

Accounting IS Big Data Webinars

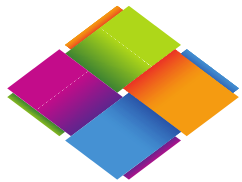
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# HUB of Analytics Education

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June 8, 2017

3:30 EDT-2:30 CDT-1:30 MDT-12:30 PDT



**Centers for  
Advancing  
Accounting**

# CPE

June 8, 2017

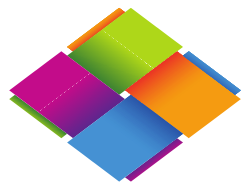
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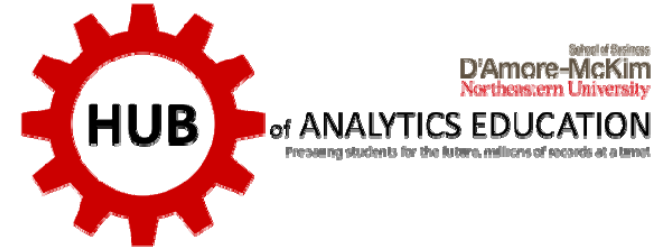
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NOTE: The American Accounting Association is registered with the National Association of State Boards of Accountancy (NASBA) as a sponsor of continuing professional education on the National Registry of CPE Sponsors. State boards of accountancy have final authority on the acceptance of individual courses for CPE credit. Complaints regarding registered sponsors may be addressed to the National Registry of CPE Sponsors through its Web site: <http://www.learningmarket.org>

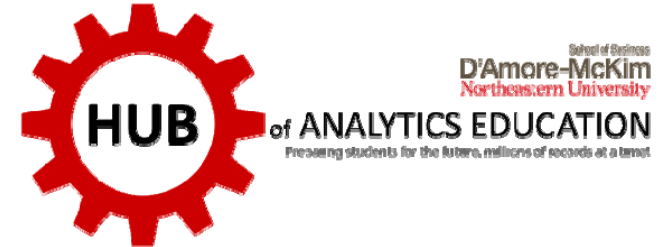


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# **HUB of Analytics Education**

## **BIBITOR, LLC**



# HUB of Analytics Education

## BIBITOR, LLC



**Charlie Bame-Aldred**  
Northeastern  
University



**Bill Goldman**  
Northeastern  
University



**Jennifer Johnson**  
University of Texas  
at Dallas



**Theo Stratopoulos**  
University of  
Waterloo



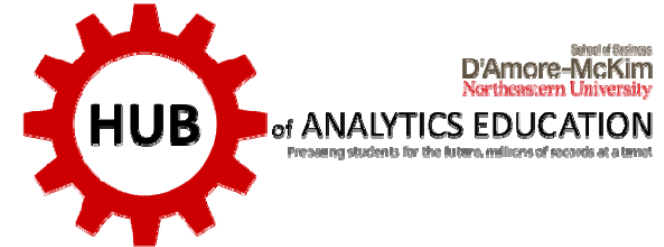
**Lorrie Metzger**  
University at  
Buffalo



**Flat Files or  
Netsuite.com**

**1,100 Employees**

**Sales, Purchases,  
and Payroll  
Flowcharts**



**15 Million Records**

# **HUB of Analytics Education**

## **BIBITOR, LLC**

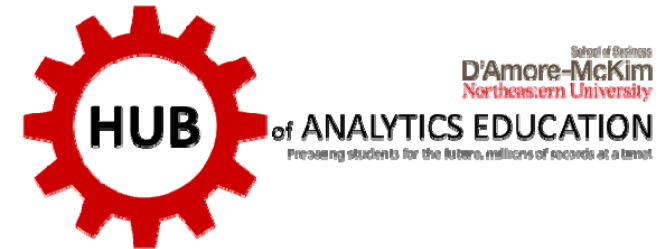
**\$441 M Sales**

**Retail Liquor  
Chain**

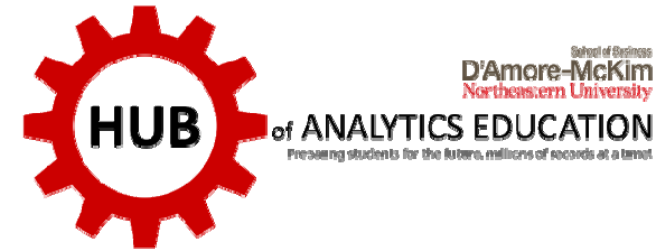
**Open  
Educational  
Resources (OER)**

**79 Retail  
Locations**

**10,000 Brands**

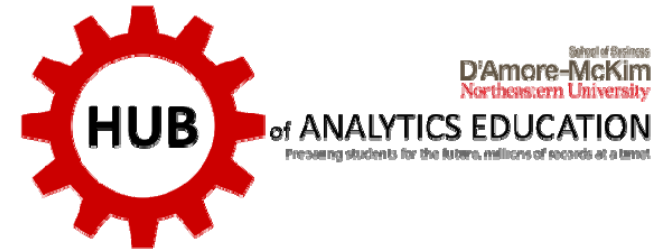


- Data Analysis Tools
  - ACL and IDEA for Accountants and Auditors
  - Tableau and R for Everyone
- Exercises and Cases Using Data Analysis Tools
  - Audit Tests
  - Sales Analysis, Product Analysis, and CVP (coming soon)
  - Simple Linear Regression
- YouTube Tutorial Videos



- Incorporating into Accounting Courses
  - Focus on developing questions
  - Using BI Tools and Visualization Tools to develop answers
  - Communicating to decision makers

# Question

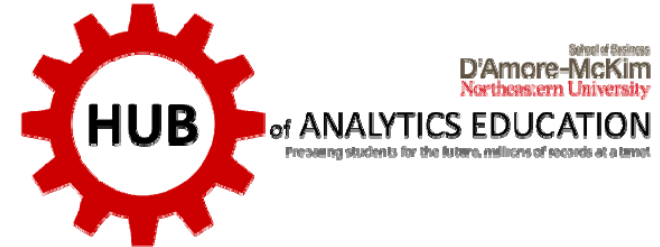


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- a. a paid subscription
- b. an open educational resource (i.e., Free)
- c. licensed to universities
- d. accessed by invitation only

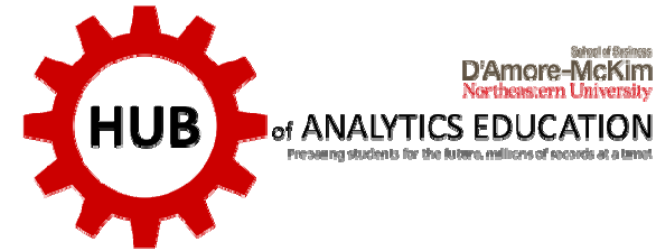


# Question

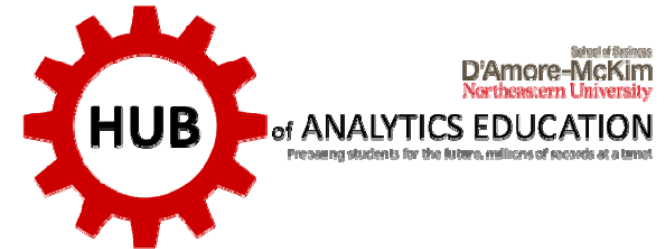


The HUB of Analytics Education includes

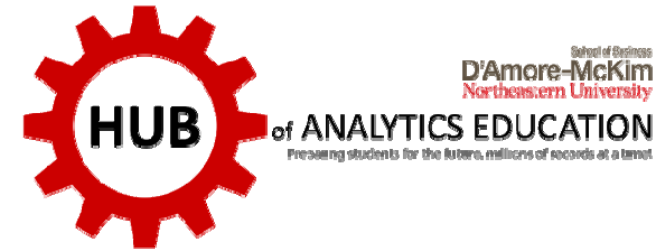
- a. A transactional dataset with close to 15 million records
- b. Exercise and cases for Auditing, Management Accounting and Statistics
- c. Process flowcharts for Sales, Purchases, and Payroll
- d. Demographic information, including population data, income data, race, age, etc.
- e. All of the above



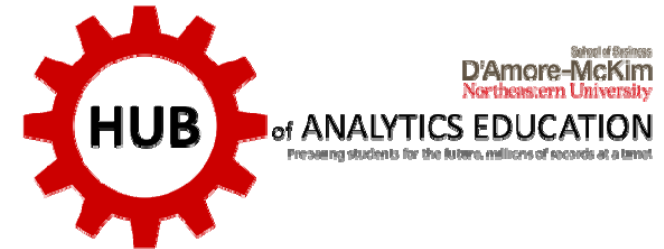
- Shift in Focus
  - Theory Supported with Data
  - Data Usage Generalize to Theory
    - **EXAMPLE – Sales Analysis Case Using Tableau**
      - What is the total SALES DOLLARS and percentage breakdown of wine and spirits?
      - What is the most popular SIZE for wine and for spirits based on SALES DOLLARS and QUANTITY?
      - Who is the most popular Vendor for wine and for spirits based on SALES DOLLARS and QUANTITY?
      - Which MONTHS have the highest and lowest SALES?



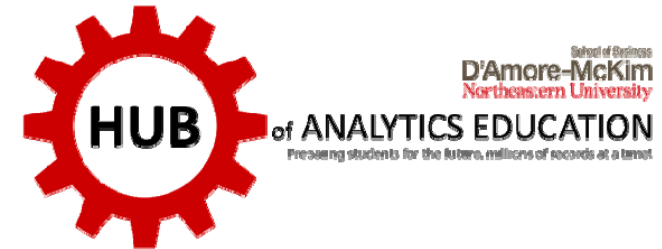
- Using Tableau to Visualize the Answers
  - Simple drag and drop
  - YouTube videos for you and your students
  - Tableau workbooks and suggested solutions



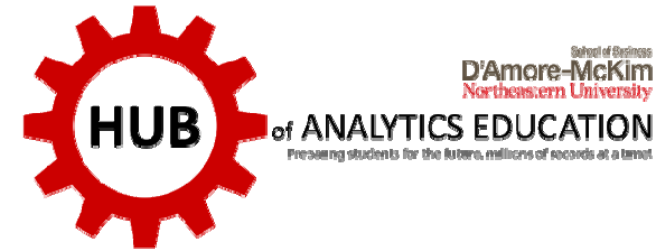
- Lessons Learned
  - Operating system issues
  - Load data time (first time)
    - Blending/Joining Data
  - Sharing workbooks due to the size of files
    - Not currently running on Tableau Server



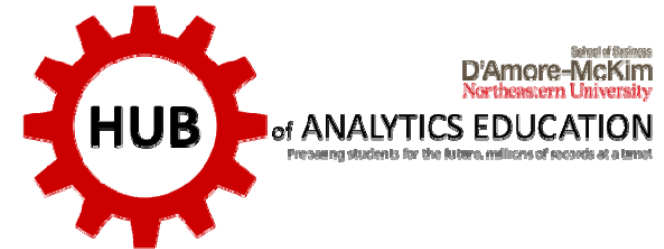
- Example –Inventory Recalculations Using Excel
  - What is the total Inventory Cost for Beginning and Ending Inventory?
  - Does the Inventory Cost for Ending Inventory agree to the Unaudited Financial Statements?
  - What do you learn from Financial Statements, Process Flowcharts and Process Manuals?



- Using Excel to Answer the Questions
  - Identify the Accounting Treatment for Inventory by reading the financial statements
  - Used V-Lookup (Brand Number) to populate the Purchase Price for each Brand.
  - Ending Inventory agreed to the Financial Statement and students identified Brands with negative margins!

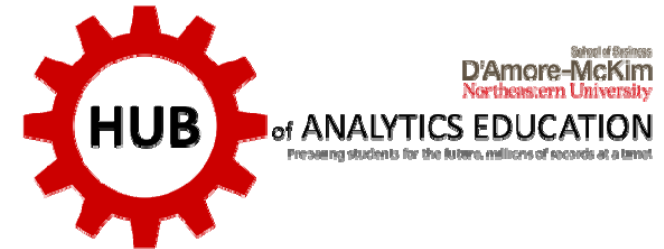


- Final Exam – Teammate Analytics Excel add-in
  - Comprehensive dataset (Inventory, Sales, and Purchases)
  - Worked with the HUB of Analytics Education to create a customized single city dataset (Hardersfield) with 2 locations (.csv files less than 1 million records)
  - Custom Hardersfield file was too big to efficiently process using Excel.



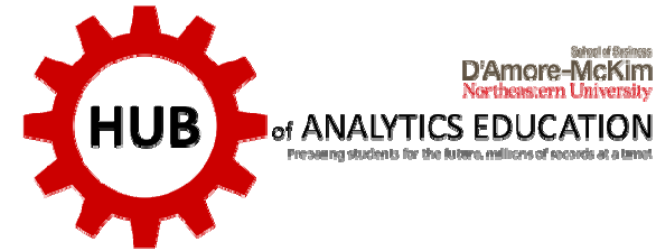
- Other Data from the University
  - Partnered with the University's Internal Audit Group
  - Data Analytics Projects
    - Duplicate Payments
    - Travel and Entertainment Expenses
    - Employee to Vendor Address Match
    - Vendor Contract Pricing



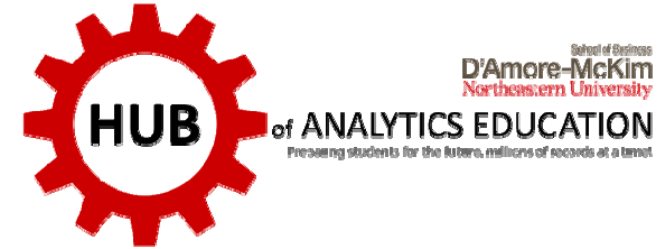


- Lessons Learned

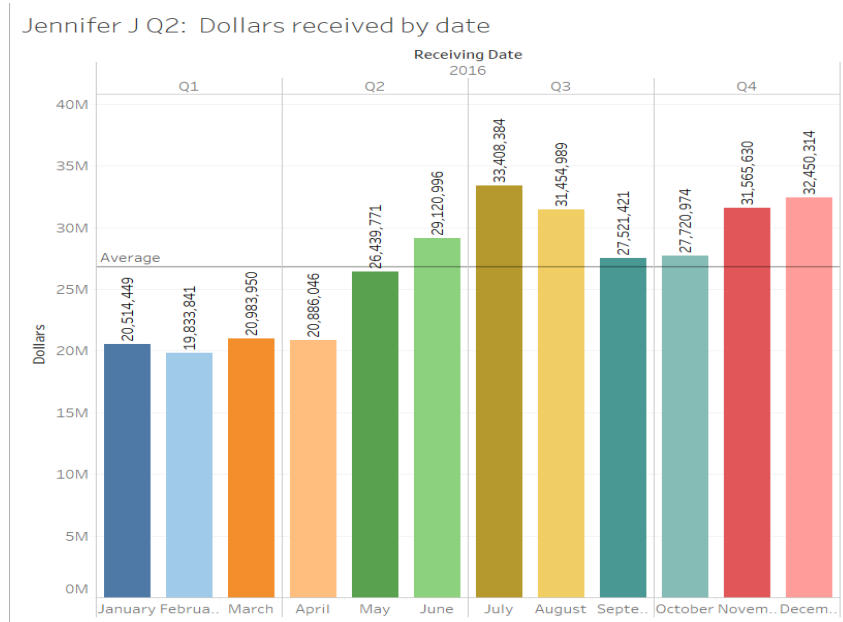
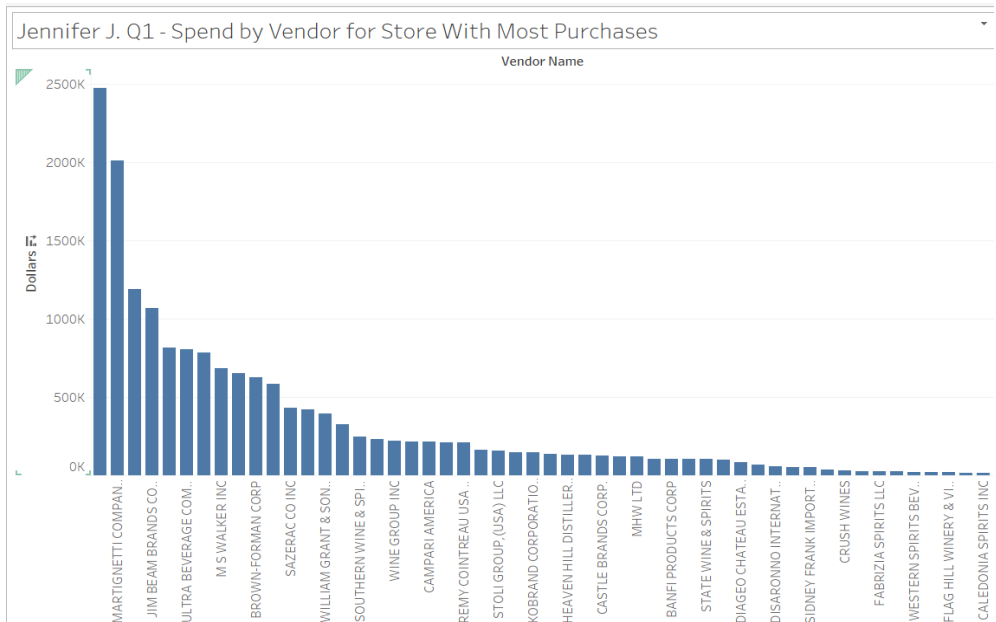
- Academic Versions of ACL and IDEA are limiting
- Cleaning and Preparing Data from sources other than the HUB is time consuming
- Results from data analytics can be subjective
- Different teams arrived at different conclusions
  - Approach and Interpretation of the Results

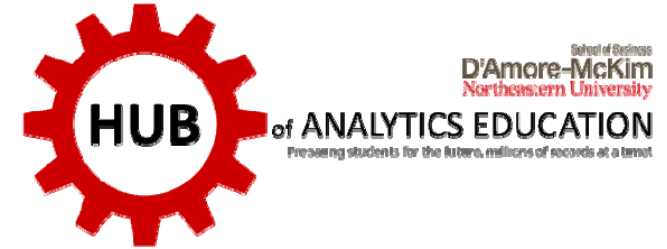


- Example – Exploration of Sales and Purchases
  - Used HUB Sales Analysis Case Questions
  - Created Additional Questions with the Purchases Data
  - Tied results to our classroom discussions on the revenue and expenditure cycles.
  - What do Visualizations say about Bibitor, LLC?
  - Are there areas management should consider addressing?
  - Beyond the numbers, what is the Bibitor, LLC Story?



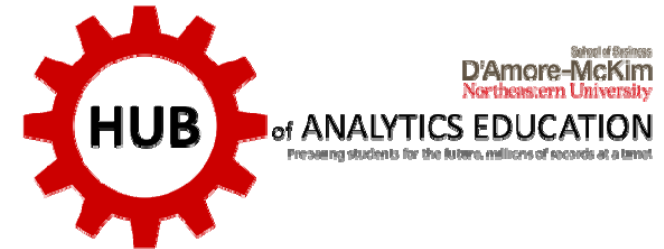
# • Using Tableau for Data Exploration



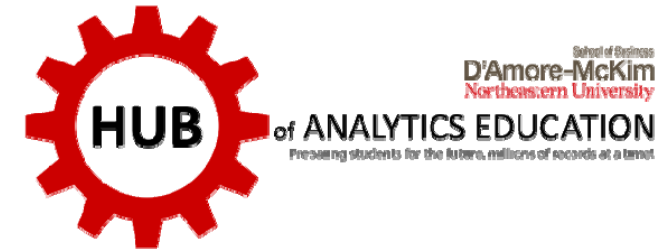


## • Using Tableau for Data Exploration

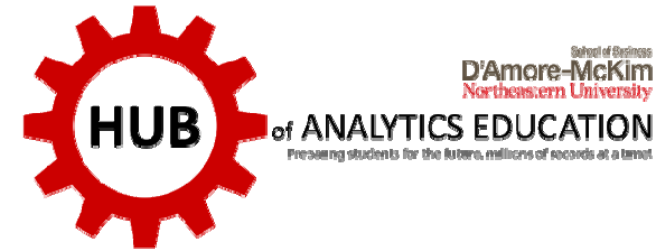




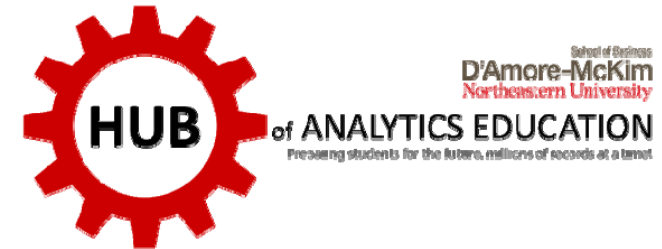
- Lessons Learned
  - Tableau Licenses are Free and Easy to install!
  - Instructor Training Time
  - Students wanted more experience with Data Analytics
  - Local company representative validated Tableau use
  - HUB has huge Datasets (Good and Bad)
  - HUB YouTube Videos are helpful for Instructors and Students



- Building an Analytics Foundation at Waterloo
  - **GOAL: Integrate Analytics in Many Courses**
  - **NEED: Common Foundation**
  - **Begin with Statistics for Finance and Accounting Students**
  - **Use R and the HUB of Analytics Education Open Resources**

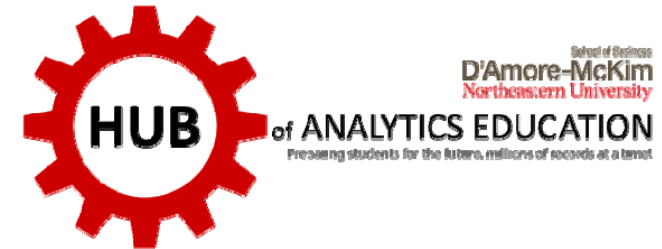


- Example – Use linear regression to form expectations.
  - What is the model to estimate store level revenue?
  - What is the model to disaggregate mixed costs?
  - What does summary output from R generated regression mean?
  - What is the quality of the R generated model?
  - What are the future expectations?



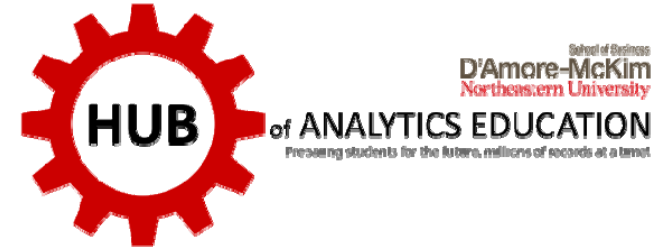
- Using R for Data Modeling
  - Examined descriptive statistics, box plots and histograms
  - Developed the regression model for Bibitor, LLC
  - Interpreted the regression output.
  - Performed diagnostics, including removing outliers
  - Developed estimates of sales and costs.





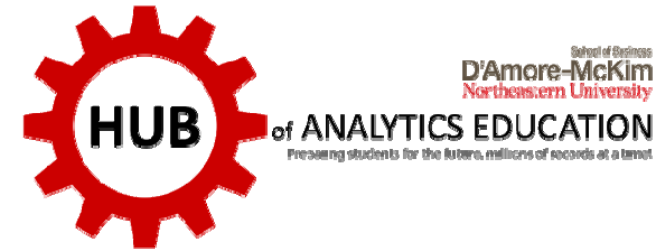
- Lessons Learned
  - R is OPEN SOURCE and Powerful
  - Switching to other packages (e.g., Tableau) is easier
  - R is a programming language – Instructor and Student Training Issues
  - Five R Computer Lab Sessions – Not Enough for Students
  - Developing future materials, including Introduction to SQL with R for Auditing and Management Accounting

# Question

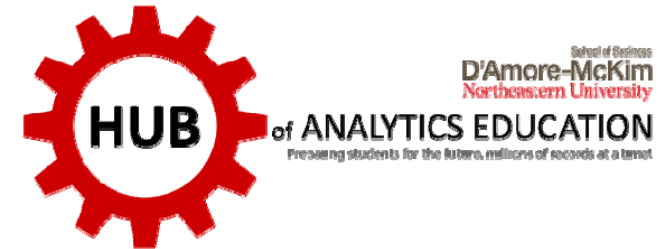


Professor Stratopoulos submitted materials to the HUB of Analytics Education to help faculty learn how to teach simple linear regression to auditors. He uses

- a. Tableau
- b. ACL
- c. R
- d. IDEA
- e. Watson Analytics



- How Can You Use the HUB?
  - Sign up for your Educator Account (<http://HUBAE.org>)
  - Explore the datasets and other teaching materials
  - Subscribe to the HUB YouTube Channel
  - Follow our LinkedIn Company
- How Can I Help the HUB?
  - Submit your cases and exercises to share with others
  - Our growth is 100% organic. Spread the word!!



[HAE@Northeastern.edu](mailto:HAE@Northeastern.edu)

<http://HUBAE.org>

[HUB YouTube Channel](#)

**Thank You**  
**Questions?**



**Charlie Bame-Aldred**  
Northeastern  
University



**Bill Goldman**  
Northeastern  
University



**Jennifer Johnson**  
University of Texas  
at Dallas



**Theo Stratopoulos**  
University of  
Waterloo



**Lorrie Metzger**  
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Preparing students for the future, millions of records at a time!



School of Business  
**D'Amore-McKim**  
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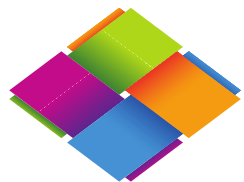
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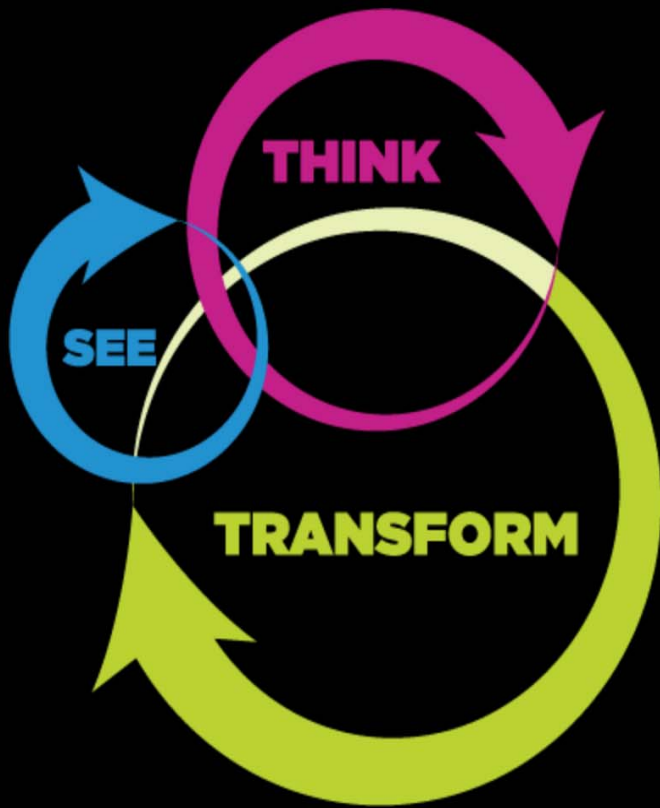
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# Thank you Sponsor!

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## Accounting /S Big Data Conference 2017

**The Ever-Changing Big Data Ecosystem--Learn the latest**

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**Gain Insights from 3 Different Company Perspectives-How They See Around the Corner to determine when to move and what are their keys to success in data and analytics**

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Brooklyn , NY 11201

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# CPE Reminder

June 8, 2017

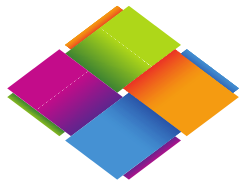
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