

The background of the slide features a large, faint watermark of the Rutgers University seal. The seal is circular and contains the text 'RUTGERS UNIVERSITY' around the perimeter and 'STATE UNIVERSITY' at the bottom. The seal is centered and serves as a background for the text.

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# **Drivers Of The Use And Facilitators And Obstacles Of The Evolution Of Big Data By The Audit Profession**

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## **Objective**

- This paper examines the drivers of the use of Big Data by the audit profession and the facilitators and obstacles for how that use will evolve in the near future.
- Drivers are the *exogenous* forces that will make the use of Big Data a historical inevitability and a strategic necessity as opposed to an entirely *endogenous* choice by auditors based on their preferences alone.
- Facilitators and obstacles are the factors that determine how Big Data usage will evolve in audit practice.

## **Possible scenarios for Big Data adoption by auditors**

- As far as initial usage of Big Data by auditors is concerned, there are at least two scenarios.
- First, one can envisage auditors embracing Big Data as fully as their clients precisely because auditors need to keep up to date technologically with their clients and because they see themselves obtaining the same benefits from Big Data usage that their clients do.
- The second, less optimistic scenario is based on the historical evidence which suggests that auditors have lagged in their adoption of technology and, hence, that the same outcome will prevail with regard to Big Data.

## **Historical record of auditors and technology**

- AICPA (2012): *"Auditing has made great strides in the past decade, but it has not seemingly kept pace with the real-time economy. Some auditing approaches and techniques that were valuable in the past now appear outdated."*
- Compare with adoption of IT-auditing: *"The increased reliance on computers and computer applications for business processes created the need for auditing to be done in a computerized environment. In fact, auditing is gradually becoming synonymous to IT auditing."*  
auditingauditors.com

## **What drove “auditing through the computer”?**

- One key factor that enabled and ultimately made inevitable IT-based auditing was the widespread adoption of ERP Systems over the last two decades.
- Competitive forces made ERP a necessity for businesses and once ERPs became ubiquitous it created the need for auditing to be done in a computerized environment.
- It is a similar dynamic that I hypothesize as developing in relation to auditor adoption of Big Data.

## **Hypothesis on drivers of Big Data usage by auditors**

- The most likely driver of the use of Big Data by auditors is client use of Big Data: that auditors will feel that they have no choice but to embrace Big Data if and when Big Data becomes as important to the operation of the businesses of their clients in the next decade as ERP systems proved to be in the one before.
- This is a demand rather than supply side argument for why auditors will end up using Big Data—not because they necessarily value the analytical power of Big Data, but because their clients do.

## **Recognize weakness in analogy between ERP systems and Big Data**

- The analogy between ERP systems and Big Data is not an exact one.
- Since ERP systems are the IT infrastructure of the firm, auditors are compelled to rely on it when data are obtained and controls verified. Moreover, ERP systems provide auditors with the capability to undertake continuous auditing.
- By contrast, Big Data is a tool for the analysis of largely non-financial data. Nonetheless, if Big Data truly becomes a strategic necessity for businesses then it becomes equally essential for auditors to be doing the equivalent of “auditing through Big Data”.

## **Facilitators and obstacles**

- Given that auditors will use Big Data—either because they themselves see value in its capabilities, or because their clients do, thus forcing auditors to follow suit—what factors will shape the evolution of that usage of Big Data by auditors?
- First consider role of standards: the application of Big Data has a greater likelihood of rapid acceptance by practitioners if it is seen as a means of more effectively or efficiently satisfying existing standards rather than depending on new or modified standards to allow the use of Big Data.

## **Standards do not appear to constrain auditor use of Big Data as an analytical procedure**

- Review of both US and international auditing standards indicate that these standards as a whole take a very expansive view of what constitutes audit evidence and are not be written in a way that constrains what data auditors may use.
- But that very lack of constraints also makes one question the extent to which auditors have fully exploited the freedom that the standards give them to be expansive in their use of audit data, failing to fully exploit traditional transactional financial data, much less the broader non-transactional information that comprise Big Data.

## **Openness of standards to Big Data raises questions**

- Need to answer the question of why Big Data will be embraced by auditors when simpler methods have not been.
- That suggests that if Big Data is to succeed in auditing it cannot be by being perceived as just another technology or analytical methodology. There are many of those—ones simpler to use and easier to implement than Big Data—that auditors have ignored or adopted only haltingly.
- In short, if auditors embrace Big Data in their audit practice in the near future it will likely only because exogenous market forces induce them to do so.

## **Other factors**

- The acquisition and usage of Big Data by auditors can be facilitated by the emerging technology of XBRL GL and the recently released Audit Data Standard (ADS).
- Another facilitator for auditor use of Big Data is that the burgeoning interest by business in Big Data means that a large number of tools have been developed or are being developed. Hence, as with ERP systems and continuous assurance, auditors can take advantage of Big Data capabilities already in place rather than being forced to develop these capabilities themselves.
- A key obstacle is competition for trained personnel.

## **Conclusion**

- I hypothesize in this paper that auditor use of Big Data will likely not happen unless the failure to adopt Big Data is perceived by the audit profession as a serious threat.
- Only when faced with such unavoidable exogenous pressure will Big Data become a strategic necessity and not just another option for auditors, just as they shifted away from the tactic of auditing around the computer and developed IT auditing when the ubiquity of ERP and other IT systems in their client made overlooking information technology as an object of assurance and a tool of auditing simply infeasible.