

Smart Cities and Big Open Data

Fostering 'Big Open Data' in government
through Open Collaboration

Ontolog - “Big Open Data” session I
May 10, 2012



Joel Natividad, co-founder

@jqnatividad



ntodia.com

CROWDKNOWING



Human-powered,
Machine-accelerated,
Collective Knowledge Systems



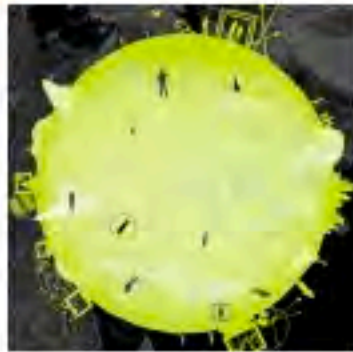
“Smart” Cities brand of Ontodia



PEOPLE

PROGRAMS

BLOG

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Dec 16, 2010
by Anthony Townsend

The Future of Cities, Information, and Inclusion

Downloads:

- [The Future of Cities, Information, and Inclusion \(PDF\)](#)
- [The Future of Cities, Information, and Inclusion \(image\)](#)



RELATED READING

- [The Future of Cities, Information, and Inclusion Map \(SR-1352\) - \\$35.00](#)
- [Aligning the Interests of the Grassroots and Industry](#)
- [Announcing Health Horizons' 2011 Research Agenda](#)
- [Health Horizons' 2011 Research Agenda: Ecosystems of Global Well-Being](#)
- [ITF at 2011 World Business Forum in New York](#)

Over the next decade, cities will continue to grow larger and more rapidly. At the same time, new technologies will unlock massive streams of data about cities and their residents. As these forces collide, they will turn every city into a unique civic laboratory—a place where technology is adapted in novel ways to meet local needs. This ten-year forecast

*"Over the next decade, cities will continue to grow larger at a rapid pace. At the same time, new technologies will **unlock massive streams of data** about cities and their residents. As these forces collide, they will **turn every city into a unique civic laboratory**—a place where technology is adapted in novel ways to meet local needs."*

December 2010. Anthony Townsend, Institute of the Future's 2020 Forecast – [The Future of Cities, Information and Inclusion.](#)



Cities:

Worldwide, city leaders and managers need cost-effective & smart solutions

Population Growth:

- 221 cities globally with more than 1 million citizens
- China will move 300 million people to cities by 2020
- 90% of these cities are in emerging markets
- In 2008, more people lived in cities (3.3 billion), by 2030, 5 billion
- Cities are more efficient and have less environmental impact

Cost of City Services:

Aging infrastructure, resource constraints & waste

- Washington DC's water system has elements that date to the Civil War
- Inefficiency, leaks and waste rival maintenance and expansion costs

source: Gartner – Is Smart Cities the Next Big Market? March 2011





NEW YORK

Open Data in NYC



Council Member Gale Brewer

Staff: Committee on Technology
Jeffrey Baker, Counsel
Colleen Pagter, Policy Analyst
John Russell, Financial Analyst



THE COUNCIL

Report of the Infrastructure Division

Robert Newman, Legislative Director

COMMITTEE ON TECHNOLOGY

Hon. Daniel R. Garodnick, Chair

June 21, 2010

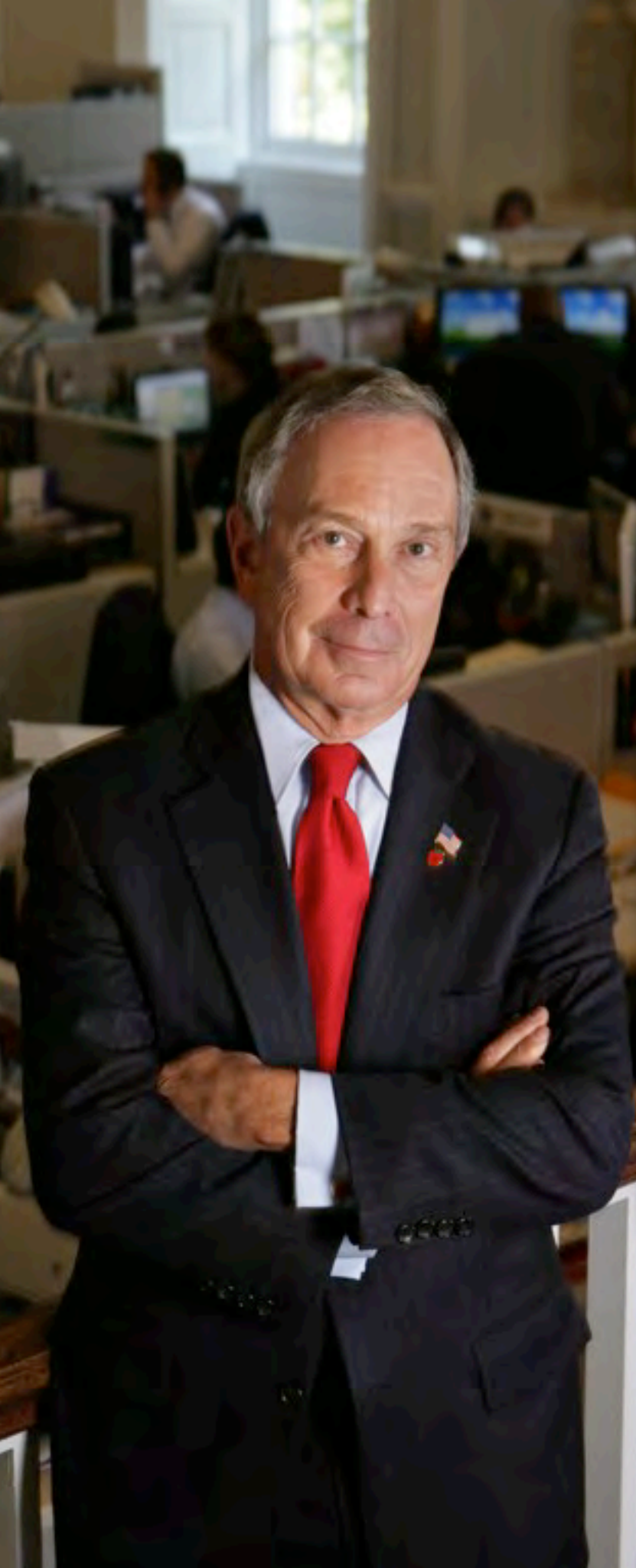
Int. No. 29: By Council Members Brewer, Fidler, Gentile,
Gonzalez, James, Lander, Palma, Nelson, Lappin, Dromm and Garodnick

Title: A Local Law to amend the administrative code of
the city of New York, in relation to creating open data standards.

Administrative Code: Amends Title 23 of the Administrative Code of the
City of New York by adding a new chapter 3.

Int. No. 29: Accessibility to Public Data Sets

“...requires that all public data sets maintained by City agencies shall be made available on the Internet through a single web portal, formatted to enable viewing by web browsers and mobile devices and also in their raw or unprocessed form.”



Mike Bloomberg: MikeBloomberg.com - Home

http://www.mikebloomberg.com/

Mike Bloomberg: MikeBloomberg.com...

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HOME ENTREPRENEUR MAYOR PHILANTHROPIST

ROAD MAP FOR THE DIGITAL CITY

ACHIEVING NEW YORK CITY'S DIGITAL FUTURE

The Road Map for the Digital City: A Plan to Make NYC the Nation's Leading Digital City.

planNYC C40 CLINTON CLIMATE INITIATIVE

CURRENT NEWS



VIDEOS



Mike on Twitter

Video from the #MadeInNY Awards featuring @JohnLeguizamo

Loading "http://www.mikebloomberg.com/", completed 111 of 112 items



Why NYC?

- City Population:
8.4 M (NYC estimates)
- Metro NYC Population:
18.9 million (2010 Census)
- City Density:
10,630/km² (2010 Census)
- Metro NYC Density:
1,085.7/km² (2010 Census)
- 50 million visitors a year
- DoITT Annual Budget ~\$325M
- Gross Metropolitan Product:
USD \$ 1.28 Trillion
(Greyhill Advisors)
- De facto Capital of the World
- Fastest growing Tech Industry -
“New Tech City” (Center for
an Urban Future)
- Second only to Silicon Valley for
most startups
- Emphasis on public-private
partnerships



Why NYC?

- Feb 11, 2010. NYC Open Data Legislation (Int 0029-2010) introduced, mandating all "city agencies publish their data in raw or unprocessed form".
- Jun 21, 2010. NYC Council tables Open Data legislation, primarily because of projected cost (\$500m).
- Oct 12, 2010. NYCBigApps 2.0 Announced, exposing 400+ datasets.
- Nov 22, 2010. TCG, Revelytix and Spry partner for NYCBigApps 2.0 with NYCDatWeb entry.
- Jan 24, 2011. Rachel Sterne, First Chief Digital Officer of NYC, appointed.
- Feb 21, 2011. BMW launches \$100m iVentures fund in NYC.



Why NYC?

- March 31, 2011. NYCDDataWeb wins Large Organization Award at NYCBigApps 2.0.
- May 16, 2011 - NYC Digital Roadmap released
- Oct 16, 2011 - BigApps 3.0 announced with new Socrata-powered Open Data Portal
- Dec 19, 2011 - Cornell University-Technion-Israel Institute of Technology announced
- Mar 7, 2012 - NYC Open Data Bill passed
- April 17, 2012 - NYC Open Data Standards wiki launched
- April 17, 2012 - NYCBigApps 3.0 awards ceremony





pediacities

building dot.communities



ROAD MAP FOR THE

DIGITAL



CITY

ACHIEVING
NEW YORK
CITY'S
DIGITAL



ROAD MAP FOR THE

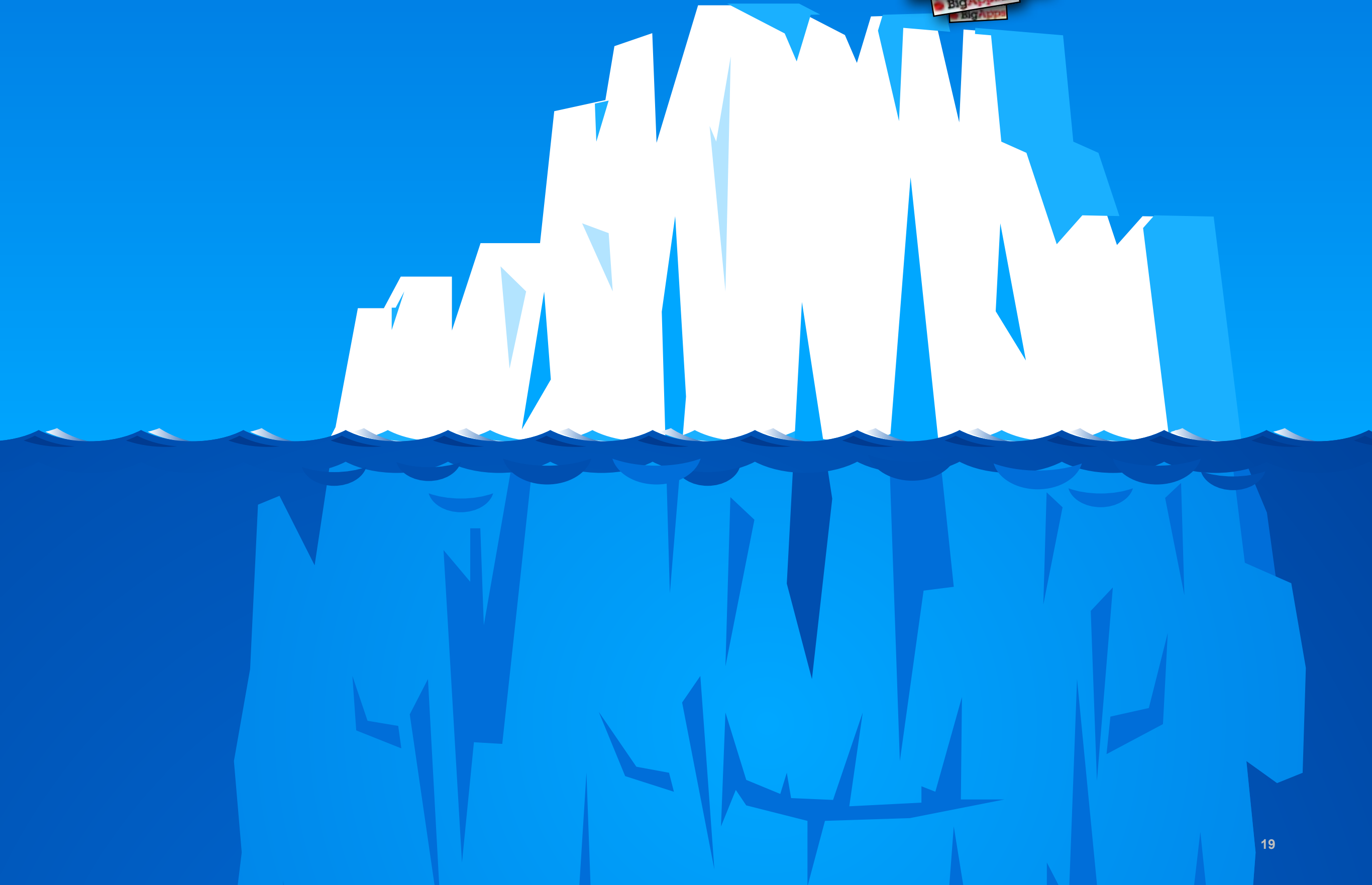
DIGITAL



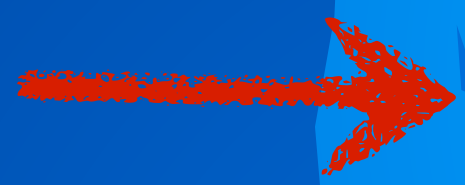
CITY

ACHIEVING
NEW YORK
CITY'S





NYC
Open
Data





APIs

NYC

Linked
Data

???



Developers,
Businesses,
Citizens, etc.

APIs



NYC

Linked
Data





Supercalifragilistic-
exponentially
HUGE OPEN DATA!!!





nycfacets
by pediactivities



0. Huge Open Data

1. Extract Metadata

2. Derive ExtraMetadata

(Semantics + Statistics + Algorithm + Crowd)

3. Do Federated Queries on both the
Metadata AND the Data

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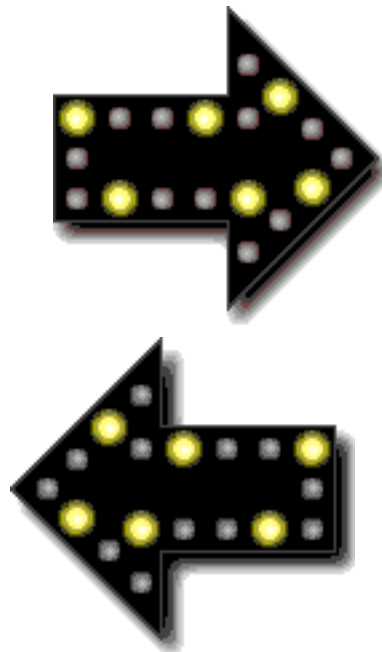
Crowdknowing

Crowdknowing

Human-powered, Machine-accelerated,
Collective Knowledge Systems



Curation, Comments,
Feedback, Bug Reports,
Likes, Shares, Profile, Votes,
Subscribes, Tagging,
etc. etc. etc.



Ontology, Inferencing, Semantic
Mapping, Query Federation, Statistics,
Pattern Recognition, Multivariate
Analysis & Forecasting, Automated
Linking, Feeds, Notifications
etc. etc. etc.



...is primarily an
Open Data Developer resource

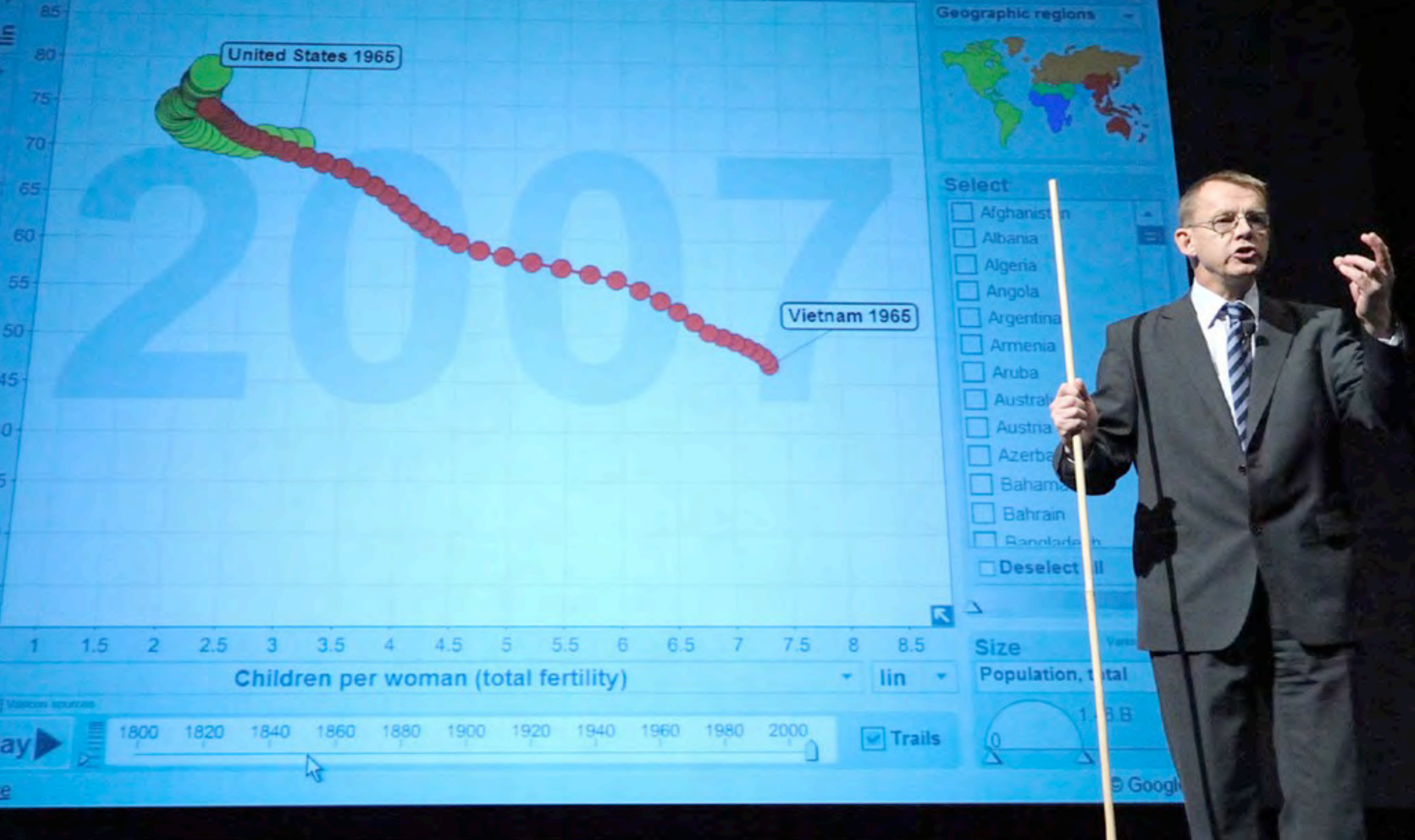


TED

The Next Web of Open Linked Data
February 2009

Useable Data Now

- “Beautiful” Websites/Apps/Mashups/Dashboards
- Useable by Developers/Publishers/Citizens
- based on Open Standards
- Low Adoption Curve
- Help Accelerate Open Data Innovation
- Useable Data Now!



TED

Hans Rosling
Shows the best stats you've ever seen
February 2006

PUBLIC

BORING

DIFFICULT

EXPENSIVE

INTERNET

DATA

A	B	C
885.2	181.5	0.05
887.3	202.8	0.05
889.4	224.3	0.05
891.5	245.8	0.04
893.6	267.3	0.04
895.7	288.8	0.04
897.8	310.3	0.04
899.9	331.8	0.04
902.0	353.3	0.04
904.1	374.8	0.04

A	B	C
885.2	181.5	0.05
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904.1	374.8	0.04

	A	B	C	D
1	username	time	frequency	total
2	Burundi	1980	672.5	0.0
3	Burundi	1985	674.5	0.0
4	Burundi	1990	686.5	0.0
5	Burundi	1995	742.5	0.0
6	Burundi	2000	780.5	0.0
7	Burundi	2005	872.5	0.0
8	Burundi	2010	1007.5	0.0
9	Burundi	2015	1180.5	0.0
10	Burundi	2020	1340.5	0.0
11	Burundi	2025	1588.5	0.0
12	Comoros	1980	43.4	0.0
13	Comoros	1985	51.5	0.0

User name
Password

User name
Password

User name
Password

\$ 100

\$ 299

\$ 30



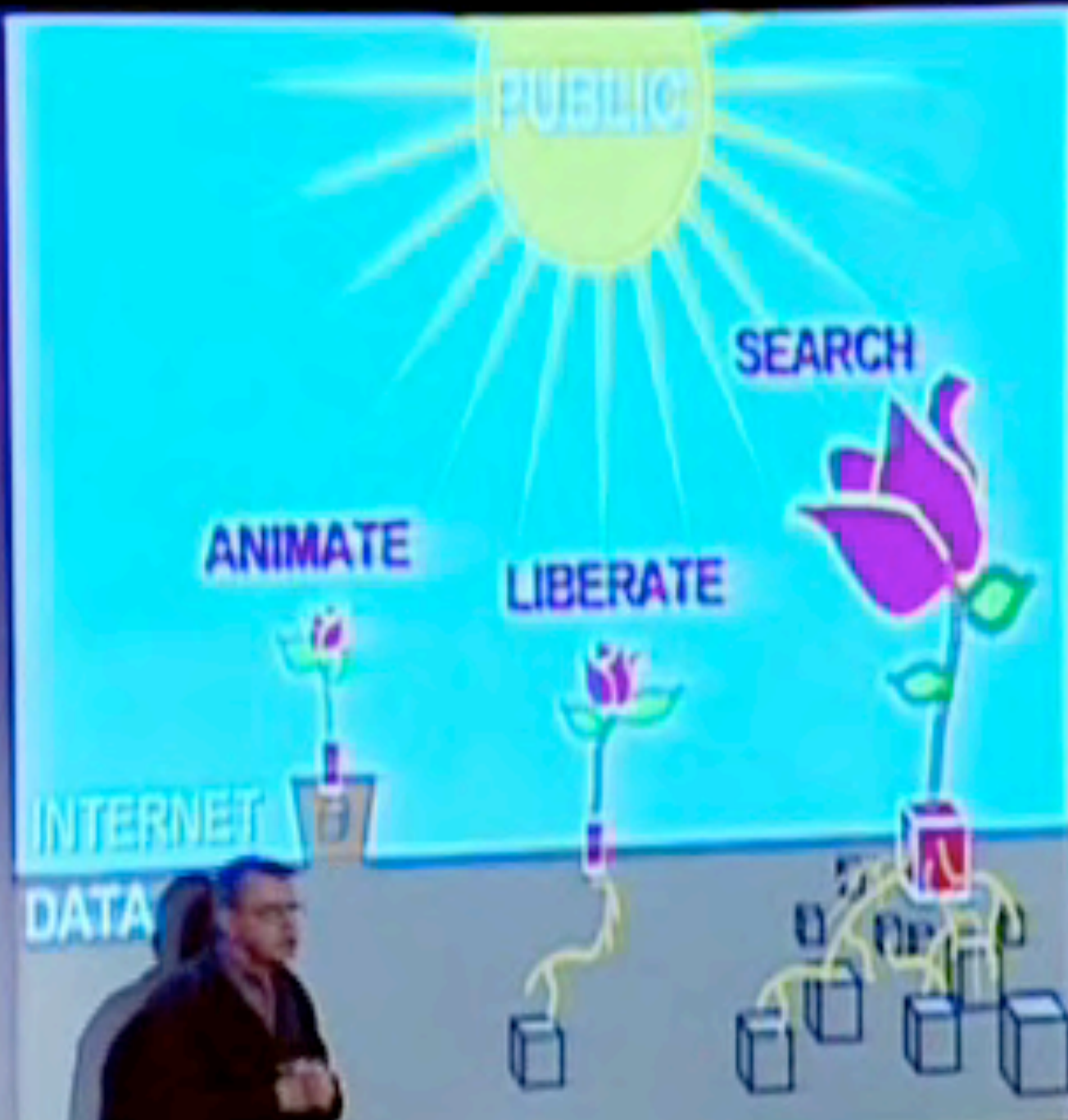
UN



National



NGO



TED



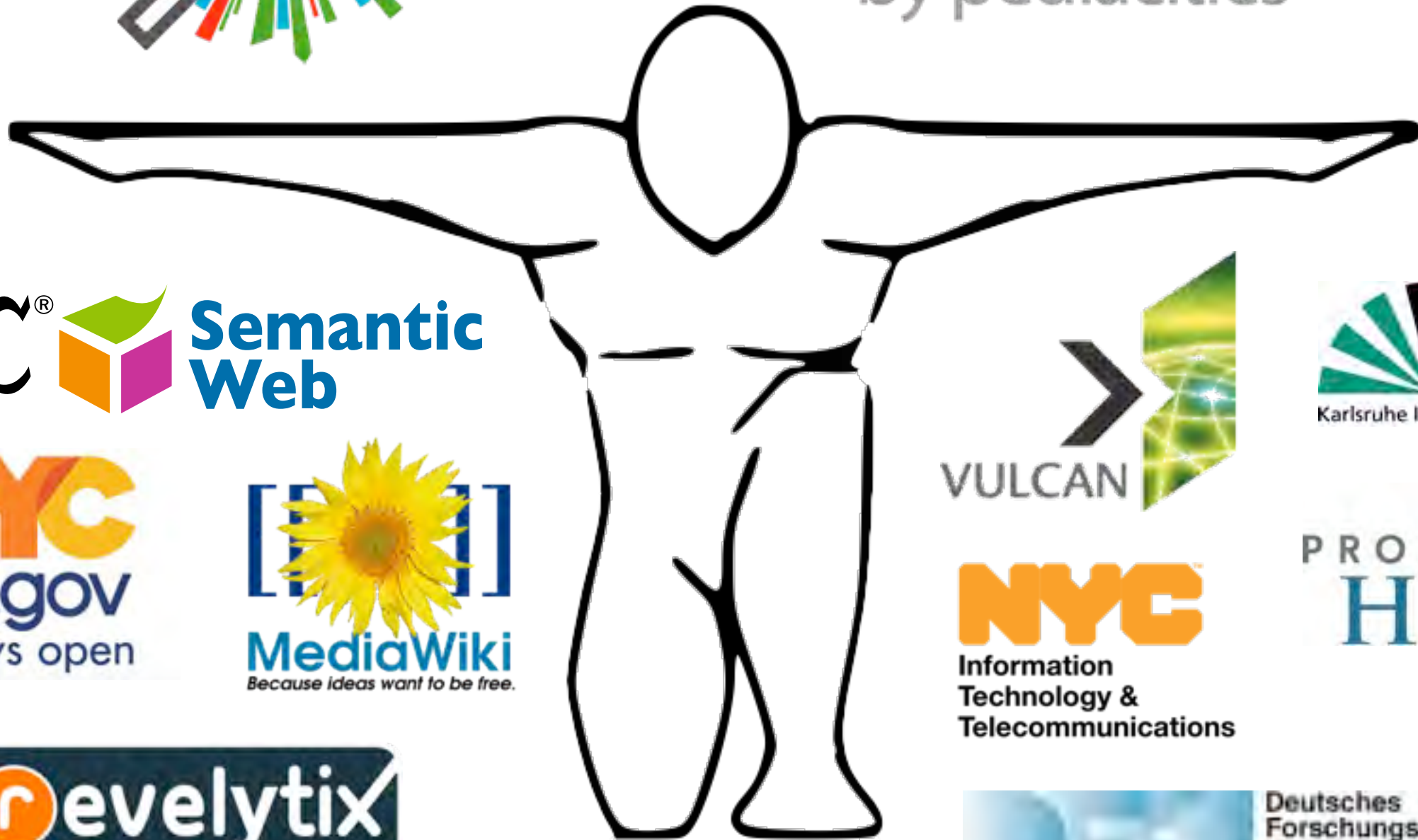
... that “*Search Function*”
and something for the everyday user

A green-tinted image of a hallway with a glowing doorway at the end, overlaid with a digital rain effect. The text "EVERYTHING IS DATA" is written in a stylized, white, serif font across the middle of the image.

EVERYTHING IS DATA



nycfacets
by pediactivities



PUBLIC



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by pediaccities



nycfacets
by pediatric cities

We need your help & feedback



A Smart Data Exchange for All Data NYC

Find out more at
<http://nyc.pediaccities.com/facets>

@jqnatividad @samimirzabaig @pediaccities @ontodia

CREDITS

- Sir Tim Berners-Lee highlight from TED (http://www.ted.com/talks/tim_berners_lee_on_the_next_web.html)
- Hans Rosling highlight from TED (http://www.ted.com/talks/hans_rosling_shows_the_best_stats_you_ve_ever_seen)
- FlowerPowerpont2.pptx provided by Anna Rosling Rönnlund of gapminder
- The Matrix, 1999. "He is the One" scene
- Various screenshots provided by Revelytix, Spry Inc., NYC.gov, and TCG Software Services