Weaving On the Map: How highly interactive data visualizations serve regional planning partners and community groups

LED Partnership Workshop       June 12-13, 2013
US Census Bureau and the Local Employment Dynamics Partnership Steering Committee

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Examples from the VisualInsights WebPage Visualizations 1990-2010
Weave (2010)
Weave
Web-based Analysis and Visualization Environment
iWeave.org

Grants from National Academy of Sciences and DataHavens to explore technologies for a web-based visualization system

Built prototype in 2007
Open Indicators Consortium (OIC)  
Formed to fund first years of Weave

1. Arizona  
   Arizona Indicators, managed by Morrison Institute for Public Policy at ASU

2. Metro Atlanta/Atlanta GA  
   Neighborhood Nexus Partnership, Greater Atlanta Planning Commission, Emory University

3. Metro Boston/Boston MA  
   Metropolitan Area Planning Council, the Boston Indicators Project at the Boston Foundation

4. Metro Chicago IL  
   Regional Indicators Project, Chicago Metropolitan Agency for Planning

5. Columbus/Central OH  
   Community Research Partners, Mid-Ohio Regional Planning Commission

6. Connecticut Data Collaborative  
   CT Economic Resource Center & CT Data Collaborative

7. Kansas City MI  
   Mid-America Regional Council for the Kansas City Community-Wide Information Network

8. Massachusetts Department of Early Education and Care

9. Michigan Data Collaborative  
   The Michigan Data Collaborative, managed by the Johnson Center’s Community Research Institute & Data Driven Detroit

10. Rhode Island  
    Rhode Island Department of Education, The Providence Plan

11. Rockford Illinois  
    Rockford Region Vital Signs
More members and others

12. King County/Seattle WA
   Public Health Department

13. South Florida
   South Florida Regional Planning Council & Southeast Florida Regional Partnership

14. San Antonio
   Community Information Now

15. Portland OR
   Portland State University

16. Centers for Disease Control and Prevention (CDC)

17. Houston
   - MA Dept of Higher Education
   - US Dept of Labor – internal review of grant activity
   - Associated Grant Makers, Community Teamworks Inc, …
   - Boston Cares, On The Rise, …
   - Veteran’s Services
   - …

Many more across the world
Numerous downloads

The James L. Knight, Barr and The Boston Foundations
The Greater Lowell, Boston, New Haven and Rhode Island Community Foundations
The Fundamental Mission:

Enable data visualization and analysis of any available data anywhere by anyone for any purpose

Under administrative and user controls

With source code and software freely available
Today Weave Provides

- Ease of integrating multiple databases
- Support for multiply linked visualizations
- Flexibility for data exploration
- Interactive presentations
- Dissemination of results (static and interactive)
- Integrated R-Project
- All based on session history
This website provides a wealth of information about the metro's communities through a variety of topics—from arts & education to housing & transportation. We invite you to explore the region's sustainability data and work with us to create your own data visualizations and reports. The goal: to collectively make more informed decisions for our region.

Announcing Training Manual for Rockford Region Vital Signs Website

We are pleased to announce the release of the Training Manual for the Rockford Region Vital Signs Website. This website is an interactive data portal taking the pulse of the region's sustainability. It includes an...
Welcome to the Rhode Island DataHUB

A partnership among several state and local agencies and The Providence Plan, the RI DataHUB links together data from national, state, and local sources. Data are summarized and made available on this website to all who are interested in using data to analyze and improve the well-being of Rhode Islanders.

Topics include:

- Demographics
- Education
- Health
- Adolescent Risk Factors
- Adolescent Protective Factors

Begin by exploring a “Data Story” or browsing Reports that interest you.
Boston Trees with Stamen Map
Grand Rapids
Weave: India Free Zones
Atlanta Regional Commission
Neighborhood Nexus

Building support for Transportation project funding
Equity priorities
Atlanta Regional Commission LED
Concentration of Job-Rich Areas

Tracts with the highest concentration of jobs (>8,000/tract) for 2007-2010
Areas in red have gained jobs
Areas in blue have lost jobs between
Areas with the highest paying jobs in metro Atlanta
Selected tracts shown have $ \geq 900$ jobs that pay $\geq $3,333 per month
Areas in red have highest % of creative class jobs
(arts, entertainment, management, ...)
Areas where residents are paid < $1,250 per month
Selected tracts shown have > 1,000 people each paid < than $15,000 a year.
Areas in red have greater increases in foreclosures
(ranging 114 to 742 filings between 2007-2012)
Areas With 25% Unemployment (UE) or Greater

The distribution of unemployment rates around the City of Atlanta
The selected areas are UE rates $\geq 25\%$
Total jobs in these areas are often $< 500$ per tract
Youngest Workers, Highest Paid Jobs

Workers age ≤ 29 living in connection to jobs paying ≥ $3,333.00 per month.

Highest concentration of young, high paid workers live in the Alpharetta-John’s Creek-Peachtree Corners area.

The highlighted red areas indicate a household income of $84,000-$120,000.
Concentration of Workforce Age 55 and Older

Connection between relative concentration of workers age $\geq 55$, the number of jobs available, and median household income
Tracts where $\geq 55\%$ of the workers are age 55+ have the highest household income in the metro area
Advantages of Sessioning

Basis for collaboration

Saved session for review later of analytic tool selection and Weave instance production

Resource for technical assistance and/or training

Production of annotated, narrated, animated reports (still evolving)

Locally available for user community to experiment and modify– later exportable and reviewable

Parameterized to produce updated or individuated reports (Boston metro over 101 cities/towns)

Archived and replayable years later
LED Applications - county level

Weave additional features (some in progress)
Analytical capabilities (R, Stata; SAS)
InfoMap for linked visualizations and IR
Scalability to deal with browser memory limits
Scalability to deal with large data sets
ADA compliance
Automatic report generation
Version 1.0 Release (2012)

- Multiple visualizations in web browser (a full system)
- Highly interactive
  - necessary expectations: 20s download, 1s interaction
- Client and host APIs
  - Browser and CMS agnostic, equation and R-script editor
- Cutting-edge hardcopy and dynamic reports
- Metadata support (Dublin Core)
- R-Project, Weka, OpenMap, Geoserver
- Administrative control over layout, content, interactions

- All based on session state/history
Features Under Development 2.0 – 4.0

- **Session history API**
  for personalization, save multiple states and preferences, web analytics

- **Collaborative visual tools**
  to enable joint analysis and visualization from multiple sites
  to provide support and training

- **InfoMaps**
  Linked documents, text and data

- **Analyst Workstation (in browser)**
  Computation (R, Weka, Stata, SAS) + InfoMaps + Large Data

- **ADA Compliance and automatic reports**

- **Mobile devices including Apple**

- **Large and Streaming Data**
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<th>Topic</th>
<th>Description</th>
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<td>Lowell Food Project</td>
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<td>Grand Rapids</td>
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Questions?