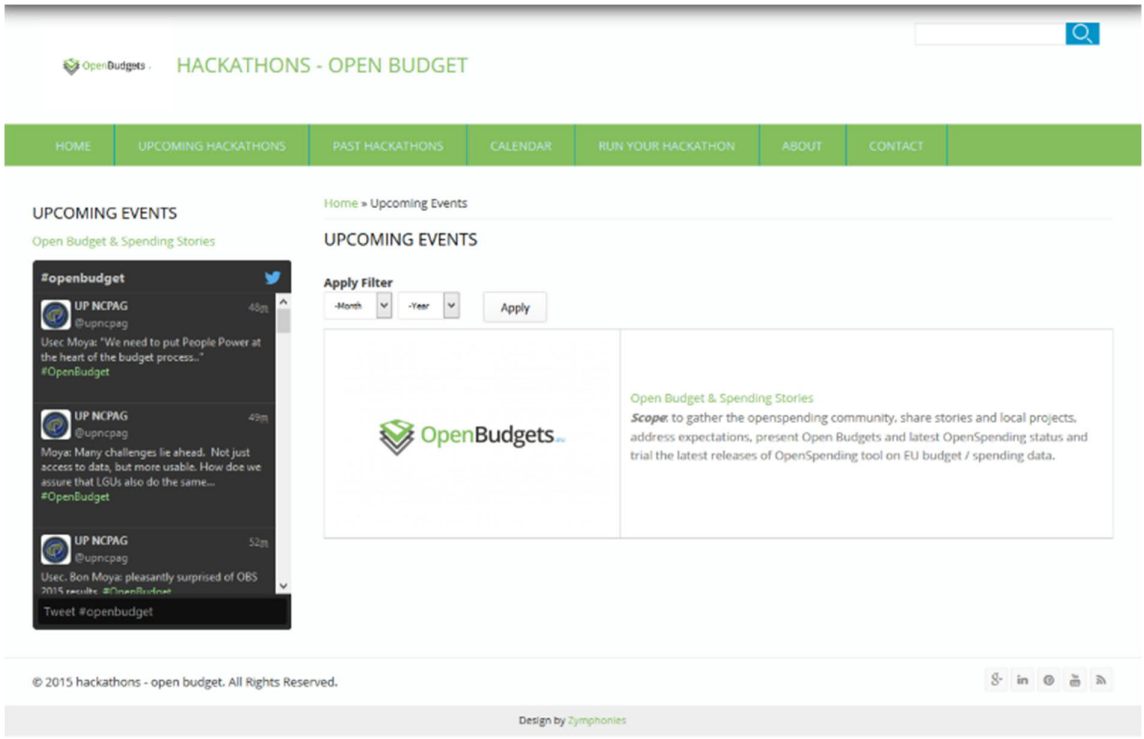


Figure 97 - upcoming hackathons

Upcoming and past hackathons are being displayed separately. Users can easily access the latest events and see a brief description of each one of them. A filter is added to help users search an event.

3.1.3 Calendar of hackathons

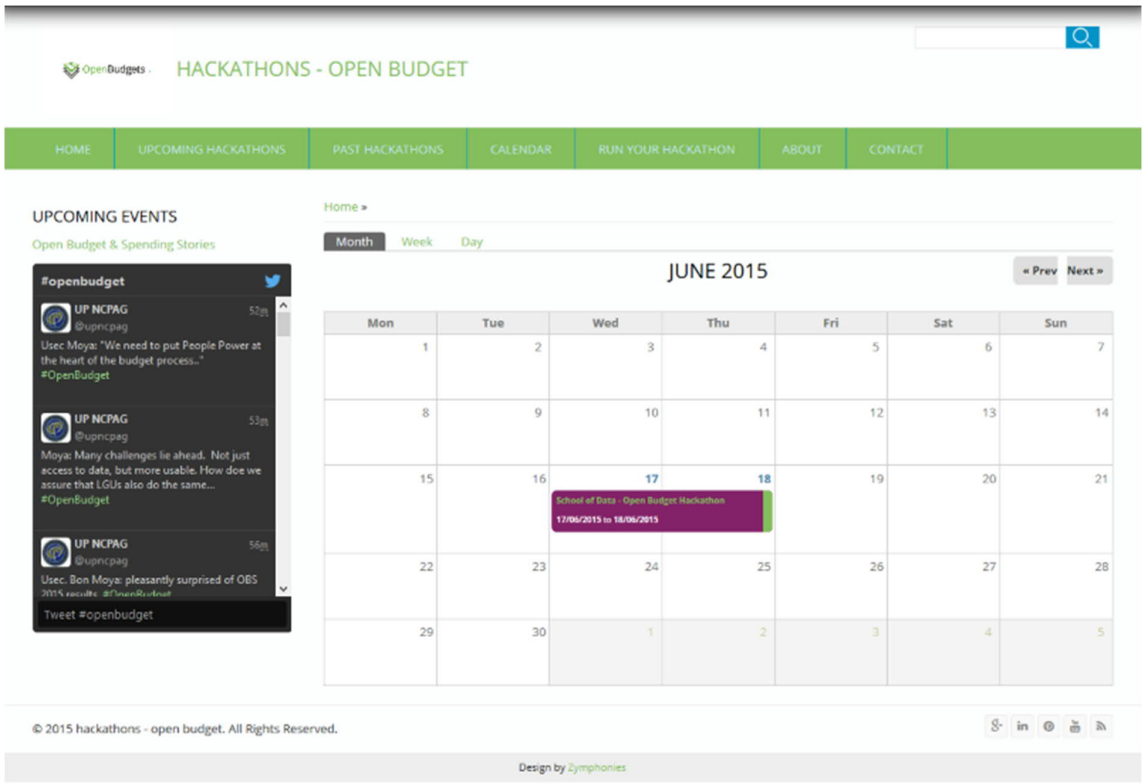


Figure 98 - events in a calendar

Events are also being displayed in a calendar. The title of the event links to the description of it.

3.1.4 Run your hackathon

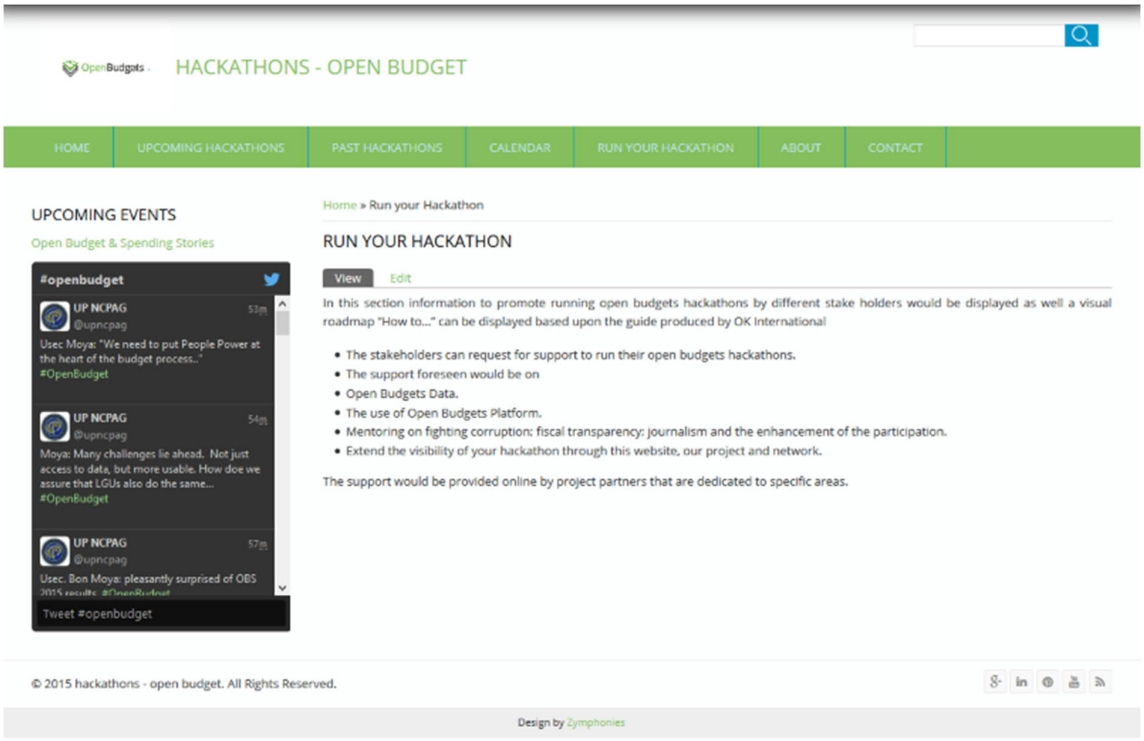


Figure 99 - promoting hackathons

A stakeholder, such as a municipality or a regional authority or other, might run its own hackathon. In order to perform their hackathon they may apply to the consortium partners to use the data and structure of the website and the knowhow and expertise of openbudgets.eu.

4 Appendix I – Hackathons' Website Structure

Main pages - info

- About openbudgets.eu
- Current hackathon
- Call for participation
- Calendar of future hackathons
- Implemented Hackathons
- Hackathon results
- About
- Contact

Detailed info per page

- About openbudgets.eu
- Current hackathon
  - Banner
  - Title
  - url
  - Description

    - Contact details
    - Hosting place
    - Terms of participation
    - Donors - Supporters
- Call for participation
- Calendar of future hackathons
- Implemented Hackathons
    - Banner
    - Title
    - url
    - Description
    - Contact details
    - Donors - Supporters
- Hackathon results
    - Banner / Title / url of results if available / Key outcomes / No of participants
- About
- Contact

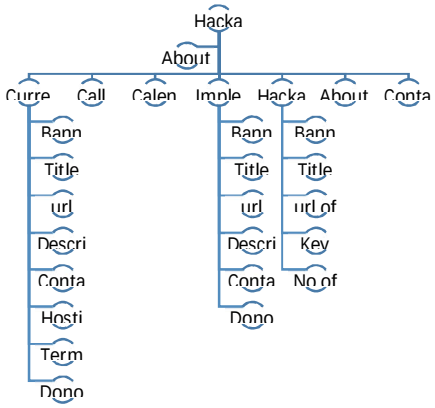


Figure 100 - Hackathons presentation website: Information map

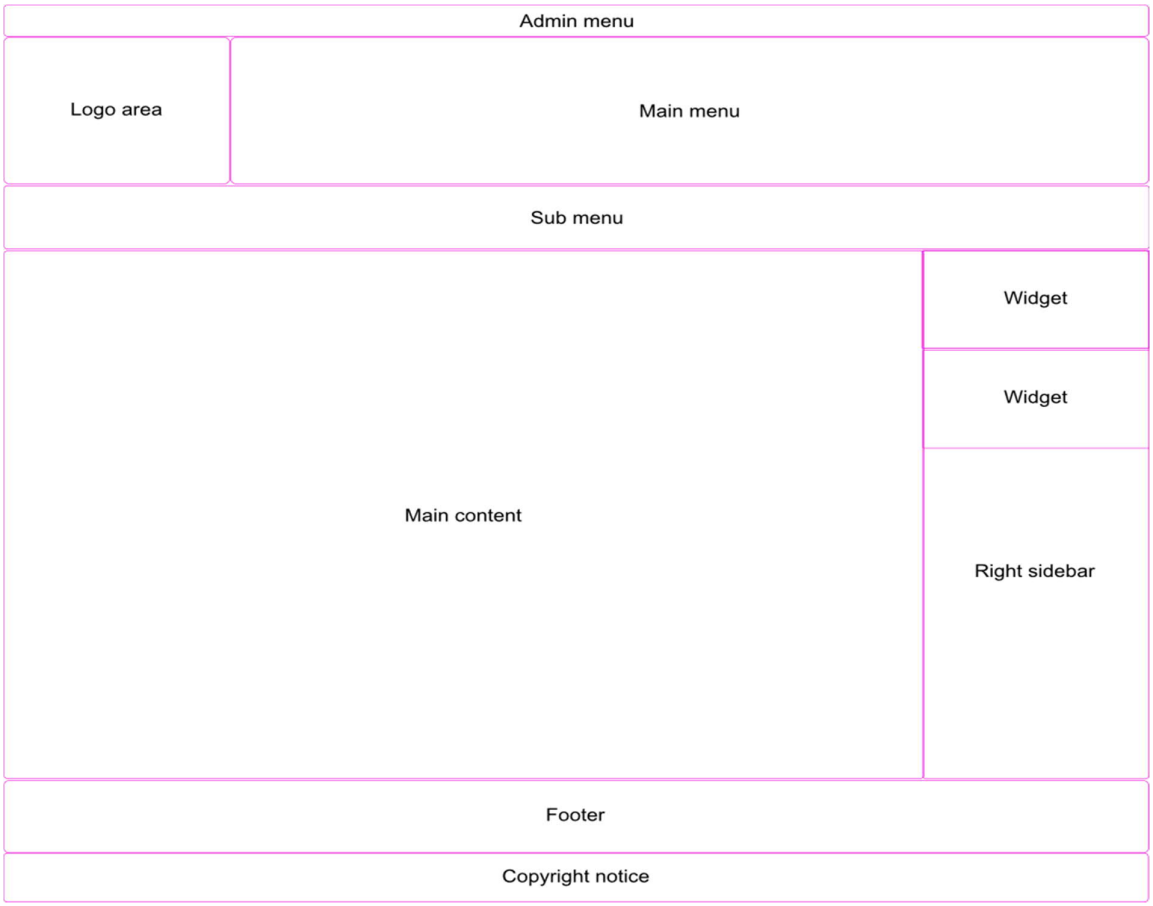


Figure 101 - Main page template block diagram

How to submit – post a hackathon

The following are the fields that are describing each hackathon. Each user should update the following fields. The fields with an asterisk are required.

Title *

Image : Files must be less than 12 MB. + Allowed file types: png gif jpg jpeg.

Body: WYSIWG editor or the user can witch to plain text editor

Event URL : Title + URL

Contact Details : Switch to plain text editor

Donors - Supporters : Title + URL

Dates 17/09/2015

Results : Results Title + Number of Participants + Key Outcomes

Links : Title + URL

Attachments: Files must be less than 12 MB + Allowed file types: pdf.

Image Collection: Add a new file + Files must be less than 12 MB + Allowed file types: png gif jpg jpeg.

5 References

Gray, J. (2015) “Open Budget Data: Mapping the Landscape”. Available at: http://dx.doi.org/10.2139/ssrn.2654878

Gray, J. (2015) “Examples of Fiscal Data Visualisations”. figshare. Available at: http://dx.doi.org/10.6084/m9.figshare.1548331

https://en.wikipedia.org/wiki/Hackathon