



Turning Data Into Action

THE VARIETY, VELOCITY, AND VOLUME OF DATA IN THE WORLD HAVE REACHED STAGGERING LEVELS.

You and your organization are faced with determining how to manage, process, store, distribute, and secure all of these data. Just as importantly, you are faced with identifying how best to analyze and use data in a way that delivers actionable insights.

RTI International's data scientists help you design creative, functional, and beautiful data solutions that enable you to make new discoveries and inform critical decisions.

RTI Center for Data Science





Collaboration

Data science is a team effort. To help solve your most complex challenges, our data scientists collaborate with you and leverage our in-house subject matter experts in the social, statistical, health, environmental, and discovery sciences. Our technical capabilities are broad and include advanced analytics, modern reporting, and software engineering.



ADVANCED ANALYTICS

- Machine learning and statistical and predictive modeling
- Text analytics and natural language processing
- Graph and network analysis
- Artificial intelligence and deep learning

MODERN REPORTING

- Interactive data visualization
- Dashboards and web applications
- Data storytelling

SOFTWARE ENGINEERING

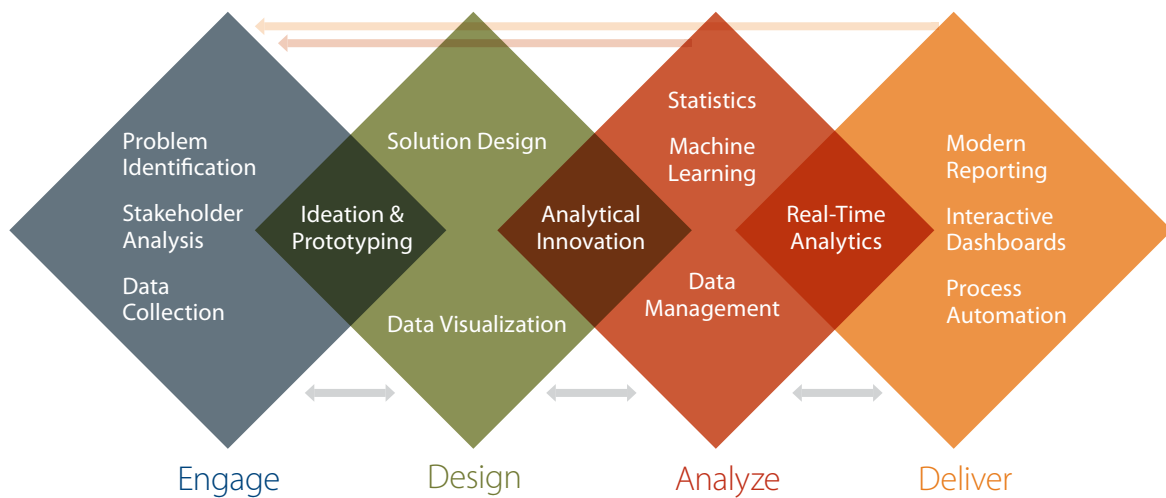
- Database architecture
- Big data processing
- Agile development
- Rapid prototyping
- Full software life cycle implementation



Holistic Approach

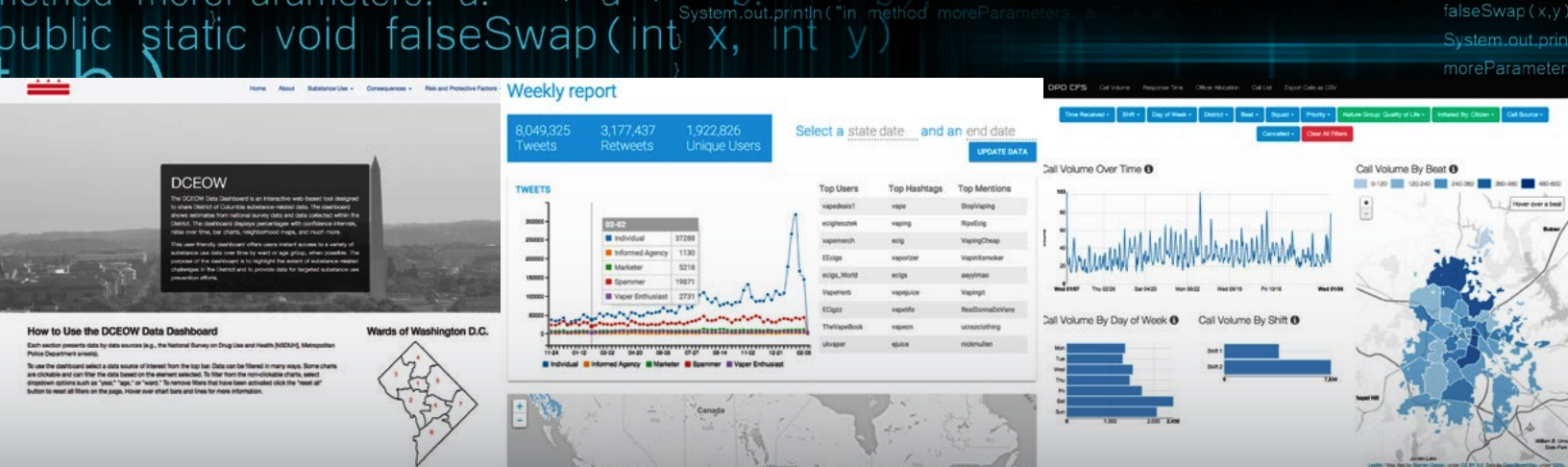
Data science is equal parts user-centered design and analysis. We provide rigorous technical know-how, deep subject matter expertise, and creative leadership at each stage of your project, from ideation and design to analysis and reporting.

With an iterative approach and focus on the whole user experience, we work with you to understand your challenges and determine the best solution. We are particularly adept at working in situations with a poorly understood problem, without a proposed solution, with messy data, and with the imminent need for actionable information.



PROJECT LIFE CYCLE

Your objectives, resources, and constraints are carefully considered and inform the design phase of the project. We help you define the problem and design solutions that fit your needs. We then retrieve the data, clean them, and design their storage and access. Finally, we analyze the data and make them accessible to produce insights—either in written form or as interactive applications or websites that provide an ongoing snapshot of the status of your problem—so you can make better-informed decisions.



Monitoring substance use in Washington, DC.

Using Twitter data to understand e-cigarette usage.

Analyzing 911 calls for service to improve policing.

Action

We engage in scientific research projects for a variety of clients and domains, all aimed at improving the human condition. Our work ranges from solving national and international problems to working in our local communities—from public health to criminal and social justice to global health and education.

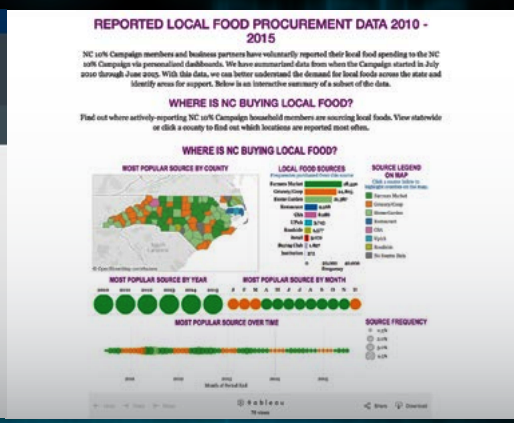
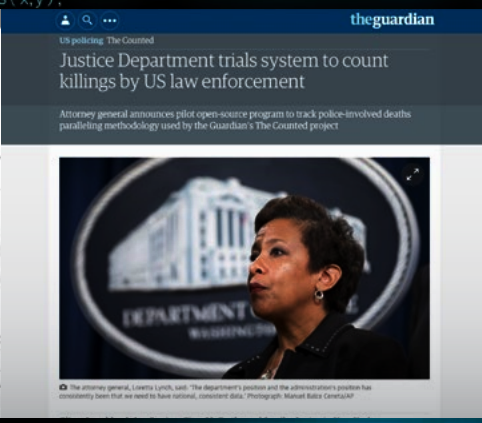
PROJECT HIGHLIGHTS

- Designed and created a **publicly accessible, web-based tool** to collect, analyze, and report data on substance use in the District of Columbia, which helps leaders make informed decisions about programs, policies, and practices aimed at reducing substance use*
- Redesigned the **Substance Abuse and Mental Health Data Archive website** to give researchers, policy makers, and the public an easy way to access and analyze data from the nation's substance use surveys*
- Created a machine learning model that leverages social media data to help understand consumer perceptions and behaviors regarding e-cigarette use
- Developed a predictive model that identifies risk factors and groups of people at high risk for more than three visits to an emergency room per year
- Developed two diabetes microsimulation models that estimate the impact of food and nutrition policies on diabetes and dietary-related diseases, one of which simulates long-term health and economic outcomes
- Developed multiple, predictive simulation models to advise policy makers on the best strategies to fight chronic diseases, using a new approach that considers multiple sources of data and an individual-based modeling approach
- Developed an open-source, web-based application, **CFS Analytics™**, that processes and analyzes emergency 911 calls for service data in real time so that law enforcement leaders can understand and optimize how they use and allocate their resources*
- Developed a publicly accessible product, **RTI-STAR™**, for analyzing civic data on police traffic stops to evaluate evidence of racial disproportionality*

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Tracking arrest-related deaths in the United States.

Monitoring the progress of a campaign to encourage local food sourcing.

Performing real-time disease surveillance at mass gatherings to prevent public health epidemics.

- Developed a reliable and accurate process for [tracking arrest-related deaths](#) in the United States that allows criminal justice researchers and law enforcement agencies to better understand the issue; the process also gives policy makers and law enforcement agencies information that can be used to develop new policies and practices to reduce or eliminate deaths during the arrest process
- Conducted a process evaluation on the NC Statewide Warrant Repository (NCAWARE) system and used data from it to develop a model for assigning violent crime risk to outstanding warrants using classification and regression trees and applications of machine learning
- Developed a publicly available, interactive dashboard, the [NC 10% Campaign Data Dashboard](#), that provides access to the longitudinal data collected from individuals and businesses participating in the NC 10% Campaign, whose goal is to encourage the purchase of local foods*
- Developed the Research Data Exchange Data Visualization website ([FHWA Data Visualizations](#)), an open-source application that publicly demonstrates the value of the Federal Highway Administration's research data on vehicles that are connected to one another and to the internet.*
- Developed a prediction tool for intelligence and national security analysts that identifies indicators that a foreign group may engage in politically motivated, violent behavior
- Developed a real-time disease surveillance and visual analytics tool that helped prevent infectious disease epidemics, such as cholera and H1N1 influenza, at mass gatherings; EMcounter was made available to the 37 mobile clinics at India's 2015 Kumbh Mela Hindu religious festival and helped officials track clinic load and disease burden by demographics, sites, and locations across time for more than 35,000 individual patient visits
- Developed a predictive model of the global spread of a flu pandemic used to identify best strategies for global vaccine stockpiles and global antiviral drug distribution
- Developed novel predictive methods and a statistical package, MobForest, for a personalized medicine initiative to identify the best individualized treatments for patients in clinical trials*
- Developed a supply chain tracking system, BeaconRelief™, to improve disaster relief workers' situational awareness of goods and supplies in temporary camps
- Developed a tool that evaluates the relationship between life needs, job impact, and job satisfaction to identify the specific factors most strongly related to employee retention

*Denotes publicly accessible tools

RTI Center for Data Science

CONTACT US TO FIND OUT HOW WE CAN HELP YOU USE DATA IN
A MEANINGFUL WAY TO ADDRESS YOUR SPECIFIC CHALLENGE.

Clients include the Bureau of Justice Statistics, National Institute of Justice, Substance Abuse and Mental Health Services Administration, Center for Medicare & Medicaid Innovation, Federal Highway Administration, U.S. Agency for International Development, Centers for Disease Control and Prevention, Department of Homeland Security, National Institutes of Health, Department of Defense, Department of Veterans Affairs, state and local governments, the MacArthur Foundation, and commercial clients.

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RTI International is an independent, nonprofit research institute dedicated to improving the human condition. Clients rely on us to answer questions that demand an objective and multidisciplinary approach—one that integrates expertise across the social and laboratory sciences, engineering, and international development. We believe in the promise of science, and we are inspired every day to deliver on that promise for the good of people, communities, and businesses around the world. For more information, visit www.rti.org.

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