David vs. Goliath: Fighting Big Budgets with Python

Mike Waud and Eric Palakovich Carr

LEGACY | The Schroeder Institute FOR TOBACCO RESEARCH AND POLICY STUDIES

Using Python for Rapid, Iterative, and Scalable Tobacco Control Interventions

The tobacco industry spends more than $34 million each day. How do we compete?

Launching new research studies with quick turn-around times, iterating rapidly over multiple designs to maximize effectiveness, and the ability to scale economically can make a small budget act bigger. We have used Python and associated tools to develop quit smoking interventions on top of social networks, text messaging, and traditional web interactions.

Crucial Tools

- **Python**
- **Django**
- **Heroku**
- **Amazon RDS**
- **GitHub**
- **Agile Development**
- **Many, many Python libraries**

Who is Legacy/The Schroeder Institute?

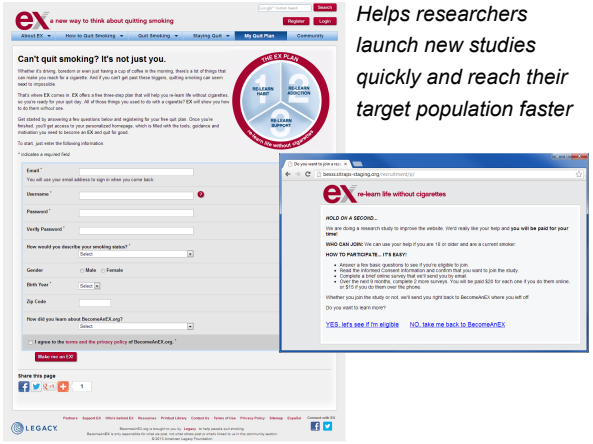
Legacy is a national public health foundation that is dedicated to building a world where young people reject tobacco and anyone can quit. Based in Washington, DC, Legacy's major public health campaigns include truth® for smoking prevention and EX® for smoking cessation.

The Schroeder Institute at Legacy conducts innovative tobacco control research focused on developing and evaluating technology-based smoking cessation interventions that are scalable to large populations. Our work centers on the use of digital and social media interventions to help people quit smoking and stay quit.

Rapid Ramping of New Research

Clinical Trials Management System

BecomeAneEX.org is a web-based smoking cessation program with a large social network of current and former smokers. Our clinical trials management system enables us to automate recruitment of BecomeAnEX members to various research trials. This approach is extremely cost efficient, especially for the large trials we run that often enroll thousands of participants. Within the system, researchers can specify targeted recruitment goals, screen for duplicate enrollment, verify eligibility criteria, and ensure that the recruitment process complies with requirements and best practices for conducting human research.

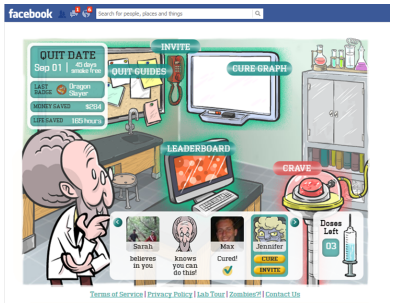


Helps researchers launch new studies quickly and reach their target population faster

Crucial Tools

- **Django Admin** for reporting and participant management
- **REST based API** for selecting users
- **Integration with LimeSurvey** to administer surveys

Iterative Designs for Maximized Impact



Increases user engagement and viral spread by making progressive improvements

UbiQUITous: A Facebook Quit Smoking App

As part of an innovative three-year project funded by the National Cancer Institute of the National Institutes of Health (R01 CA155369-01A1), we have developed a Facebook app to help smokers quit. The app, called UbiQUITous, is currently the only evidence-based app on Facebook dedicated to helping users quit smoking. Instead of encouraging smokers to join networks of other quitters, UbiQUITous helps smokers build a support network out of their own friends and family on Facebook. Development of the app involved a series of rapid, small pilot tests in which we tested and optimized specific features and functionality. The optimized version of the app is currently being studied in a formal research trial to understand how a quitting smoking tool "goes viral" through clusters of smokers online, and what conditions make a public health intervention most likely to spread between individuals. We aim to recruit at least 12,000 users for the study between mid-December 2012 and mid-March 2013.

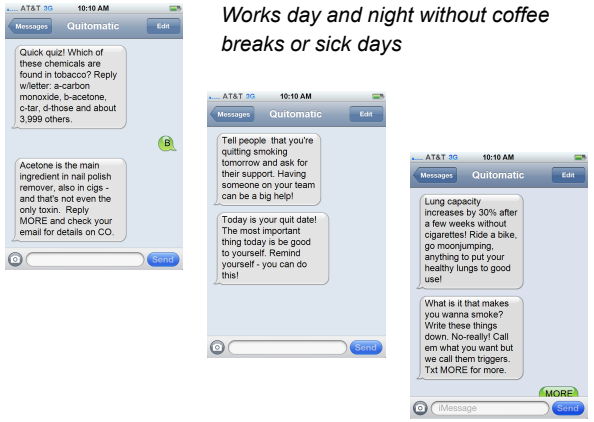
Crucial Tools

- **Facepy** for wrapping the Facebook API
- **Mock** for replicating Facebook behavior in test
- **Networkx** for social graph visualization

Scalable Systems To Save Budgets

Quitomatic: Tailored Text Messaging As an Alternative to Human Counseling

Widespread adoption of text messaging has created new opportunities for Legacy and its partners. Our work explores the potential to supplement expensive human staffed quitlines with a more affordable automated text message system, the optimal ways to engage smokers at times when their urges are strongest, the benefits of an interactive vs. static program, and the ability to dynamically tailor a daily messaging program to a specific user..



Works day and night without coffee breaks or sick days

Crucial Tools

- **Twilio** for text messaging
- **Celery** for queuing text messages
- **Django Reversion** for managing content versions

1724 MASSACHUSETTS AVE, NW WASHINGTON, DC 20036 | T 202.454.5555 F 202.454.5599 | LEGACYFORHEALTH.ORG