Rutgers AICPA Data Analytics Research (RADAR) Initiative
Monthly Update Call
July 6, 2016

<u>Attendees:</u>

Mike Leonardson	Kristine Hasenstab
Erica Nelson	Evan DeFord
Dan Balla	Kelly Hnatt
Reid Simon	Ami Beers
Thomas Mackenzie	Juli-ann Gorgi
Brian Wolohan	Nicole Holden
Brian Miller	Eric Cohen
Katie Greehan	Thomas Payne
Dave Dauksas	Kari Lee
Al Anderson	Brian Cassidy
Amy Pawlicki	Greg Shields
Dorothy McQuilken	Won No
Miklos Vasarhelyi	
Trevor Stewart	

<u>Meeting Notes:</u>

- The purpose of this conference call is to update the Board on the following research projects:
  - Multidimensional Audit Data Selection (MADS)
  - Process Mining
  - Visualization

  It is important to understand how the research will prove or disprove the related hypotheses, the nature of the research and what data is needed to perform the research.

- Administrative Items:
  - The May meeting minutes were approved during the June executive session conference call and are available on the RADAR website
  - The research projects noted above were also approved during the June executive session conference call
  - An updated data request template was circulated amongst the group. Updates were made to the "security" section of the document.
- Research teams provided updates on each of the projects:
  - **Visualization**: the purpose of this project is to demonstrate how visualization can be used as audit evidence.
    - The research team met on July 1st to discuss this project. They discussed two types of visualization techniques: (1) confirmatory and (2) exploratory
    - The research team is looking for additional data sets to use for testing. They have a few data sets, but these are more internal audit focused. The data sets requested should be representative of the types of analyses that are being performed by

external audit teams today (i.e. the types of data sets teams are using for analytical procedures or other detailed test work).

- **Next Step: It was suggested to start with using general ledger data. If any Board members believe that they have clients who would be willing to provide data sets, they are asked to contact Al and Miklos who will facilitate that outreach**.

o **MADS**: This research project aims to provide a more systematic approach for using data analytics in the audit sampling process.
  - The research team continues to expand and update the original framework. The team is currently preparing a summary of outlier detection methodologies and performing literature reviews on the application of machine learning techniques in fraud detection (this can also apply to identifying potential errors).
  - Similar to the above request, the research team is also requesting additional data sets for this project. Researchers are also reviewing the audit data standards in order to help identify the types of data needed.
  - It was noted that this research should also focus on risk reduction.

o **Process Mining**: The objectives of this project is to
  o determine the required controls/business processes,
  o separate the controls into two categories: (1) controls that the SAP system already had and (2) controls not in the system,
  o list the controls that are not in the SAP system but can be evaluated using process mining techniques and
  o apply process mining to the log data from the SAP system to evaluate the effectiveness of internal control

The research team is also requesting additional log data for research purposes.

o The Board discussed the need for data. Ideally, the researchers are requesting data sets per advisory Board participant. Each data set should be from a different industry (e.g. manufacturing, retail, etc.) and would be representative of those that practicing auditors spend time trying to understand/analyze. These could be datasets used for analytical procedures (understanding the business, substantive, and final review); detailed transactional and balance sheet data; and internal control review data. For analytical procedures it would be helpful to get cross-sectional data that will allow the researchers to analyze across units.
  o **Next step: Board participants will continue to work to get data sets. This will be a top priority that will be discussed on the August call.**

o The group discussed the roles of Board participants vs. retired partners on the research projects.
  o Board participants will help to drive the direction of the projects, answer any questions that arise, offer feedback and report back to the Board
  o Retired partners will provide insight and will help answer questions when Board reps are not available
  o It was noted that retired partners may not be needed for every projects, but it may be helpful to have one complement the Board representative
  o **Next step: Al will reach out to the Board members who volunteered to work on these projects, and will begin to get them involved. If needed, retired partners will be contacted to help as well.**

- o Research teams are looking to set up meetings with Board/firm reps to get a better understanding on what is being done in the area of visualization. They will be reaching out to Board reps to set up these meetings. Meetings can be conducted in person, by phone or by skype.