



Office of the State Auditor
Suzanne M. Bump

Making government work better



Integrating Data Analytics into the Audit Process

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Overview

- ◎ Our journey
 - > To deliver insights and enhance the audit process by improving the performance of the organization.
- ◎ Our approach
 - > Utilizing and integrating data analytics/analyst into the audit process.

Our Journey

- ◉ Developed data analytics capabilities
- ◉ Established working group
 - > reviewed organizational structure
 - > identified operational inefficiencies
 - > developed policies and procedures
- ◉ Defined analytics strategy

Reorganization



“Organizational change is undertaken to improve the performance of the organization or a part of the organization, for example, a process or team.”

<https://managementhelp.org/organizationalchange/index.htm#anchor61645>

Reorganization

Before

Information Technology

- Data Analyst I
- Data Analyst I
- Data Analyst I

After

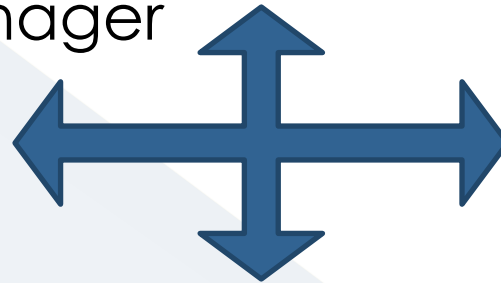
Audit Operations

- Director of Data Analytics
- Data Analytics Team
- Technical Architect Team

Data Analytics Unit in Audit Operations

Data Analytics Team

Data Analyst Manager
Data Analyst I
Data Analyst I



Audit Team

Technical Architect Team

Data Management/Software Developer
Data Integration Specialist





Integrated team approach

- ⦿ Multidisciplinary team
- ⦿ Data Analyst assigned to audit
- ⦿ Foster/Leverage SME
- ⦿ Effective, ongoing communication with IT
- ⦿ Encourage innovation

Data Analyst aligned with Audit Process

Planning phase

- Planning meetings
- Data and analysis activities
- Facilitate data sharing/acquisition

Fieldwork phase

- Support substantive procedures
- Ad hoc analysis

Reporting phase

- Assist with visualizations
- Review of Data Analyst's work in report

Planning Phase



Data Analytics/Analyst in Planning Phase of Audit

Before the entrance conference...

- ⦿ Pre/planning meetings
- ⦿ Research/locate public sources of data
- ⦿ Identify and review data sources
- ⦿ Perform data discovery

Data Analytics/Analyst in Planning Phase of Audit

Before the entrance conference...

- ◉ Collect data (websites)
- ◉ Data mining assistance
- ◉ Analyses/summarizations/visualizations
- ◉ Discuss data acquisition strategy
- ◉ System walk through (ideal)

Data Analytics/Analyst in Planning Phase of Audit

During the entrance conference...

- ⦿ Liaise with the auditee's IT resources to identify relevant data
- ⦿ Begin data acquisition activities



Data Analytics/Analyst in Planning Phase of Audit

After the entrance conference...

- ⦿ Facilitate data sharing
- ⦿ Acquire data
- ⦿ Prepare and transform data

Data Analytics/Analyst in Fieldwork and Reporting Phases

During fieldwork phase...

- ⦿ Support substantive procedures.
- ⦿ Provide ad hoc analysis.

During the reporting phase...

- ⦿ Review report to ensure analysis is properly represented.
- ⦿ Assist with creating visualizations.

How do we best utilize data analytics/analyst?

- ◎ Align resources
- ◎ **Set priorities**
- ◎ Devise strategies

PRIORITIES

- 1.
- 2.
- 3.



Set priorities

- ⦿ Develop policies and procedures
- ⦿ Improve data acquisition
- ⦿ Quickly identify exceptions

Policy and Procedures

- ◎ Create workpaper to document extracted data.
 - > Documentation
- ◎ Facilitate the use of audit data analytics.
 - > Mandatory Audit Procedure
- ◎ Communicate where data analytics can be used in the audit process.
 - > Training



Documentation

- ⦿ Excel workbook
- ⦿ Developed internally
- ⦿ Completed by Data Analyst
- ⦿ Documents handoff of source data (extract)
- ⦿ Workpaper



Documentation

- ◎ Excel workbook tabs
 - > 1- Preparer - Reviewer ID (Identification)
 - > 2 - Source & Purpose of the Data
 - > 3 - Understanding the Data
 - > 4 - Completeness & Reasonableness
 - > 5 - Analytic Testing
 - > 6 - Communication

Mandatory Audit Procedure

- ⦿ Data Analyst supports development of plan to use data analytics in audits.
- ⦿ Brainstorming conversations started early in the planning phase of the audit.

Outcome of conversations:

- > Tool/s the audit team plans to use
- > Type/s of analyses to be performed
- > Analyses supporting Audit objective/s
- > Scope of work to be performed by the Data Analyst

Training

- ⦿ Created training
- ⦿ Learning objectives:
 - ✓ Introduce members of the Data Analytics Unit
 - ✓ Describe the role of the Data Analyst as a resource in the audit process
 - ✓ Review of Data Analyst's responsibility in assisting with completion of certain audit documentation
 - ✓ Describe scenarios of possible work requested, process, and product delivered

Training Key Take Aways

- ✓ As an audit team resource, assigned data analysts play a role in supporting all phases of the audit process.
- ✓ Data analysts assist auditors with acquiring, processing, transforming, and analyzing data for performance auditing.
- ✓ Data analysts support the audit team's development of a plan to use data analytics in their audits.

Set priorities

- ⦿ Develop policies and procedures
- ⦿ **Improve data acquisition**
- ⦿ Quickly identify exceptions

Improve Data Acquisition

- ⦿ Work group/cohort
- ⦿ Redesign/change process
- ⦿ Pilot changes
- ⦿ Evaluate results
- ⦿ Capture baseline metrics to gauge effectiveness of changes

Set priorities

- ⦿ Develop policies and procedures
- ⦿ Improve data acquisition
- ⦿ **Quickly identify exceptions**



Quickly identify exceptions

- ◎ Right tool, right job.
- ◎ Right person, right task.
- ◎ Right test at the right time.

How do we best utilize data analytics/analyst?

- ◎ Align resources
- ◎ Set priorities
- ◎ **Devise strategies**



Devise strategies

- ⦿ How to prepare, transform, normalize data easier, faster...automate it.
- ⦿ What, When, How to analyze
 - > Just because you can...

Data Preparation

- ⦿ Increase in unstructured data.
- ⦿ Increase in larger sets of data.
- ⦿ Increase in care and handling of data.
- ⦿ Growth in technology that supports leveraging these data sets.

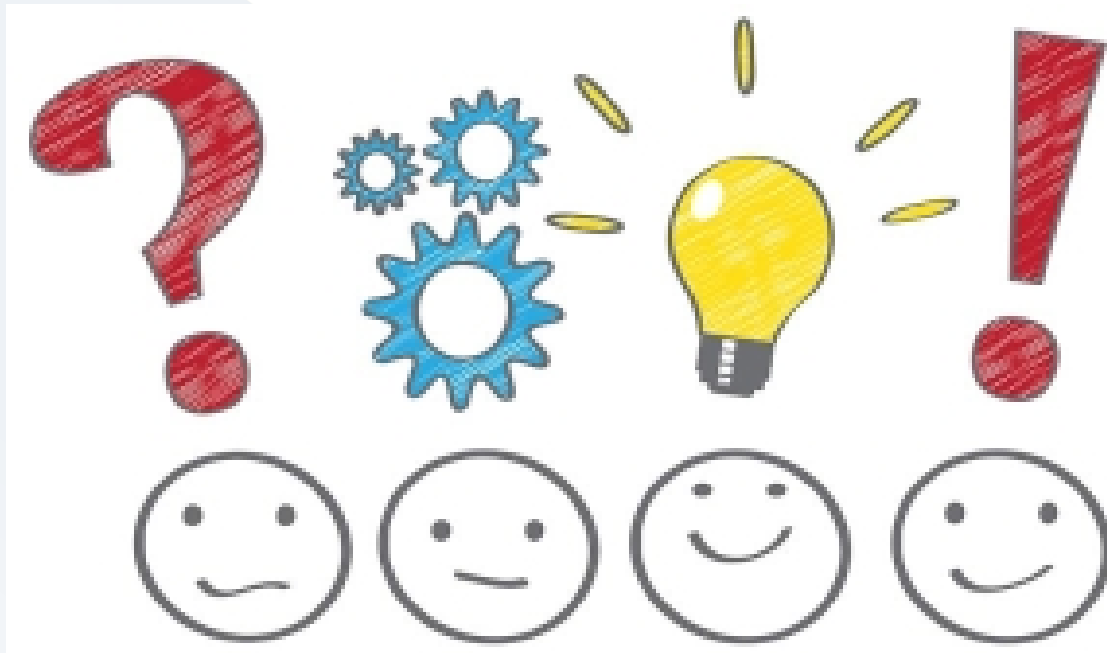
What, When, How to analyze

- ⦿ Locate and acquire data (get creative)
- ⦿ Select appropriate tool for work and to communicate results
- ⦿ Design best approach to deliver insights and results quickly
- ⦿ Your objective is our objective

Today's Key Take Aways

- ◎ Define an audit strategy to become analytics enabled.
- ◎ Use a multidisciplinary team to integrate data analytics into audit process.
- ◎ Integrate analysis as a core capability throughout the audit process.

QUESTIONS?



Contact Information

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