Data Analytics Implementation to Enhance Value Added

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FEB-UI

D3 Akuntansi 2000 – 2004
S1 Ekstensi Akuntansi 2004 -2006
S2 Magister Akuntansi 2014 - 2016

2020 : Certified Forensic Auditor
2018 : Certified Internal Auditor
2017 : NUIX Certified eDiscovery
2014 : Certified PSAK
2014 : Certified Risk Based Auditor
2013 : Certified Compliance Officer
2013 : Certified Management Accountant
2013 : Certified Risk Management Professional
2012 : Qualified Internal Auditor

Risk Based Auditing
Enterprise Risk Management
Management Accountant
Financial Reporting
Fraud Auditing
Digital Forensic
Forensic Accounting
Anti-Bribery Management

Definition

Data analysis is the process of identifying, gathering, validating, analyzing, and interpreting various forms of data within an organization **to further the purpose and mission of internal auditing**

(The IIA)

Data Analytics *is the process of gathering and analyzing data and then using the result **to make better decision***

(Stippich Jr & Preber)

Why do we implement Data Analytics?

To make our life easier

To improve assurance coverage

our competitor already use it

The IT already installed it

His limit 1,048,576

The CAE is hi-tech person

Try to look awesome

I am millennial auditor, so I have to looks hi tech

Common tools in the Industry

We have various data to analyze

IIA Standards related to Data Analytics

1210.A3 – Proficiency

Internal auditors must have sufficient knowledge of key information technology risks and controls and ***available technology-based audit techniques to perform their assigned work***. However, not all internal auditors are expected to have the expertise of an internal auditor whose primary responsibility is information technology auditing.

1220.A2 – Due Professional Care

In exercising due professional care internal auditors must ***consider the use of technology-based audit and other data analysis techniques***.

2320 – Analysis and Evaluation

Internal auditors must base conclusions and engagement results on **appropriate analyses and evaluations**

When will you give a Value Added

Based on Interpretation Standards No 2000 The internal audit activity adds value to the organization and its stakeholders when:
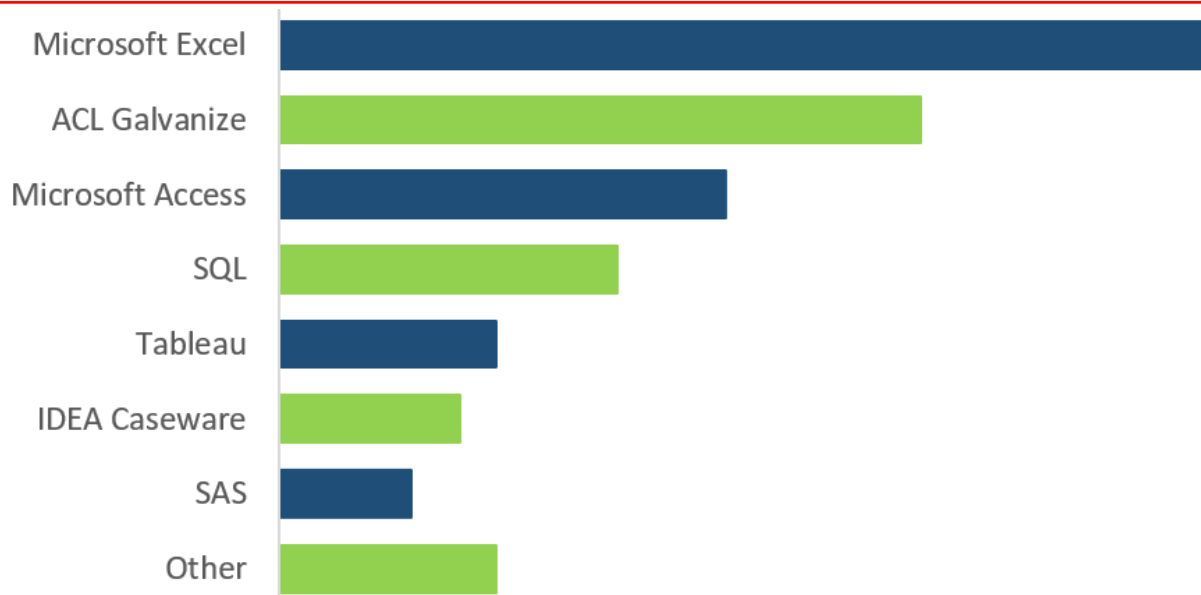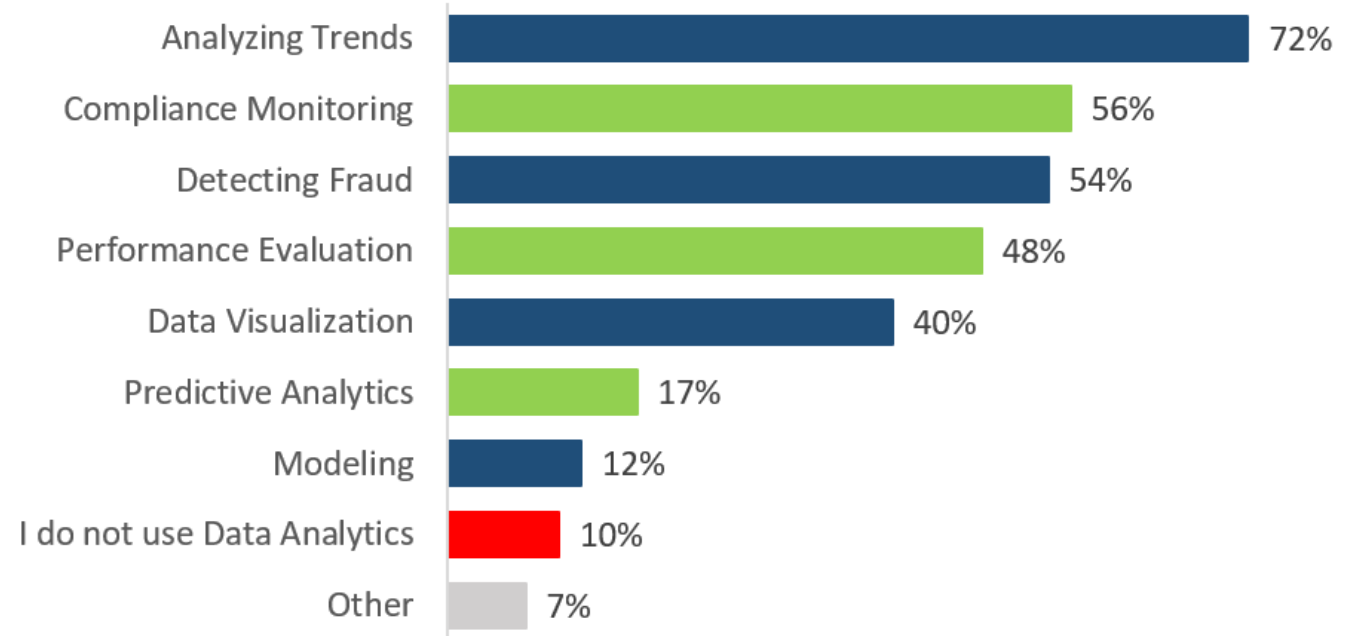
| Considers strategies, objectives, and risks | Strives to offer ways to enhance governance, risk management, and control processes | Objectively provides relevant assurance |

For What and With What?

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Top Internal Audit uses of Data Analytics

Analyzing Trends	72%
Compliance Monitoring	56%
Detecting Fraud	54%
Performance Evaluation	48%
Data Visualization	40%
Predictive Analytics	17%
Modeling	12%
I do not use Data Analytics	10%
Other	7%

Data Analytics Tools used by Internal Audit

Microsoft Excel	
ACL Galvanize	
Microsoft Access	
SQL	
Tableau	
IDEA Caseware	
SAS	
Other	

Source: Stippich Jr & Preber, 2016

The 4 unique attributes of Data Analytics

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Volume
todays organization capture and process greater volume of data than ever yesterday

Velocity
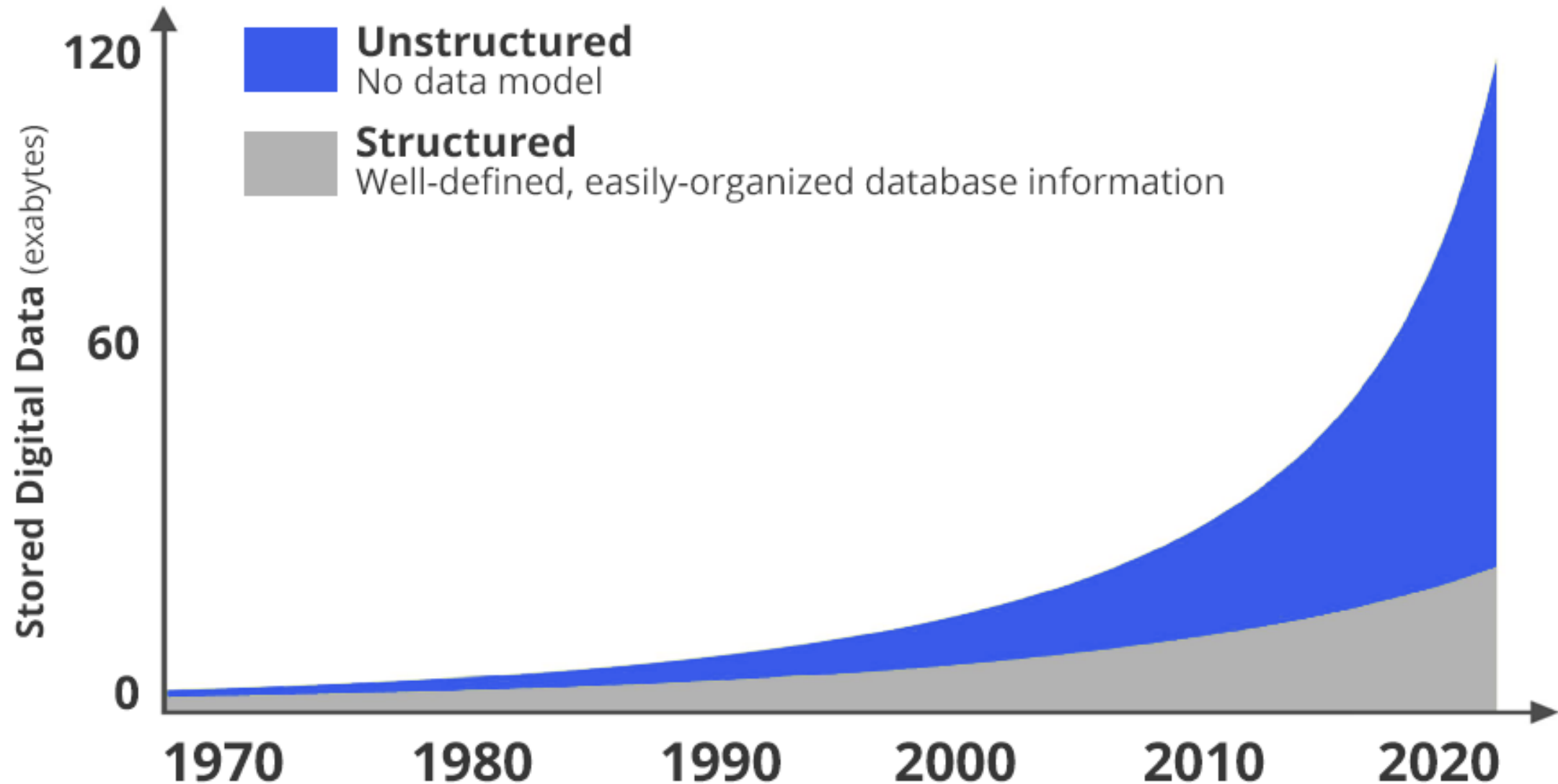*todays globalization and connectivity result in data produced at incredible and fast*

Variety
data is being identified, captured, and stored from an increasing number of sources

Veracity
often we face difficulties to determine the quality or accuracy of data

Source: Stippich Jr & Preber, 2016

Structured vs Unstructured Data

4+1 Kinds of Data Analytics

Hindsight

Descriptive — Reporting of past events to characterize **_what_** has happened

Diagnostic — Provide insight into **_why_** certain trends or specific incidents occurred

Insight

Predictive — Extract information from existing data, apply assumption, and draw correlation to **_predict future_** outcome and trend

Foresight

Prescriptive — Made predictions / test scenario and the link them to action, using structured data for **_decision making_** process

Intelligent Process Automation — Data Analytics with decision making capabilities

More Difficult and More Valuable

Source: Stippich Jr & Preber, 2016; A Michael Smith, 2019

Benefit of Data Analytics

1. Greater Efficiency

2. Better Informed Decision

3. Risk Mitigation and Monitoring

4. Measurable Cost Saving

5. Support Remote Auditing

Source: Stippich Jr & Preber, 2016

IIA Data Analytics Framework

Develop and Vision	→	Evaluate Current Capabilities	→	Enhance People Process and Technology	→	Implement, Monitor, Evolve
1. Identify the Benefit 2. Envision how data analytics will work for the organization 3. Develop a Roadmap		1. Maturity Model Framework 2. Assess on People Process and Technology 3. Gap Analysis 4. Support decision making on Data Analytics implementation		1. Enhance the skills and experience of personnel 2. Get he right data in the right form to perform analytics 3. Discover the software combination to realized the vision		1. Periodically state the progress 2. Measure with stated vision 3. Share result to management 4. Develop new scenario

Source: Stippich Jr & Preber, 2016

5 Steps to Data Analytics

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Define the Question

define what it is trying to achieve and identify the anticipated value:
- *Relevant Scenario*
- *Define Exception*
- *Identify Application and Access*

Obtain the Data

- Select appropriate extraction tool
- Identify Data Source
- Obtain and validate data

Cleaning data as eliminating duplicative information

Clean and Normalize

Normalizing data process of organizing data to multiple table to minimize data redundancy

Analyze and Interpret Result

- *Analyze data*
- *Identify exception and root cause*
- *Reconfirm exception*
- *Recommend improvement*

Communicate the Result

- *Present result with management*
- *Involve 1st line and 2nd line*
- *Develop documentation on script and data resource to maintain repeatability*

Source: Stippich Jr & Preber, 2016

Analyzing Unstructured Data

1. Choose only the most relevant sources

2. Removing noise process is a must

3. Establish relationship to Structured Database

4. Classify, Segment, and Fed data to Analytics tools

Example Common Use of Data Analytics

Function	Scenario Example
Analyzing Trend	• Sales trend of product last 5 years compared to budget • Sales of Product per Region • Correlation of Sales of per Region, Sales Return and Sales Commission • Sales Projection for the next 5 years with several scenario
Compliance	• Evaluate Corporate Credit Card usage • Appropriateness of Loan Approval • Completeness of new vendor identity
Fraud Detection	• Procurement with amount near limit • Ghost employee or Fictions Vendor • Manual override activity on application

Attributes of Data Analysis Software for Audit

1. Able to analyze entire data populations covering the scope of the audit engagement
2. Makes data imports easy to accomplish and preserves data integrity
3. Allows accessing, joining, relating, and comparing data from multiple sources
4. Provides commands and functions that support the scope and type of analysis needed in audit procedures (accuracy assertion)
5. Generates an audit trail of analysis conducted that is maintained to facilitate peer review and the context of the audit findings
6. Supports centralized access, processing, and management of data analysis
7. Requires minimum IT support for data access or analysis
8. Provides the ability to automate audit tasks to increase audit efficiency, repeatability, and support for continuous auditing

Source: GTAG 16: Data Analysis Technology, 2011

Top Challenges for Incorporating Data Analytics

Inability to Interpret results

Lack of Management buy-in

Lack of Understanding of Data Analytics

Insufficient Resources or the need to train Personnel

Period to develop and execute analytics procedure

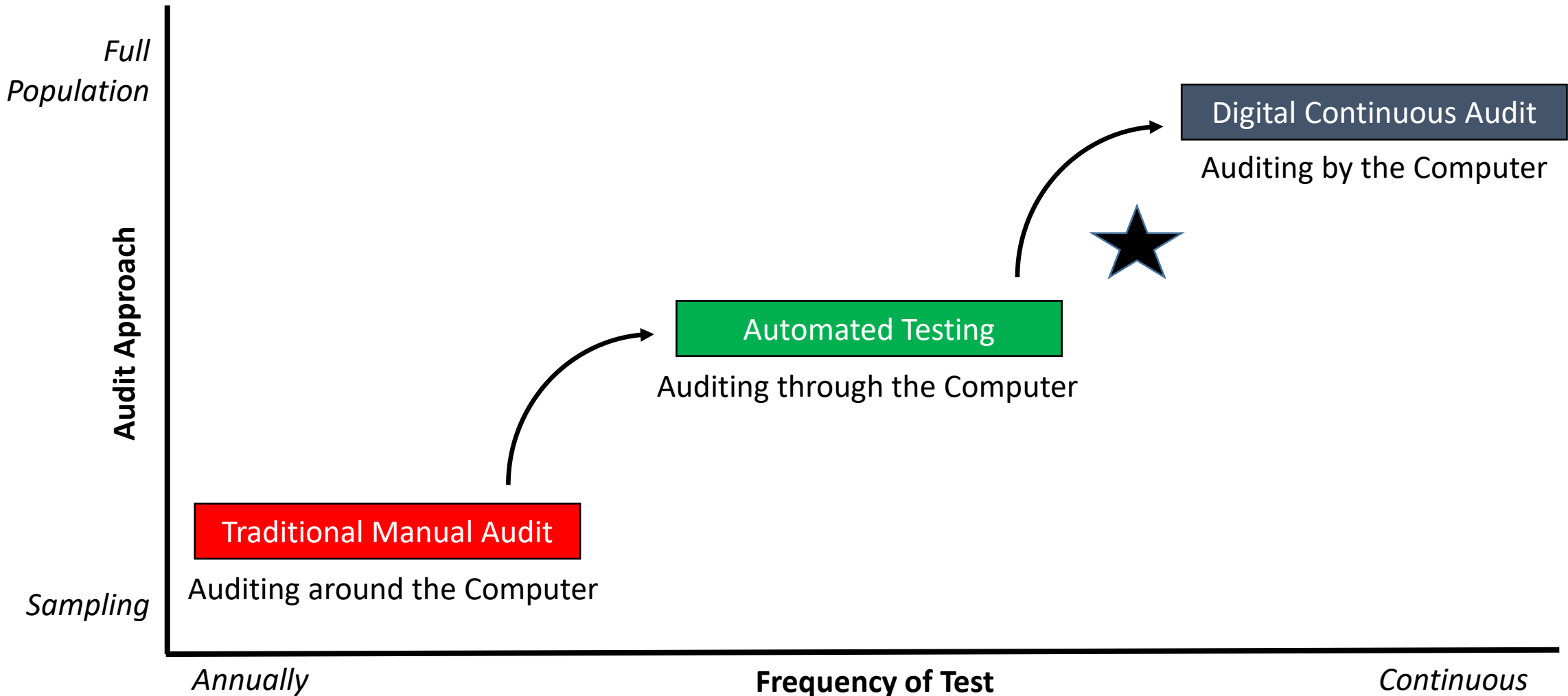Difficulty in obtaining, accessing, and or compile data

Source: Stippich Jr & Preber, 2016

Scenario Matrix

- This a living document for developing Data Analytics Scenario

- Contain information related to each scenario

- Involve Auditor, Auditee, IT Department, Risk Management, Board, and External Service Provider

- Information that contain on the matrix, but not limited to:

A1 Scenario ID	B1 Question Defined	C1 Data Owner
A2 Type of Data Analytics	B2 Cleaning Procedure	C2 IT Support
A3 PIC for Development	B3 Normalization Procedure	C3 Business Process
A4 Scenario Name	B4 Parameter Test	C4 Existing Control
A5 Data Source	B5 Workdone from Analysis	C5 Control Effectiveness
A6 Application / Module Source	B6 Finding Summary	C6 Risk Event Related
A7 Priority	B7 Recommendation	C7 ESP Involvement

Continuous Auditing

Continuous auditing is any method used by auditors to perform audit related activities on a more continuous or continual basis. It is the continuum of activities ranging from continuous control assessment to continuous risk assessment –all activities on the control-risk continuum.

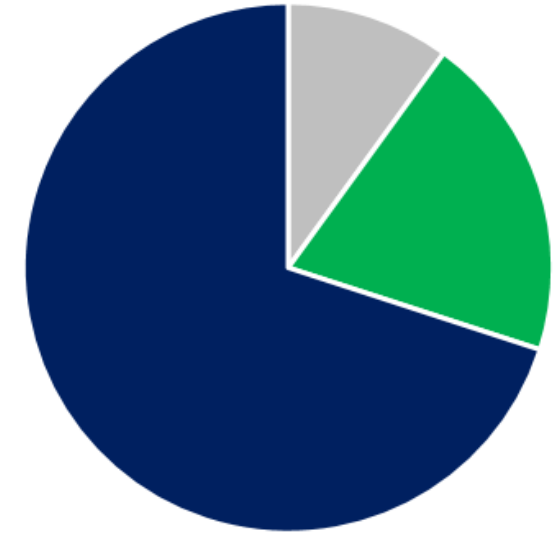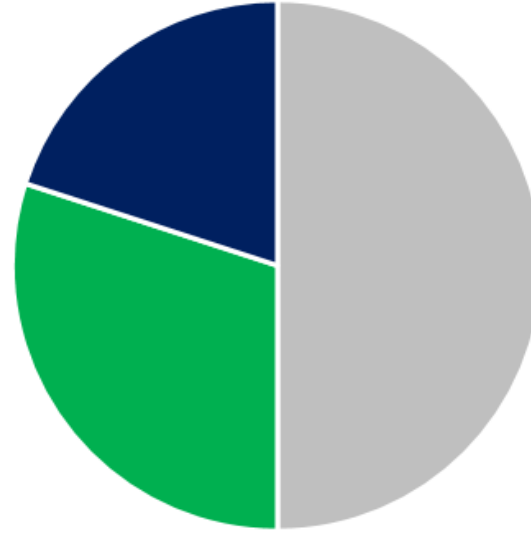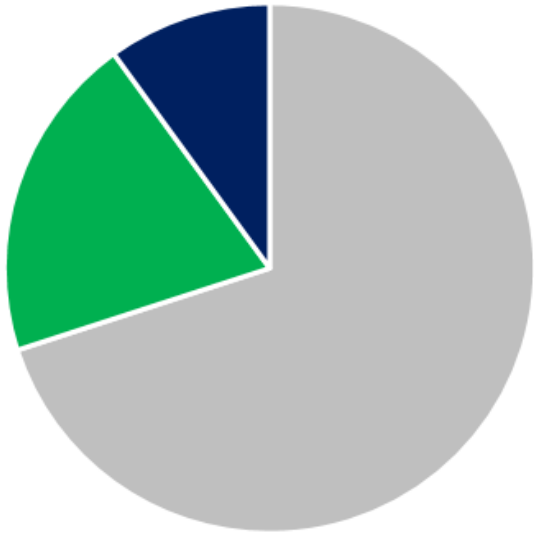Continuous Auditing enables Internal Audit to:
1. Collect from process, transactions, and account data that support auditing activities
2. Timely, Less Costly compliance with Policy, Procedure, and Regulation
3. Shift from cyclical / episodic review with limited focus to continuous, broader, and proactive review
4. Evolve from Static Annual Audit Plan to Dynamic plan based on CA result
5. Reduce Audit Cost while increasing effectiveness through IT solutions

Source: Deloitte, 2010

Hello Tomorrow ☺

Source: Internal Audit of the Future (2019) A. Michael Smith

Future of Auditing

Compliance Based Auditing → Risk Based Auditing → Continuous Auditing

■ : continuous analytics
■ : ad-hoc analytics
■ : out of scope

 Garbage in Garbage out

 Data Bias

 Data Leaks

 Origin of Data

 Data Lakes

 Data Drift

Source: Koenig, Bee, & Applegate, 2018

Thank You

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