Understanding the Interplay Between Boards, Executives, and Company Performance
January 16, 2015

Data at a Glance:
- 127,000 individual business leaders
  - Company affiliation, board membership, and biographies
- 9,000 companies
  - Includes company characteristics and various board perquisites
- Up to 14 years of data (2000-2014)
  - Leadership & board changes
  - Extensive lists of self-identified peer companies
  - Executive compensation & equity plans

WEBINAR WILL BEGIN SHORTLY

Presentation recording and slide deck will be made available on the WCAI website by Monday, January 19th

Submit your proposal by Monday, February 2, 2015. Learn more at http://wcai.wharton.upenn.edu/research
Understanding the Interplay Between Boards, Executives, and Company Performance

A WCAI Research Opportunity sponsored by Equilar

January 16, 2015
Introductions

David Chun  
CEO and Founder, Equilar

Linda Chen  
VP Marketing, Equilar

Morris Thai  
Product Manager, Equilar

BJ Firmacion  
Associate Product Manager, Equilar

Ben Adams  
Research Director, WCAI

Melissa Hartz  
Assistant Research Director, WCAI

Colleen O’Neill  
Executive Director, WCAI

Elea Feit  
Senior Fellow, WCAI
Sponsor Overview

About
• Founded in 2000, based in Silicon Valley CA
• Big Data cloud-based software company, focused on translating complex data sets into valuable information
• The leader in executive compensation data & governance solutions

Clients
• More than 1,000 clients, including public and private companies
• 7 of the top 10 institutional investors, over $10B in assets under management
Research Goals

Equilar is open to any research that might make good use of its executive and company data for the purpose of discovering interesting market, company, or executive trends and correlations.

Any reasonable proposal will be considered.
Possible Research Areas from Equilar

- Executive compensation and what impact various vehicles, incentives, and distribution might have on long-term shareholder value
- Composition of boards over time, including forecasting board changes
- Board composition or compensation as they might impact company performance
- Impact of histories, activities, or skills of individual board members on board composition and performance
- Optimal board composition for different stages of the company lifecycle
- Existence or evolution of networks of boards and board members
- Peer identification analysis
- Something else *not on this list*…
Data Background

- Majority of companies are within the Russell 3000 Index and TSX composite indices.
- Mostly US-based companies – the few non-North American companies are likely peers of those in the U.S. For example, Nestle S.A. (based in Switzerland) is designated as a peer company by Philip Morris and Coca Cola.

- Individual people in the dataset are observed because they are linked to at least one of those companies

- The observation window is January 2000 – June 2014.
  - Companies must have at least 1 reported fiscal year
  - That fiscal year must have at least 1 board member
Data Structure

Company ➔ Relationship ➔ Leader
Data Structure
Data Structure

- Company
- Management Role
- Board
- Leader
- Committee
Data Structure – One Leader

CEO of COMPANY A

ON THE BOARD of
- Company B
- Company C
- Company D

2006
Data Structure – One Leader

2006
CEO of COMPANY A
ON THE BOARD of
Company B
Company C
Company D

2007
CEO of COMPANY A
ON THE BOARD of
Company B
Company D
Data Structure – One Leader

2006
CEO of COMPANY A
ON THE BOARD of
Company B
Company C
Company D

2007
CEO of COMPANY A
ON THE BOARD of
Company B
Company D

2008
RETIRED from
COMPANY A
ON THE BOARD of
Company B
Company D
Data Structure – One Leader

- **2006**
  - CEO of COMPANY A
  - ON THE BOARD of Company B
  - Company C
  - Company D

- **2007**
  - CEO of COMPANY A
  - ON THE BOARD of Company B
  - Company D

- **2008**
  - RETIRED from COMPANY A
  - ON THE BOARD of Company B
  - Company D

Most changes happen on fiscal year start/end, but interim changes are also observed.
Data Structure – One Company

2006

CEO – Fred
CFO – Julie
COO – Mark

12 Board Members
Data Structure – One Company

- CEO – Fred
- CFO – Julie
- COO – Mark

12 Board Members

- 2 New Board Members
- 3 Board Members
Now 11 Total
Data Structure – One Company

2006
- CEO – Fred
  - CFO – Julie
  - COO – Mark
- 12 Board Members

2007
- CEO – Fred
  - CFO – Julie
  - COO – Mark
- +2 New Board Members
- - 3 Board Members
  - Now 11 Total

2008
- CEO – Julie
  - CFO – Raul
  - COO – Mark
- +1 New Board Members
  - 12 Total
Linking to Other Data Sources

Awarded teams may look to **append** additional information, and **helpful links** are available.
Linking to Other Data Sources

Awarded teams may look to append additional information, and helpful links are available.

Hooks to financial data:
• Company stock symbol & exchange
• CUSIP ID

Links to company information:
• Company website
• Links to biographies on website

External data sources:
• Wikipedia pages
• Twitter feeds
• LinkedIn profiles
Linking to Other Data Sources

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• CUSIP ID

Links to company information:
• Company website
• Links to biographies on website

External data sources:
• Wikipedia pages
• Twitter feeds
• LinkedIn profiles

Check if your institution has access to WRDS:
http://wrds.wharton.upenn.edu
Data Structure

Management Role

Company

Board

Leader

Committee
Data Structure

Company

Management Role

Board

Leader

Committee
Approximately **9,000 individual companies from 50 industries** are included in this dataset. Note: the data contains all companies tracked by Equilar that meet the selection criteria.

Data about these companies include:
- Company name
- Brief description of the company
- City, state, and zip code company operates/is headquartered
- Name of industry/sector
- Whether or not company has **multiple stock types**
- Designations of whether the company is **private, public, acquired**, etc
- Links to external sources
  - Stock symbol and exchange
  - Company website
  - CUSIP ID
Distribution of Company Sector

Top Sectors:

Technology  
1,755 companies

Healthcare  
1,170 companies

Banks  
770 companies

*Size represents number of companies in that sector
Geographic Distribution of Companies in Top 3 Sectors
Geographic Distribution of Companies in Top 3 Sectors
## Sneak Peek - Company

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One row represents one company
This table contains ~30 additional columns not displayed, for space
## Peer Groups – Three Companies in 2013

**ALPHA NATURAL RESOURCES, INC**
- Air Products & Chemicals Inc
- AK Steel Holding Corp
- Allegheny Technologies Inc
- Arch Coal Inc
- Barrick Gold Corp
- Cameron International Corp
- Cliffs Natural Resources Inc
- CONSOL Energy Inc
- Cummins Inc
- Eastman Chemical Co
- EOG Resources Inc
- Mosaic Co
- National Oilwell Varco Inc
- Newmont Mining Corp
- Peabody Energy Corp
- PPG Industries Inc
- PRAXAIR Inc
- United States Steel Corp
- Williams Companies Inc

**CONSOL Energy Inc**
- Alpha Natural Resources, Inc.
- Anadarko Petroleum Corp
- Apache Corp
- Arch Coal Inc
- Chesapeake Energy Corp
- Devon Energy Corp
- EOG Resources Inc
- Newfield Exploration Co
- Noble Energy Inc
- Peabody Energy Corp
- QEP Resources, Inc.
- Southwestern Energy Co
- WPX ENERGY, INC.
Peer Groups – Three Companies in 2013

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- Williams Companies Inc

**ALLIANCE RESOURCE PARTNERS LP**
- Alpha Natural Resources, Inc.
  - Arch Coal Inc
  - CONSOL Energy Inc
  - James River Coal Co
  - Natural Resource Partners LP
  - Oxford Resource Partners LP
  - Patriot Coal Corp
  - Rhino Resource Partners LP
  - Walter Energy, Inc.

**CONSOL Energy Inc**
- Anadarko Petroleum Corp
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- Devon Energy Corp
- EOG Resources Inc
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- Noble Energy Inc
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- Southwestern Energy Co
- WPX ENERGY, INC.
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- AK Steel Holding Corp
- Allegheny Technologies Inc

### ALLIANCE RESOURCE PARTNERS LP
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  - **Arch Coal Inc**
  - CONSOL Energy Inc
  - James River Coal Co
  - Natural Resource Partners LP
  - Oxford Resource Partners LP
  - Patriot Coal Corp
  - Rhino Resource Partners LP
  - Walter Energy, Inc.

### CONSOL Energy Inc
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- Devon Energy Corp
- EOG Resources Inc
- Newfield Exploration Co
- Noble Energy Inc
- Peabody Energy Corp
- PEP Resources, Inc.
- Southwestern Energy Co
- WPX ENERGY, INC.
Data Structure

- Company
- Management Role
- Board
- Committee
- Leader
Individual Business Leaders

The dataset contains information about ~127,000 business leaders over the course of the observation window.

Information about these individuals includes:
- Age & gender
- First and last name
- Flag indicating whether or not the individual is the CEO/COO
- Flag indicating whether or not the individual is retired
- Links to resources such as the person’s Twitter feed, Wikipedia page, LinkedIn profile, and Forbes ranking
## Sneak Peek – Business Leaders

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One row represents one person
This table contains ~20 additional columns not displayed, for space

Note: the data contains links for ~8% of individuals
Data Structure
Management Role

For each fiscal year, the data contains information about the executives at each individual company. “Executives” are the top five highest paid individuals at the company, and are collected from annual proxy statements.

Management Role data includes:
- The individual’s full title for that fiscal year
- Start and end dates with the company
- Start and end dates as CEO, if applicable
- Links to resources such as biography and Forbes pages
- Yearly compensation information, including
  - Salary
  - Bonuses, stock options & awards
  - Any changes in pension
  - Over 20 other perqs, such as grants, other cash, and transportation
Distribution of 2004 Base Salary

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### Sneak Peek – Management Role

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<td>RADIANT SYSTEMS INC</td>
<td>Chief Financial Officer</td>
<td>$206,615</td>
<td>$45,488</td>
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<td>95847</td>
<td>2004</td>
<td>49132</td>
<td>RADIANT SYSTEMS INC</td>
<td>Executive Vice President and President - Radiant Computer Products</td>
<td>$184,963</td>
<td>$54,020</td>
<td>65,875</td>
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<td>95853</td>
<td>2004</td>
<td>49129</td>
<td>RADIANT SYSTEMS INC</td>
<td>Former Co-Chairman and Co-Chief Executive Officer</td>
<td>$208,946</td>
<td>$0</td>
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<tr>
<td>7542</td>
<td>2004</td>
<td>4197</td>
<td>NANOGEN INC</td>
<td>Chairman and Chief Executive Officer</td>
<td>$485,000</td>
<td>$115,000</td>
<td>300,000</td>
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<tr>
<td>7539</td>
<td>2004</td>
<td>4205</td>
<td>NANOGEN INC</td>
<td>President and Chief Operating Officer</td>
<td>$277,094</td>
<td>$235,000</td>
<td>450,000</td>
</tr>
<tr>
<td>7535</td>
<td>2004</td>
<td>4188</td>
<td>NANOGEN INC</td>
<td>Senior Vice President, General Counsel and Secretary</td>
<td>$246,000</td>
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<td>250,000</td>
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<tr>
<td>7522</td>
<td>2004</td>
<td>4190</td>
<td>NANOGEN INC</td>
<td>Senior Vice President, Research and Development</td>
<td>$223,965</td>
<td>$54,000</td>
<td>100,000</td>
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<td>7527</td>
<td>2004</td>
<td>4201</td>
<td>NANOGEN INC</td>
<td>Former President and Chief Operating Officer</td>
<td>$182,102</td>
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<tr>
<td>55779</td>
<td>2004</td>
<td>29535</td>
<td>FAIR ISAAC CORP</td>
<td>Director, President and Chief Executive Officer</td>
<td>$596,155</td>
<td>$0</td>
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<td>55765</td>
<td>2004</td>
<td>29539</td>
<td>FAIR ISAAC CORP</td>
<td>Vice President, Consumer Solutions</td>
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<td>55751</td>
<td>2004</td>
<td>29537</td>
<td>FAIR ISAAC CORP</td>
<td>Vice President and Chief Marketing Officer</td>
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<td>29543</td>
<td>FAIR ISAAC CORP</td>
<td>Vice President, Research &amp; Development/Analytics</td>
<td>$336,245</td>
<td>$0</td>
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<td>55757</td>
<td>2004</td>
<td>29532</td>
<td>FAIR ISAAC CORP</td>
<td>Vice President and Chief Information Officer</td>
<td>$328,884</td>
<td>$0</td>
<td>22,500</td>
</tr>
<tr>
<td>55750</td>
<td>2004</td>
<td>29530</td>
<td>FAIR ISAAC CORP</td>
<td>Vice President, General Manager</td>
<td>$328,884</td>
<td>$0</td>
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<td>147071</td>
<td>2004</td>
<td>78226</td>
<td>1ST CENTENNIAL BANCORP</td>
<td>Former President and Chief Executive Officer of 1st Centennial Bank</td>
<td>$256,865</td>
<td>$140,000</td>
<td>6,250</td>
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<td>147065</td>
<td>2004</td>
<td>78227</td>
<td>1ST CENTENNIAL BANCORP</td>
<td>Executive Vice President and Chief Financial Officer of 1st Centennial</td>
<td>$130,500</td>
<td>$70,000</td>
<td>11,124</td>
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<td>147069</td>
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<td>78240</td>
<td>1ST CENTENNIAL BANCORP</td>
<td>President and Chief Executive Officer of 1st Centennial Bancorp</td>
<td>$125,417</td>
<td>$85,000</td>
<td>17,124</td>
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</table>

One row represents one person, per company, per year
This table contains ~20 additional columns not displayed, for space
Data Structure

- Company
- Management Role
- Board
- Committee
- Leader
Data Structure

- Company
- Management Role
- Leader
- Board
- Committee
Board

Each board is uniquely identified by the company and fiscal year. As a result, there are approximately 54,000 board-years observed in this dataset.

Data about boards include:
- Number of board meetings
- Dates of shareholders meetings
- Lead Director’s affiliation with the company
- Number of classes
- Dozens of flags
  - Available perqs, such as discount purchases or car
  - Board policies, such as penalties for missed meetings
  - Compensation policies, such as stock options
- All members of a board are uniquely tracked, along with start & end dates of appointment
Number of Board Meetings in 2013

![Bar Chart: Number of Board Meetings]

- Number of Board Meetings
- Number of Boards
- 1 to 29 boards
One row represents one board for one year
There are ~20 additional columns not displayed, for space
Each of these variables/flags have a high percentage of Null/Unknown values. Data presented here is “of those that are known, what percentage is yes vs no”
Board Membership Over Time

Year of Observation Window

Number of Boards

Last Name

Carpenter
Board Membership Over Time

Number of Boards

Year of Observation Window


Last Name
- Boeckmann
- Carpenter
Board Membership Over Time

Number of Boards

Year of Observation Window


Last Name
Boeckmann
Carpenter
Ross
Board Membership Over Time, Four Companies
Board Membership Over Time, Fair Isaac Corp
Board Membership Over Time, Radiant Systems Inc

<table>
<thead>
<tr>
<th>Last Name</th>
<th>Year of Dataset</th>
</tr>
</thead>
</table>
Data Structure
Data Structure

- Company
- Management Role
- Board
- Person
- Committee
Committee

In addition to boards, we can also see information about yearly committees. The median board has three committees.

Committee data include:
- **Type of committee**, such as “pension” or “ethics”
- **Number of committee meetings**
- **Flags** designating whether or not the committee is a bank committee, special committee, or sub-committee

- All members of each committee are tracked, as well as appointment & removal from each committee
Distribution of Committee Types, 2013

- Audit
- Compensation
- Governance
- Executive
- Finance
- Strategy
- Other
- Nominating
- Compliance / Regulatory
- Environment, Health & Safety
- Technology
- Loan
- Equity
- Public Policy
- Conflict of Interest
- Pension Committee

Number of Committees
Distribution of Committee Roles in 2013

<table>
<thead>
<tr>
<th>Role Type</th>
<th>Count of Committee Members</th>
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</thead>
<tbody>
<tr>
<td>'Director'</td>
<td>45K</td>
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<tr>
<td>'Chair'</td>
<td>15K</td>
</tr>
<tr>
<td>'Ex-Officio Member'</td>
<td>0K</td>
</tr>
<tr>
<td>'Non-Director'</td>
<td>0K</td>
</tr>
<tr>
<td>'Vice Chair'</td>
<td>0K</td>
</tr>
<tr>
<td>'Alternate'</td>
<td>0K</td>
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<tr>
<td>'Non-Voting'</td>
<td>0K</td>
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</table>
Sneak Peek - Committee

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<tr>
<th>committee_id</th>
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<th>is_special_committee</th>
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<tbody>
<tr>
<td>7389</td>
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<td>Strategy</td>
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<td>7440</td>
<td>3724</td>
<td>Compensation</td>
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<tr>
<td>8331</td>
<td>4149</td>
<td>Strategy</td>
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<td>10144</td>
<td>4928</td>
<td>Compensation</td>
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<td>Y</td>
</tr>
<tr>
<td>10226</td>
<td>4967</td>
<td>Other</td>
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<td>10129</td>
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<td>11436</td>
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<td>12780</td>
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<tr>
<td>67504</td>
<td>14572</td>
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<td>13123</td>
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<tr>
<td>13595</td>
<td>6309</td>
<td>Other</td>
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<td></td>
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<td>14125</td>
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<td>14766</td>
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<td>14380</td>
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<td>15534</td>
<td>7090</td>
<td>Strategy</td>
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<td>15385</td>
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<td>15451</td>
<td>7059</td>
<td>Audit</td>
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<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

One row represents one committee for one year
Data contains ~10 more columns, not shown for space
Research Areas from Equilar

The Data Sponsor is open to proposals and projects exploring any of the following themes:

- Executive compensation and what impact various vehicles, incentives, and distribution might have on long-term shareholder value
- Composition of boards over time, including forecasting board changes
- Board composition or compensation as they might impact company performance
- Impact of histories, activities, or skills of individual board members on board composition and performance
- Optimal board composition for different stages of the company lifecycle
- Existence or evolution of networks of boards and board members
- Peer identification analysis
- Something else *not on this list*…
Research Areas from Equilar

The Data Sponsor is open to proposals and projects exploring any of the following themes:

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- Optimal board composition for different stages of the company lifecycle
- Existence or evolution of networks of boards and board members
- Peer identification analysis
- Something else not on this list…

What would YOU study with a dataset like this?
A Few Operational Notes

This webinar is intended for researchers & scholars. It should not be published or presented without permission from WCAI.

• Questions on program: wcai-research@wharton.upenn.edu

• Press contacts: wcai-press@wharton.upenn.edu

To get access to the data, research teams should submit a proposal to WCAI and the sponsor for approval.

Please note that the data sponsor cannot be named in any publication or presentation.
Proposal Format

Proposals should be in PDF format, no more than 2,000 words, and include the following information:

• Title
• Author(s) name, title, affiliation and e-mail address: Please designate a corresponding author.
• Summary information: a single “slide” that visually summarizes team & project.
• Abstract
• Introduction: Describe expected contribution(s), covering both the academic and practical aspects. Please keep it concise, and cite relevant work as necessary to explain your academic contribution. There is no need to include a lengthy literature review.
• Detailed project proposal: Please include enough detail that we can assess the feasibility & merit of the proposed approach. For example, modeling projects should include at least a sketch of the model. In addition, include a rough estimate of how long the project will take. Also include the business relevance of your research and the impact for the sponsor as well.
• Data Needs: Bulleted list of data required or requested for analysis not explicitly mentioned during this webinar. While we can’t guarantee the inclusion of these items, we are happy to investigate the availability.
• Biographies: Include up to a paragraph-long biography highlighting what each team member will contribute to the project.
Proposal Format

Proposals should be in PDF format, no more than 2,000 words, and include the following information:

• Title
• Author(s) name, title, affiliation and e-mail address: Please designate a corresponding author.
• Summary information: a single “slide” that visually summarizes team & project.
• Abstract
• Introduction: Describe expected contribution(s), covering both the academic and practical aspects. Please keep it concise, and cite relevant work as necessary to explain your academic contribution. There is no need to include a lengthy literature review.
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Proposal Submission Process

• Read more about the proposal format at http://www.wharton.upenn.edu/wcai/Proposals.cfm

  – Proposals will only be accepted online.
  – A single PDF combining the written portion and the single slide.

• Proposals will be evaluated both on academic contribution and potential to significantly improve the research sponsor’s marketing practice by the proposal review committee:

  Mark Mizruchi (University of Michigan), Christophe Van den Bulte (Wharton), Wei Jiang (Columbia), Chris Armstrong (Wharton), Elea Feit (Drexel), Eric Bradlow (WCAI), Pete Fader (WCAI), and representatives from the Research Sponsor.

• Contact wcai-research@wharton.upenn.edu, if you have questions prior to submitting your proposal.
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• Research Opportunities like this one
  – Television Viewing Data and Customer Experience
  – Supply Side and Demand Side Data for a Fast Food Chain

Also find us at:


• Announcements: http://wcai.wharton.upenn.edu