



INTELLIGENT  
ANALYTICS  
& MODELING

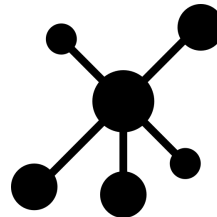
# **A Comprehensive Approach to Economic Impact Assessment**

# Intelligent Analytics and Modeling

Intelligent Analytics and Modeling specializes in undertaking large-scale data analysis using econometric models and machine learning tools, building predictive models, and conducting simulations to forecast the economic impact of institutions and policy changes. Some of our clients are listed below as is our methodology:



Social Media Impact Analysis



Big Data Comprehensive  
Economic Impact Analysis



Advanced Survey Methodology

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# Intelligent Analytics and Modeling Team

## Devrim Ikizler, Ph.D *Founder and President*



### Experience

- *Lecturer of Industrial Organization, Urban Economics and Microeconomic Theory at the University of Texas at Austin since 2011*
- *Testified in Federal Courts twice as an expert witness economist (deposed 5 times), providing market structure assessment, and presented financial and economic models that have held up at the Supreme Court,*
- *Advanced statistical and computational analysis, Natural Language Processing, Econometric modeling Profit / Loss Analysis, Montecarlo simulations.*

### Education

- *Ph.D in Economics, University of Texas-Austin, 2011*
- *B.A in Mathematics and Economics, Bogaziçi University, Turkey, 2005*
- *Santa Fe Institute of Complex Sciences Summer School, 2016*

### Unique Qualifications & Affiliations

- *Small Business Administration Research Award, 2018*
- *Many-to-One Matchings without Substitutability”, Economics Letters (2016), pp.123-126, joint with Umut Dur.  
<http://dx.doi.org/10.1016/j.econlet.2016.02.005>*
- *“US Banking Industry Dynamics: A Computational Model of Mergers”, joint with Yaroslav Rosokha (2016).*
- *“The Dominance of Existing Physician Supply Over New Physician Supply and Per Capita Normalization Error: The Texas Medical Malpractice Reforms of 2003”, joint with Stephen Magee (2015).*

# Intelligent Analytics and Modeling Team

## John William Meyer, MS *Economist*



### Experience

- Graduate Researcher at the Child and Family Research Partnership at the LBJ School of Public Affairs, University of Texas at Austin
- Data Analyst for two years at one of the first ride-sharing apps to launch in New York City
- Youth Development Peace Corps Volunteer Peru (2010-2012)

### Education

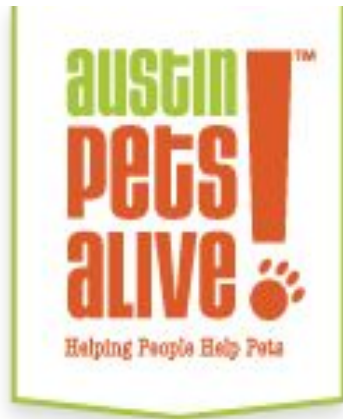
M.S. in Economics, University of Texas-Austin, 2018

B.A in Economics and History, Middlebury College, Minor in Spanish, 2010

### Unique Qualifications & Affiliations

- Caitlin Myers, Grace Close, Laurice Fox, John William Meyer, and Madeline Niemi. **“Retail Redlining: Are gasoline prices higher in poor and minority neighborhoods?”** Economic Inquiry, 2011
- Cynthia Osborne, Kaeley Benson, Abby Lane | Data Support: Erin Wu and John William Meyer. **“Military Families and Veterans Pilot Prevention Program Final Evaluation Report”** October 2017, The University of Texas at Austin Lyndon B. Johnson School of Public Affairs R.016.1017
- Founding Member ATX Data for Good
- Big Brothers, Big Sisters Mentor of Central Texas

# The Economic Impact of Austin's No-Kill Shelter Resolution



In 2017 IA&M completed a comprehensive multidisciplinary project that showed Austin's "No-Kill Pet Shelter" policy had an economic impact of \$158 million on the region's economy, over a 7 year time-span. This report used IMPLAN data, city branding analysis, custom-designed survey data analysis, Google trend analysis and traditional data sources (Census, Employment etc.) to provide this comprehensive estimate. The finding has been cited by Austin Mayor Steve Adler.

## Contract

2017 - 2018

## Lead Economist

Dr. Devrim Ikizler

## Project Budget

\$50,000

## Reference

Kevin.Morris@du.edu

# The Economic Impact of Occupational Licensing on Small Businesses



IA&M team won a national open bid contract to conduct original research for the United States Small Business Administration Department of Advocacy to study the effect that occupational licensing has on the nation's 29 million small businesses and its employees. His team's methodology includes analysis of Yelp and Google reviews using **natural language processing** to better understand the impact occupational licensing on consumer outcomes.

## Contract

2018 - 2019

## Team Lead

Dr. Devrim Ikizler

## Project Budget

\$57,500

## Reference

[Richard.Schwinn@sba.gov](mailto:Richard.Schwinn@sba.gov)

# Allocation of Federal Funds Across Disaster Counties for Hurricane Harvey

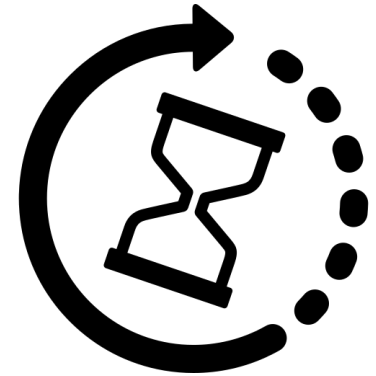


Dr. Devrim Ikizler formed a part of a University of Texas multi-functional research team that helped the State Government of Texas (General Land Office) put together an efficient allocation of recovery resources following Hurricane Harvey, across FEMA identified disaster counties in the region. The team used both publicly available data and commercial modeling software to build simulations for various and to forecast the most efficient allocation of federal funds following the Hurricane.

Contract	Team Lead	Project Budget	Reference
2018 - 2019	Prof Linda Golden	\$750,000	Pete.Phillips@glo.texas.gov



# Comprehensive and Customizable Economic Impact Approach



We use **IMPLAN** software to provide a benchmark short term economic impact assessment - ie. how many total jobs does your organization create in the local economy?

We use **Natural Language Processing (NLP)** tools of user reviews to unlock key insights in user data that reveal the economic impact of decisions

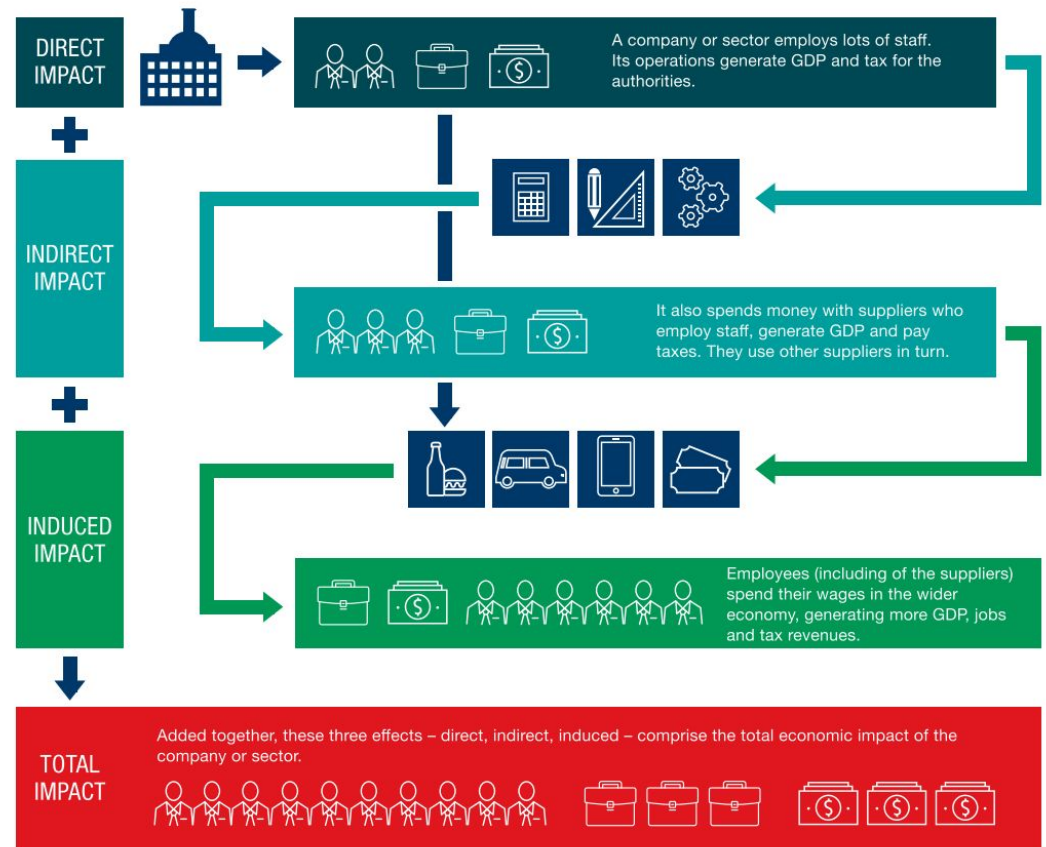
We use brand equity analysis, google trend analysis and other big data tools to quantify **long-term effects** (increases in human capital, real estate, environmental impact, etc.)



# Input-Output Based Impact Model: IMPLAN

We use IMPLAN software in **economic impact analyses** to estimate the impact of non-profits' programs

Our team employs the **Analysis-by-Parts** which gives us more control and facilitates analysis of the direct, indirect, and induced effects separately.



*Source Oxford Economics*

# Economic Impact of A New Shelter on the Host Region



**\$12.5 M**  
direct impact



**20 jobs**  
created



**\$350,000**  
tax revenue



# **Analysis of Social Media Data, Online Reviews and Twitter Feeds**

- Natural Language Processing (NLP) is increasingly used by companies to gain insights from text data
- Topic Modeling can be used to identify the main themes your customers are discussing
- NLP allows companies to derive insights from consumer reviews to understand and quickly prioritize changes to their products

# Influence of Online Reviews

**72%**

of consumers trust  
online reviews as  
much as personal  
recommendations  
from real people

Search Engine Land

**68%**

of consumers go  
social networking  
sites to read  
reviews

Vocus

**90%**

of consumers say  
that positive  
online reviews  
influence their  
buying decisions

Dimensional Research



# Sample Online Reviews



Ventura, CA

69 friends

27 reviews

3 photos

★★★★★ 3/6/2018

We visited two shelters, this one by far was the best, very accommodating. Great staff. Our kitten got sick shortly after bringing her home. I called up they told me to come back in immediately. Josh checked her out, (their vet) and gave her some medication. He was so sweet, and very **caring**. Our little Penelope recovered perfectly, and has been our little spoiled monster ever since.

2 people voted for this review



Port Hueneme, CA

3 friends

35 reviews

2 photos

★★★☆☆ 11/30/2014

The only staff person I spoke to was very polite and helpful. The cons are its in the middle of an older neighborhood, therefore you are not allowed to physically view the animals. Makes it pretty **difficult** to feel that bound with a creature! It looked **cramped**.



38 Reviews

3.5 Avg.



110 Reviews

4.3 Avg.

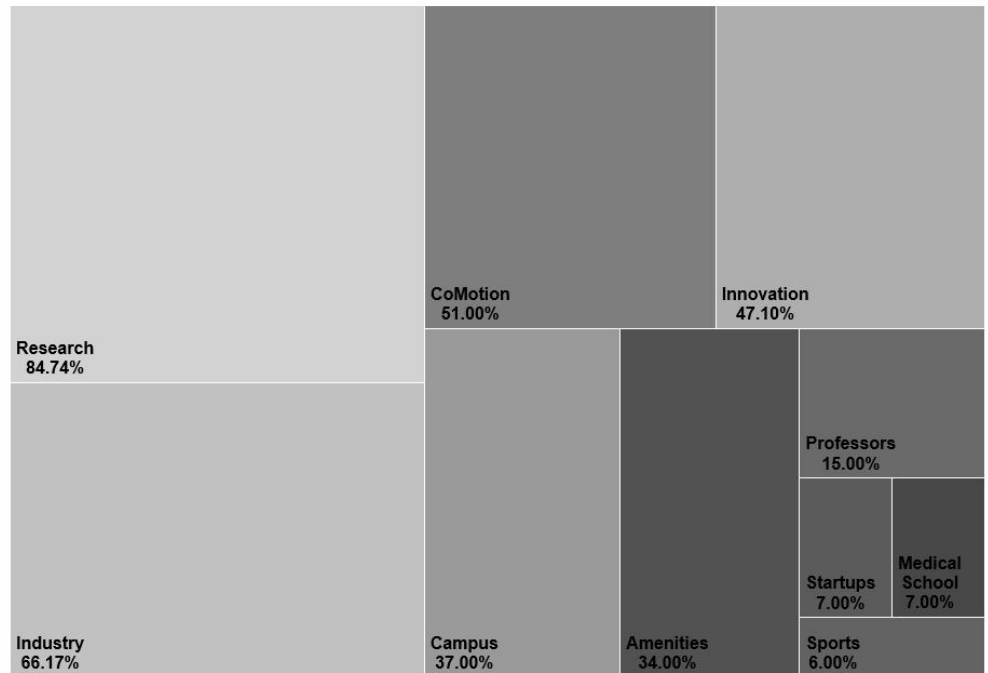
# Topic Modeling

## Example Topic Analysis

Using a custom algorithm, we can identify the **main themes** your customers are discussing in their online reviews.

This analysis **helps organizations prioritize changes** based on customer feedback.

TOPIC MODELING - UNIVERSITY OF WASHINGTON REVIEWS / FEEDBACK



# Brand Equity Analysis

Brand Equity Analysis is relevant when the specific activity / project of interest is essential to the identity of a region such that it will not only attract visitors in the short term but it will also **help define the region and help its economic and demographic growth in the long term.**

Examples can be:

- ❖ Increased migration to the city (region) - higher population,
- ❖ Increased investment to the city (region) - more capital,
- ❖ Increased human capital,
- ❖ Increased business activity and start-up activity...

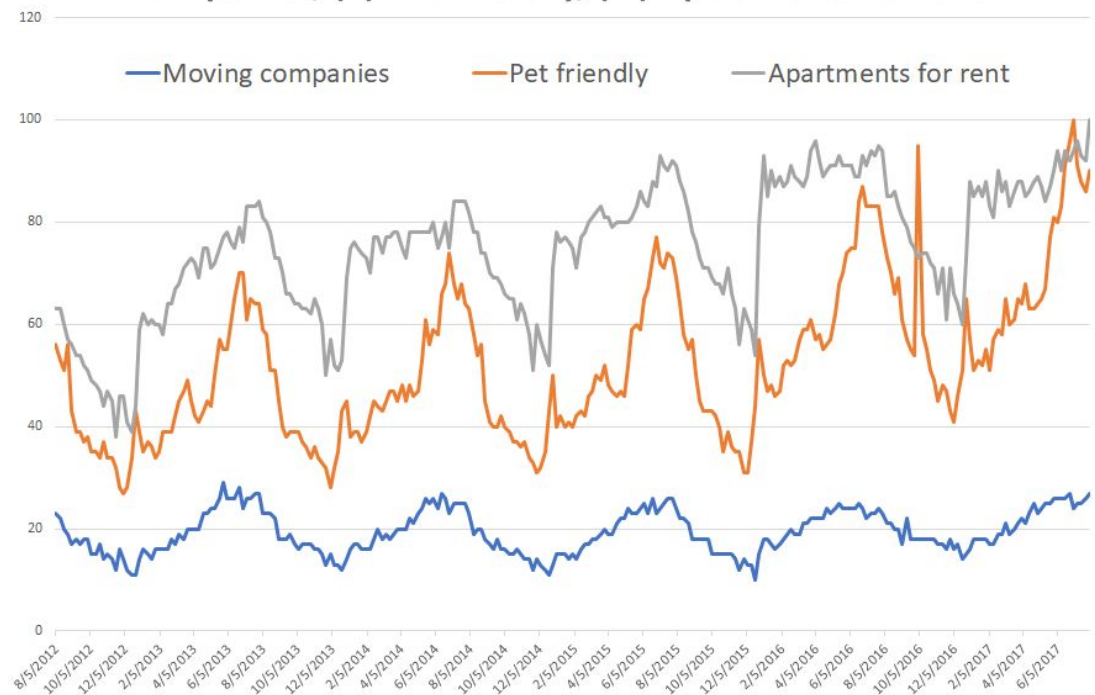


# Google Trends Analysis

We use this search term statistics to analyze public's perception of specific concepts (locations, activities, etc)

For example we analyze and visualize a frequency chart over time, to understanding how often people search for a non profit within a specific location

Google Trends Analytics For Search Terms: (i) Mover Companies, (ii) Pet Friendly, (iii) Apartments for rent



Sample Google Trends Analysis for Austin No Kill Impact Study, 2017

# Custom Survey Design, Execution and Analysis

**We create and implement** custom surveys tailored to the questions our clients want answered. These surveys include (among others):

- ❖ Visitor Profile Analyses
- ❖ Market Research Survey
- ❖ Brand Awareness Survey



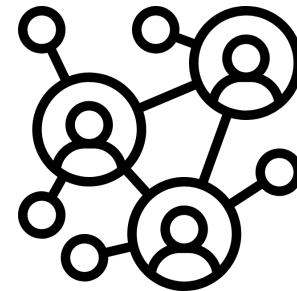
# Impact Assessment of Community Programs



**Donation Campaign:**  
Quantify the effect of  
volunteer impact on the  
community and on the  
volunteers themselves



**Volunteering program:**  
Quantify the effect of  
volunteer impact on the  
community and on the  
volunteers themselves



**Community Outreach:**  
Analyze the impact of  
the shelter's community  
engagement



# Additional Analyses

- **Comparative Project Analysis:** Employ a before / after analysis or event analysis (regression) to measure the realized impact of such investments on other regions to learn and predict the true impact of the proposed activity. This method yields the most statistically reliable results since the estimation is based on similar projects.
- **Real Estate Analysis:** A statistical prediction of the impact of any investment / activity on the surrounding real estate values
- **Tax Revenue Analysis:** An analysis of the tax effects of the regulatory / investment change

# Additional Analyses (Cont.)

- **Spillover / Cluster Analysis:** An analysis of any economic spillover effects from the project (for example a museum that creates a partnership with a local research institution)
- **Environmental Analysis:** When your policy or investment has an effect on the local environment, we analyze and monetarily quantify this effect
- **Human Capital Effects Analysis:** When there is an effect on human capital in the region (for example a new educational program or museum) we calculate the effects of this development of regional human capital

# Suggested Project Timeline

Project Phase	April	May	June	July
<b>Phase 1: - Project Preparation -- 2 - 3 weeks</b>				
Finalize Scope of Work				
Stakeholder Identification and Engagement				
Data Gathering / Database Confirmations				
<b>Phase II – Impact Analysis -- 4 - 6 weeks</b>				
Evaluation of IMPLAN Results				
Social Media Analytics / Survey Data Analysis				
Finalize Data Analysis / Review with the Client				
<b>Phase III – Report Preparation -- 2 - 4 weeks</b>				
Preparation of Draft Report				
Internal Sharing of Draft Report / Incorporate Feedback				
Finalize Report / Public Presentations				