



**Leveraging Data
Analytics Beyond
Assurance**

**Office of the Executive Auditor
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<http://www.iadb.org>

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Agenda

- **Key Concepts**
- **Why Have A Data Analytics Strategy**
- **Where To Start**
- **Challenges**
- **IDB Experience**

Data Analytics

Data Analysis: Identify, gather, validate, analyze and interpret data for a specific purpose.



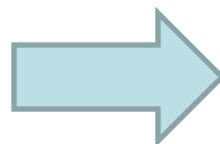
Data Analysis Technologies: Process data to improve effectiveness and efficiency of audits.



Why Have a Data Analytics Strategy?

A data analytics strategy allows:

- **Efficient information gathering**
- **Improve access to data**
- **Enhance knowledge and skills**
- **Increase audit coverage and level of assurance**



More efficient and effective audits

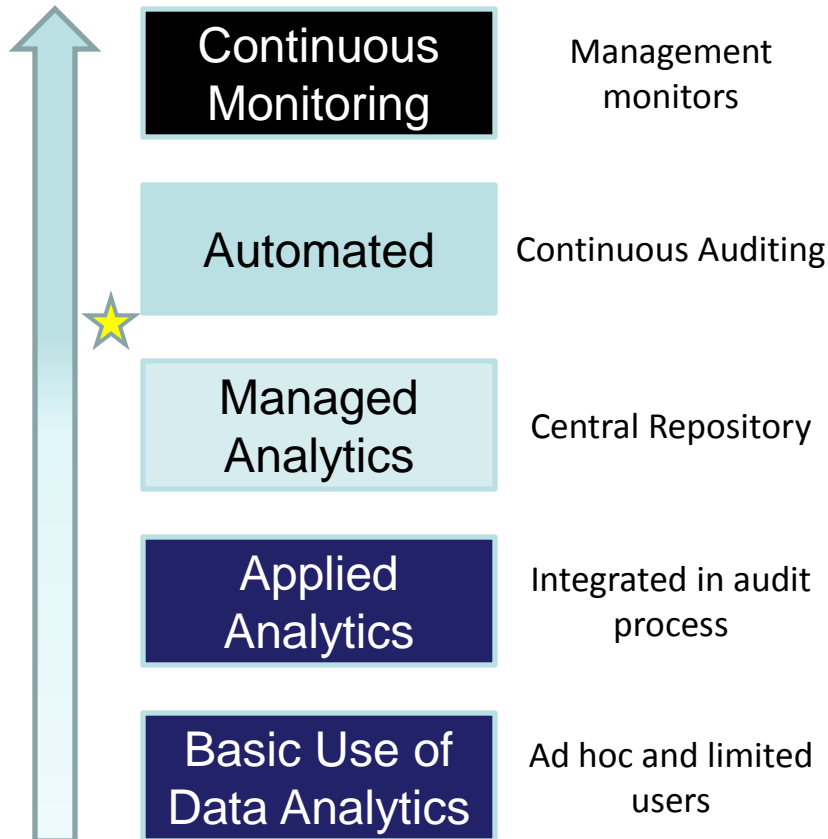
Where To Start?

- **Align Data Analytics Strategy with your:**
 - Risk assessment process
 - Audit plans
 - Long-term goals and objectives
- **Define the vision and goals**
- **Create a work plan**
- **Focus on people, processes and technology**

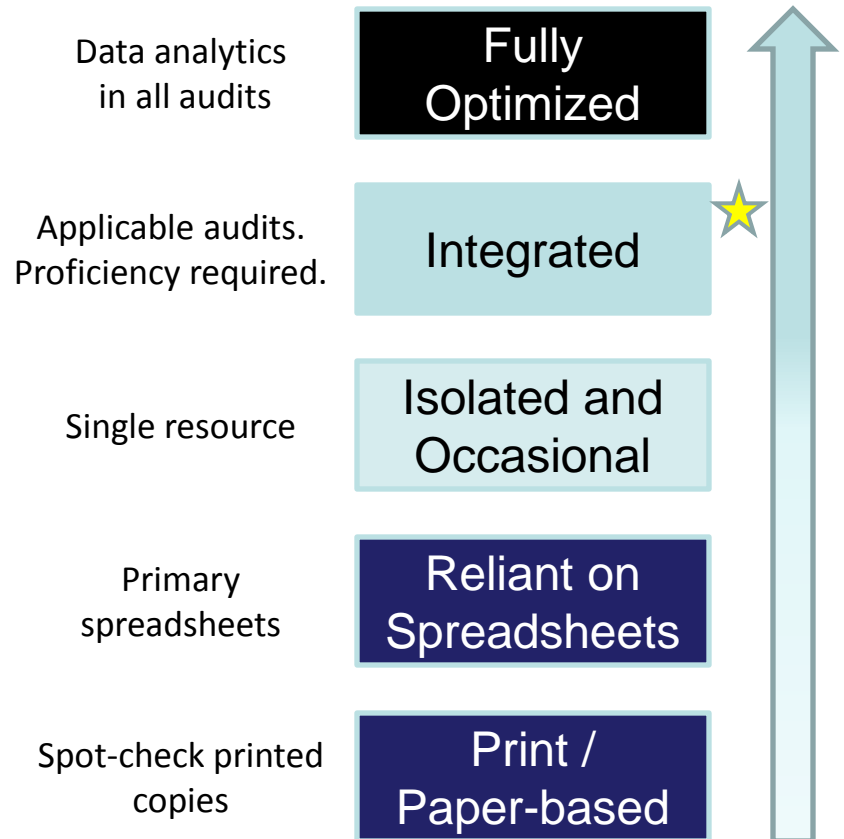


Data Analytics Level

Data Analytics Capability:



Data Analytics Usage Maturity:



Prioritize Low-Hanging Fruit

Decision Diagnostic for Determining Processes for Data Analytics Application

		Tread Lightly		High Return	
Risk Level	High	<p>Description: Strategic-level processes involving little electronic data exchange.</p> <p>Goal: Consider incorporating manual information feeds to complement automated control monitoring activities.</p>	<p>Description: Data rich processes critical to preventing fraud, ensuring accurate financial statements, and complying with regulatory requirements.</p> <p>Goal: Automate control monitoring of data to quickly identify and resolve control breakdowns, potential fraud, and regulatory infractions.</p>		
	Low	Avoid		Easy Win	
		<p>Description: Manual processes that represent a relatively low risk to the firm.</p> <p>Goal: Avoid automated controls monitoring in favor of traditional audit methodology.</p>	<p>Description: High-volume and high-transaction processes that do not represent company risks.</p> <p>Goal: Focus on relieving auditors from lower value-add areas and redirecting efforts toward higher-risk areas that require more human judgment and analysis.</p>		
		Low	Automation Potential		High



Challenges

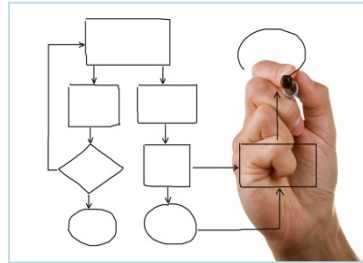
- **Having the right people (knowledge and skill set)**
- **Lack of understanding of data and what it means**
- **Choosing the right technology**
- **Access to data**



Decision: Hire or develop the skills?




IDB Experience

- CAE sponsored the Data Analytics Strategy
- Vision to achieve Continuous Auditing (3-5 years)
- Built team and yearly work plan (budget, scope, schedule, quality)
- Communication Plan (internal and external)
- The entire audit function is responsible for Data Analytics
- Focused on:



People	Processes	Technology
<ul style="list-style-type: none"> • Roles and responsibilities • Provided training 	<ul style="list-style-type: none"> • DA in audit cycle • Identify and track DA 	<ul style="list-style-type: none"> • Selected technology • Access to systems and DBs

Data Analytics Strategy Progress

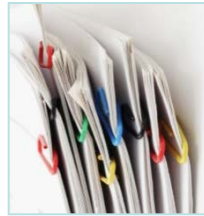
	Year 0		Year 3
	<ul style="list-style-type: none">• 25% Advanced Users• Maturity: Isolated and occasional	➔	<ul style="list-style-type: none">• 50% Advanced Users• Maturity: Proficiency in data analytics is a job requirement
	<ul style="list-style-type: none">• Partially integrated in audit cycle	➔	<ul style="list-style-type: none">• Integrated in audit cycle• Data Analytics tracked in audits• Central Repository with 60 queries
	<ul style="list-style-type: none">• 7% DA Tool Users• Outdated tools	➔	<ul style="list-style-type: none">• 64% DA Tool Users• Access to systems and databases• Updated tools with IT Department

Example: Invoices without a Purchase Order

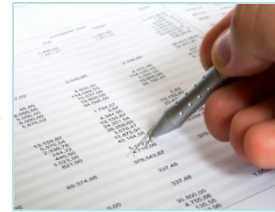
Regular Audit:



Request Invoices and Purchase Orders



Invoices and Purchase Orders



Match, Analyze and Validate



Final Results

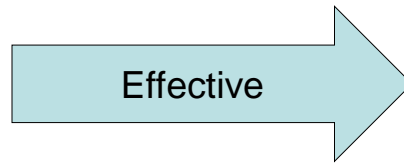
Extrapolation of sample results to the audit universe

- Confidence Level (< 100%)
- Estimation of Magnitude of the Problem

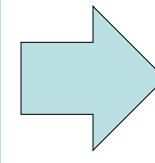
Using Data Analytics Technology / Strategy:



Identify, obtain access and gather data



Match, Analyze and Validate

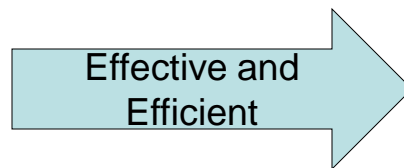


Complete Universe

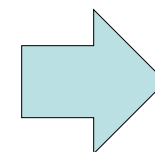


- Total Confidence Level
- True Magnitude of the Problem

Automate query/script
Share and re-use



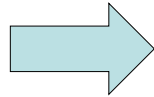
Analyze and Validate



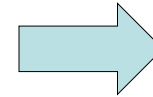
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Cancellation Criteria for Non-Performing Projects:

Identified projects eligible for cancellation by criterion



Compared projects eligible for cancellation vs. project performance rating



Result:

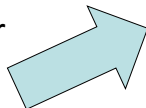
Identified discrepancies between cancellation criteria and project performance ratings

Added Value:

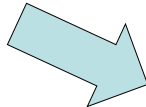
Cancellation criteria and project ratings needed to be enhanced and aligned

Administrative Payments:

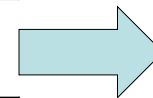
Compared by Country:
Avg. Invoices Processed per Administrative Personnel and
% Automatic vs.
% Manual Payments



Country	Personnel	Invoices	Average
A	15	1,500	100
B	4	600	150



Country	Automated	Manual
A	10%	90%
B	85%	15%



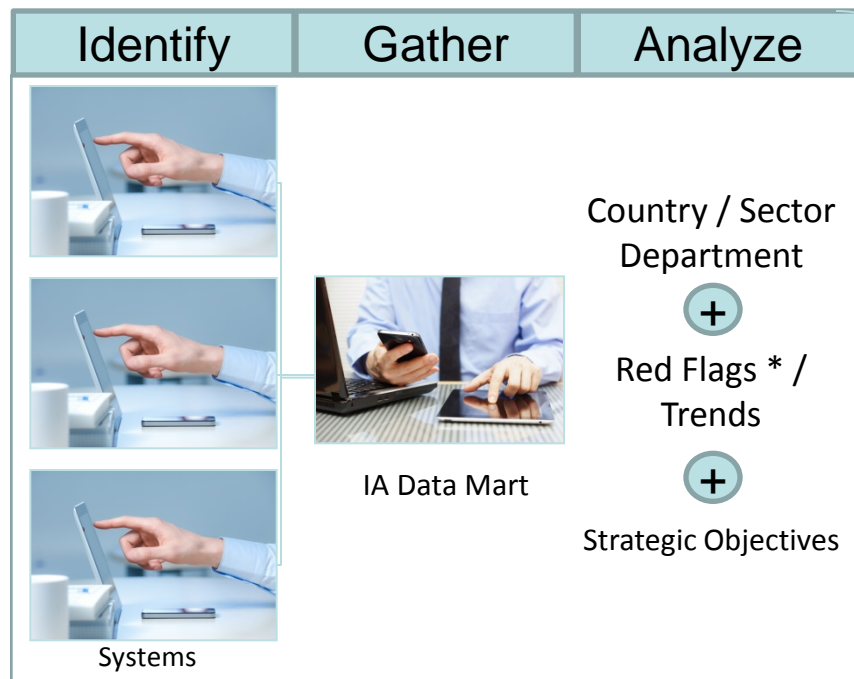
Result:

Identified efficient and inefficient administrative payment processes (by country)

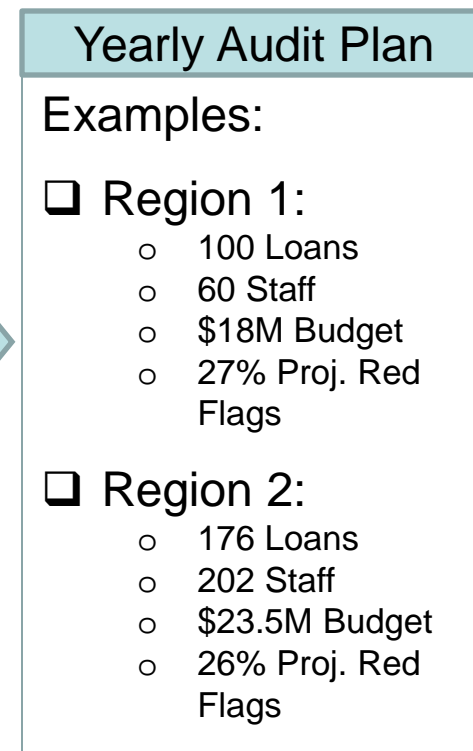
Added Value:

Analyzed root causes per country to perform more efficient administrative payments

Risk Assessment Example



Risk Assessment



* Red Flags Examples:

- Loans with:
 - No disbursements for 12 or 24 months
 - Extensions greater than 24 months
 - Audit reports overdue
 - Qualified external audit opinions

Data Analytics Benefits

- **Improves efficiency, effectiveness and assurance level**
- **Assists detection of errors and control breaches**
- **Reduces audit risk and increases audit coverage**
- **Starting point for Continuous Auditing and Monitoring**

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Suggested Steps to Create a Data Analytics (DA) Strategy in an Internal Audit (IA) Department

No.	Step
1	Obtain CAE full support for the Data Analytics (DA) Strategy.
2	Define Governance Structure: Sponsor (CAE), Steering Committee, and DA Leader.
3	Create Vision for DA Strategy, considering: a) <u>Goal</u> : Where is the IA Department headed with the DA Strategy? b) <u>Objectives</u> : What does the IA Department want to achieve with the DA Strategy? c) <u>Methods</u> : How will the IA Department achieve the defined objectives? d) <u>Performance Measures</u> : How will the IA Department measure the progress of the DA Strategy?
4	Present DA Strategy to IA Department to refine vision and obtain buy-in.
5	Perform a DA knowledge and skills survey in the IA Department to identify: a) Personnel with advance, medium or limited DA knowledge and skills. b) Personnel with knowledge using DA tools. c) Gaps between IA Department DA needs and skills. d) Information systems used to extract data to perform audits. e) DA training needs.
6	Based on the survey result: a) Create DA group with highly knowledgeable and skilled DA personnel. b) Define roles to identify and gather data (Data Specialist), perform advance analysis (Data Analysis Specialists), perform simple analysis (Staff Auditors) and oversight (IA Leadership). c) Select an approach: Hire external specialists, develop central team of experts, or train the entire team on DA capabilities. d) Assess the current IA Department DA Level: Capability and Usage Maturity. e) Assess DA technology needs.
7	Create and execute DA yearly work plan, focusing on: a) <u>People</u> : Training and education (continuous); roles and responsibilities. b) <u>Processes</u> : Integrate DA in audit cycle (e.g., planning and fieldwork); identify and track DA and Continuous Auditing (CA) tests; define a central repository for DA. c) <u>Technology</u> : Select and manage DA tool; manage access to systems and databases; partner with the IT Department.
8	Monitor progress of the execution of the DA Strategy (based on yearly work plan), considering: a) Control scope, time, and cost of yearly work plan. b) Create a quality review process for DA tests. c) Plan human resources (develop team and trainings) and procurements of DA tools. d) Create Communication Plan (internal and external). e) Analyze risks that could impact achieving objectives.



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