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The Path Forward for Data Analysis and Continuous Auditing

May 2011

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Agenda

What are we hearing in the market?

The CA Maturity Path

Where to start? What is the difference between CA & CCM?

Best Practice Approach

Getting the Right Data & the Right Resources

Next Steps

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Key Drivers for Change in the Internal Audit

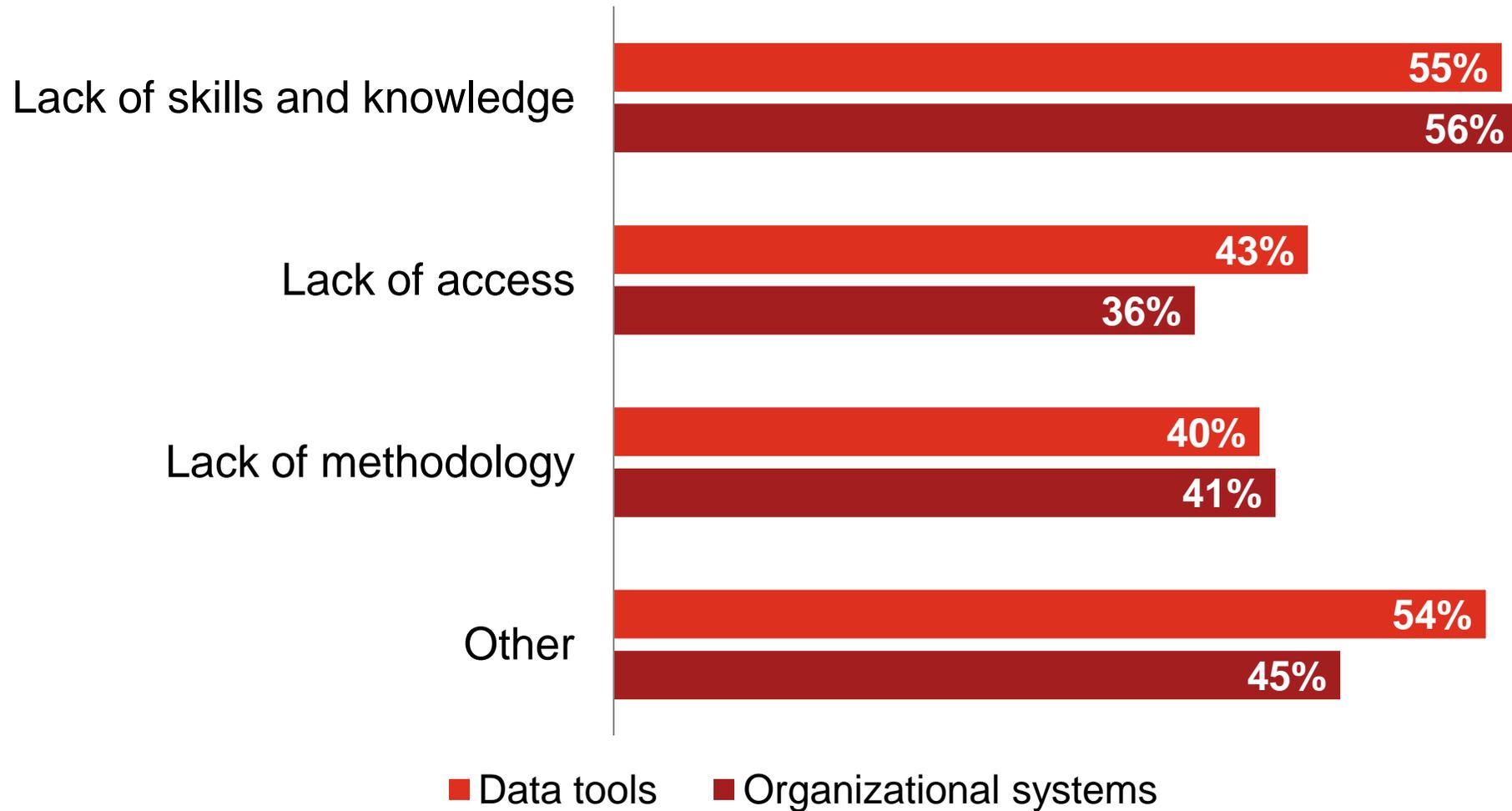
The needs of organizations for risk mitigation and assurance have changed dramatically...

- Strategic risk is a key concern for **Boards**, yet the amount of information provided regarding strategic, value impacting opportunities and threats is often limited
- **Executive Management** is also focused on strategic, organizational and business risks
- **Globalization**, expansion and the heightened pace of change are increasing the complexity of risks
- **Broader Risks:** risks around financial controls and basic compliance are managed more effectively, while there are few robust techniques for overseeing broader risk
- **Do More with Less:** there are increasing pressures to reduce the cost of compliance

Year to Year Efficiency Priorities



Barriers to Effective Use of Technology



Agenda

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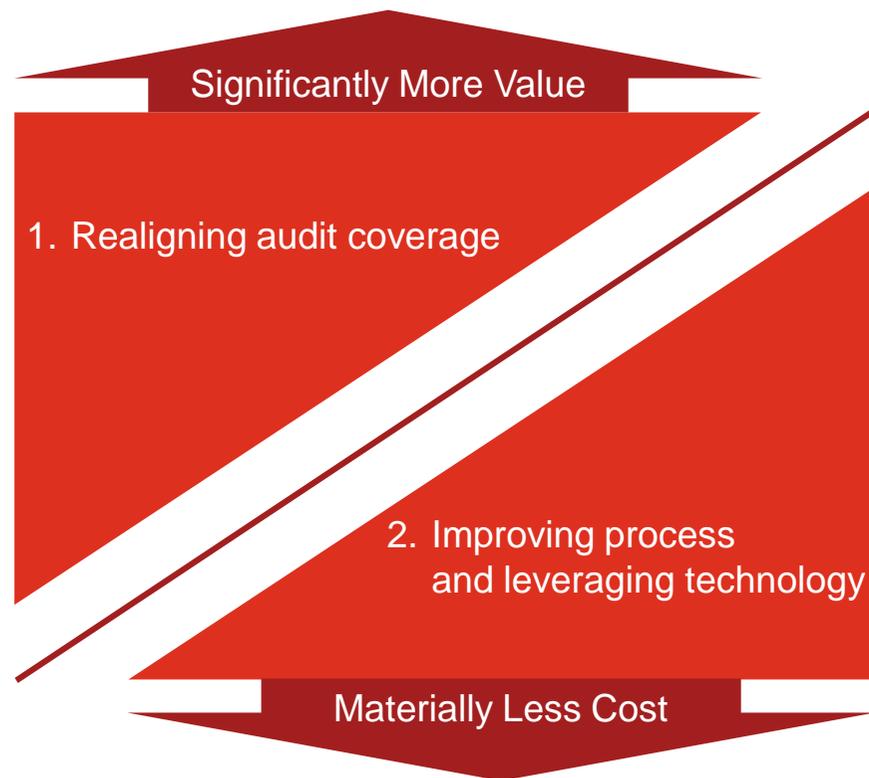
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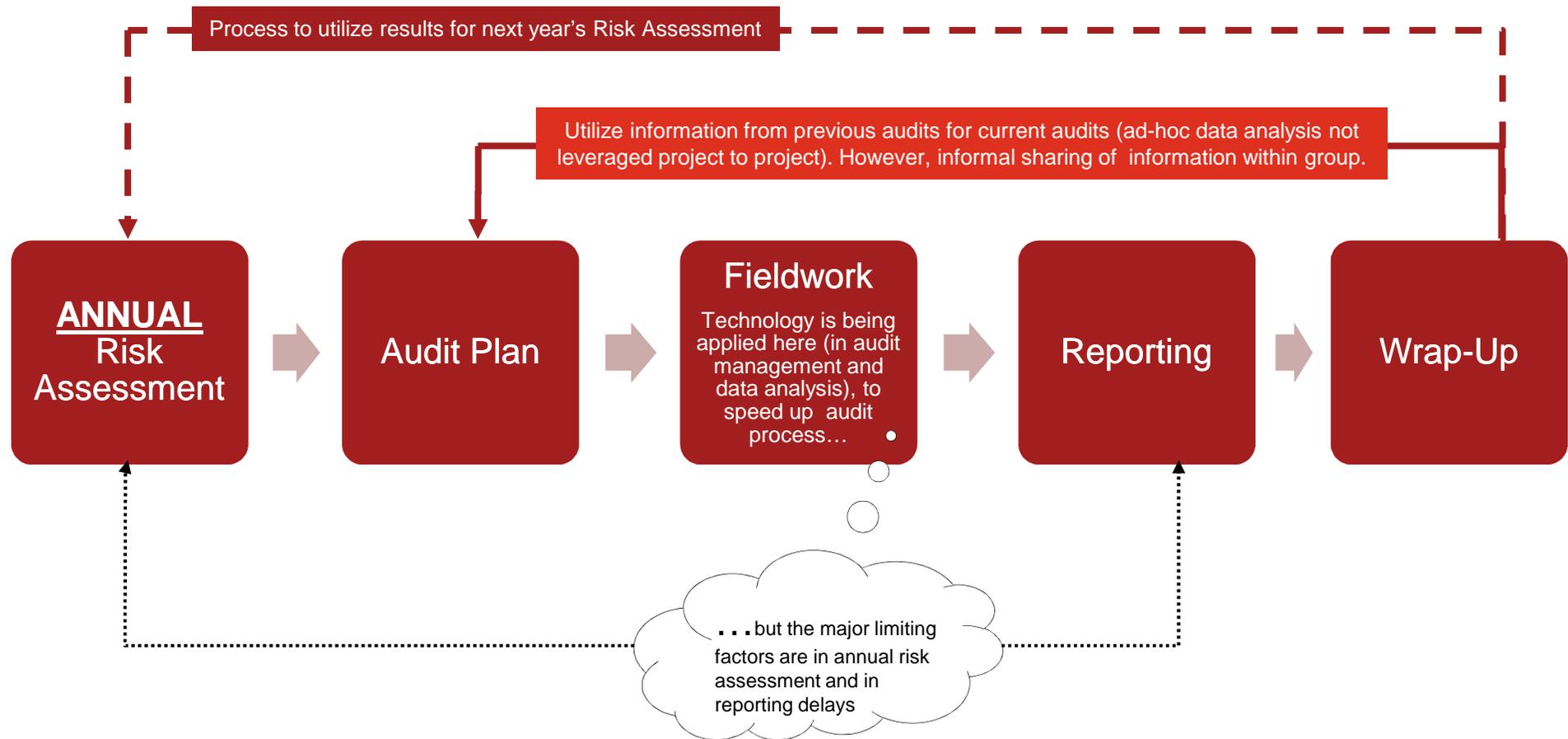
Stakeholders' Perspectives on the Future of Internal Audit

Optimize Internal Audit processes and leverage technology to enhance insight and increase productivity.



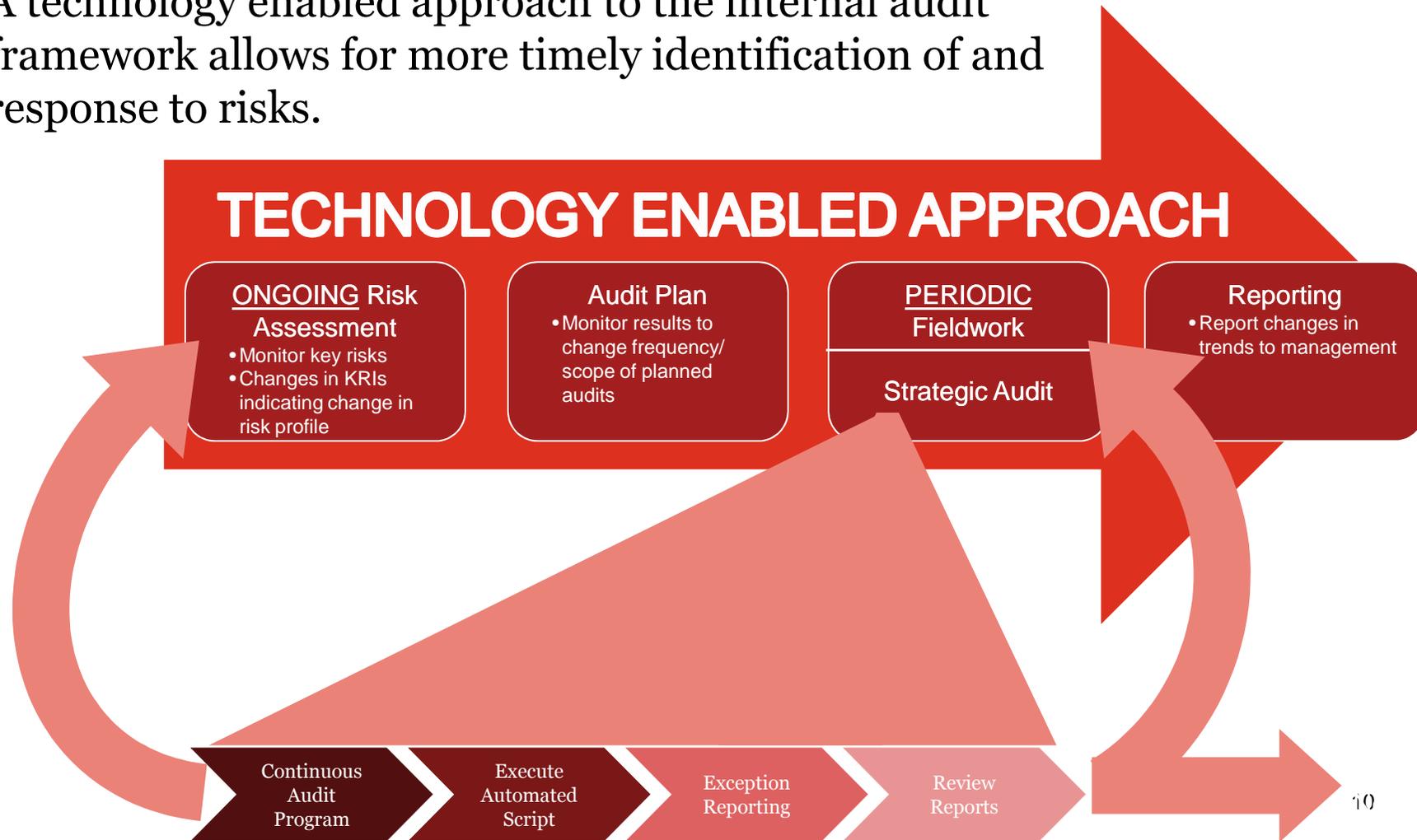
- Technology to execute audits
 - Data retrieval software to automate testing
 - Increase audit coverage
 - Focus on anomalies
 - Continuous monitoring
 - Data mining/analysis software for predictive analysis and modeling
- Technology to improve the efficiency of the audit process
 - Automate issue tracking
 - Streamlined reporting
 - Knowledge management and leading practices
 - Storage and retrieval of work products

Internal Audit Process Framework – As Is



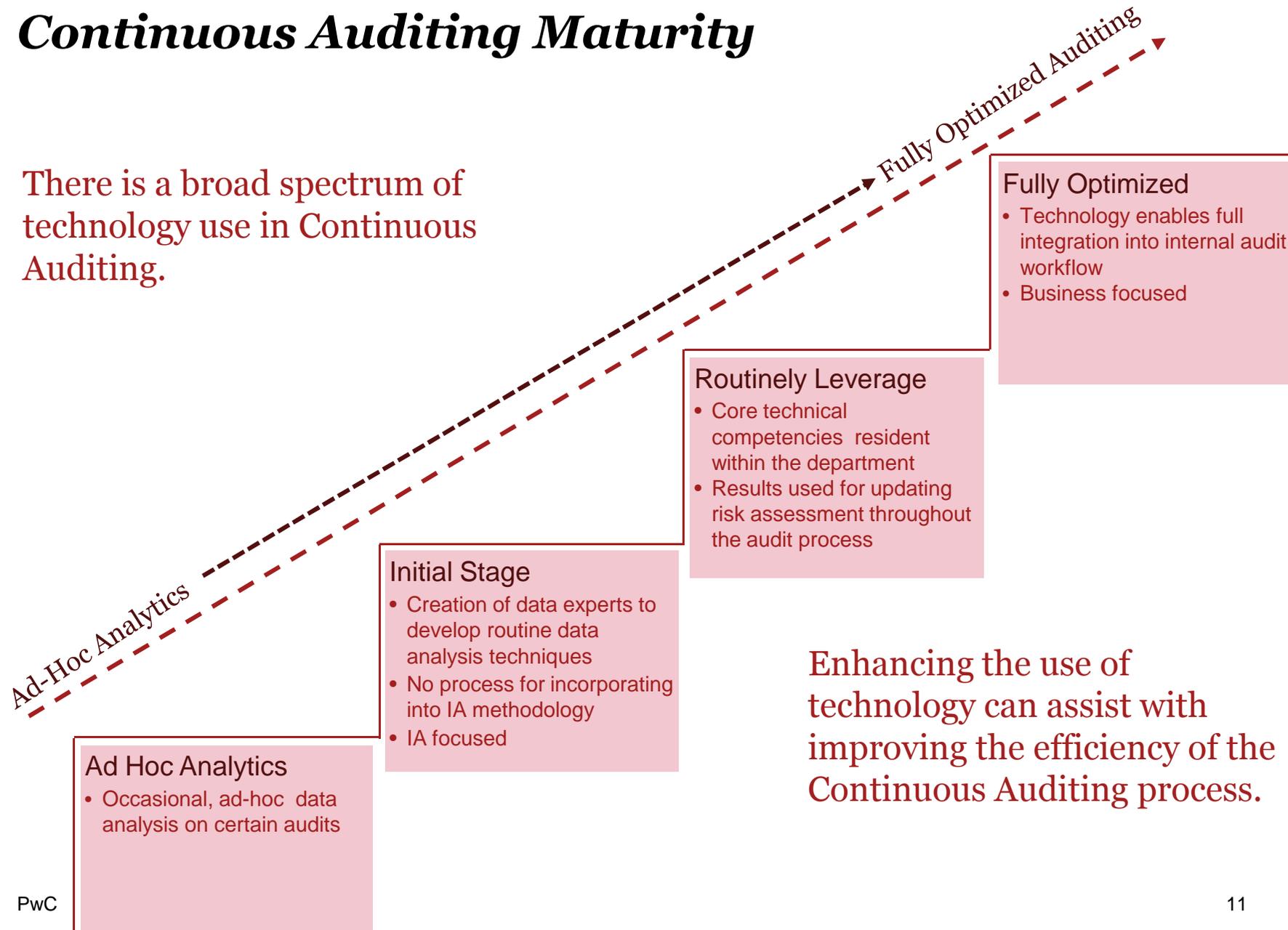
Internal Audit Process Framework - Future

A technology enabled approach to the internal audit framework allows for more timely identification of and response to risks.



Continuous Auditing Maturity

There is a broad spectrum of technology use in Continuous Auditing.



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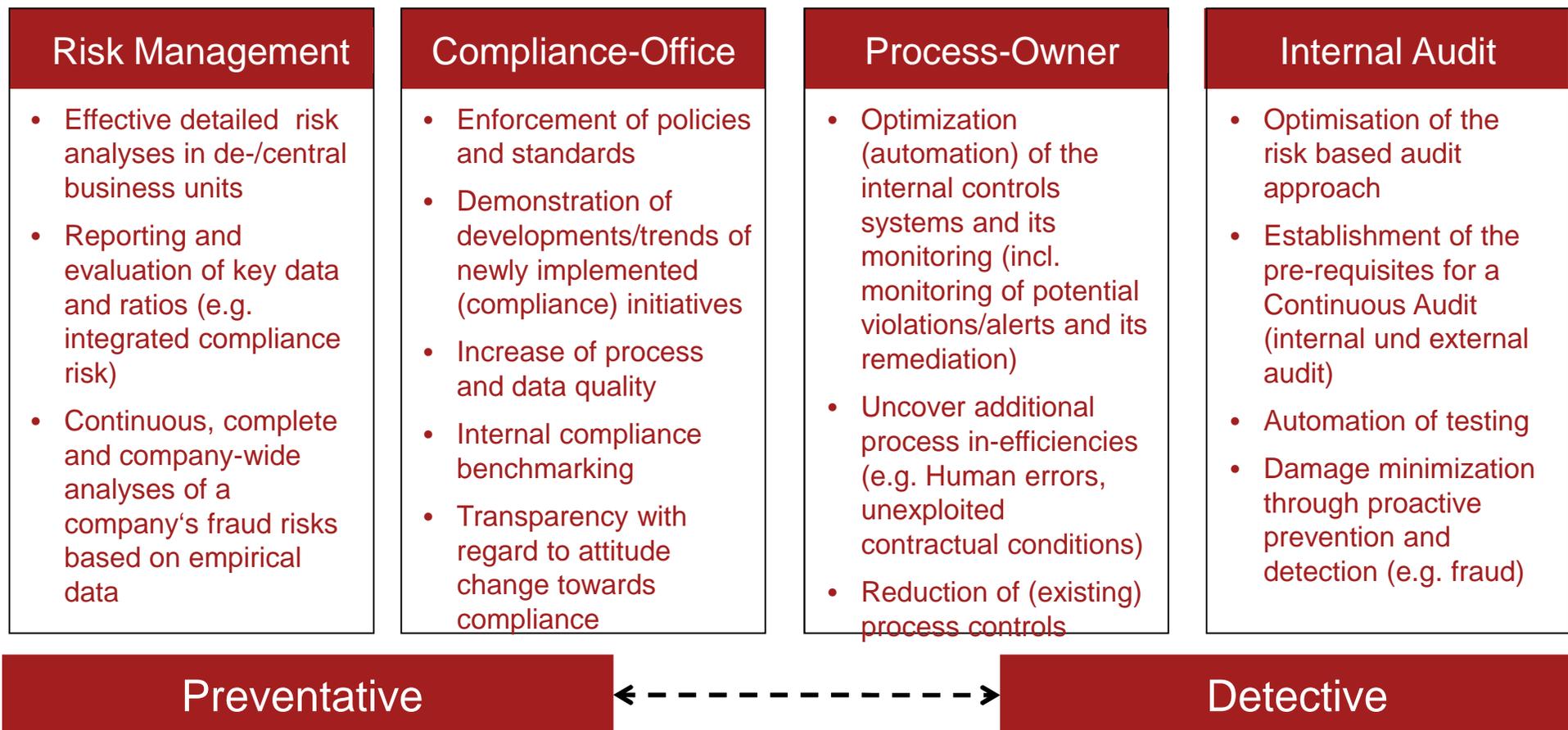
Challenges Facing CAEs

Chief Audit Executives (CAEs) are faced with several challenges where CA is concerned:

- Where do I start?
- What technologies do I need to consider?
- What are the best practices for leveraging data analysis in the internal audit?
- What pitfalls do I need to avoid?
- What are my competitors doing? Are there any benchmarks or other guidelines I can use to help direct my strategy?
- What does a successful CA pilot look like?

Benefits from Continuous Controls Monitoring (CCM)

Continuous Controls Monitoring



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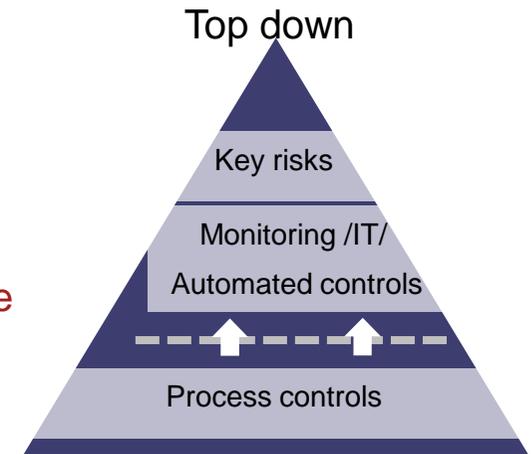
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Where to Start? A Top Down Approach

Pragmatic top down approach ...

Concentration on key risks and link to key controls

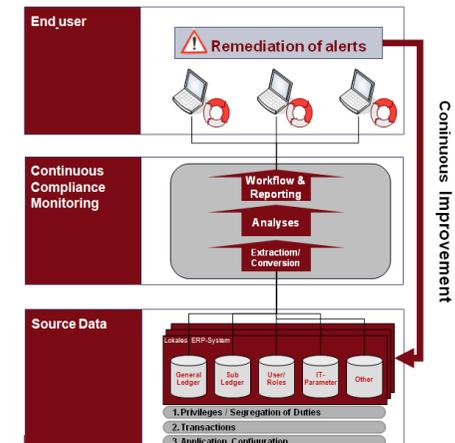
- Identification of essential/top risk areas
- Top down approach to identify key controls: starting with management level / IT-/ automated controls and completion with process controls if the before mentioned controls don't offer adequate coverage.



... and continuous risk monitoring

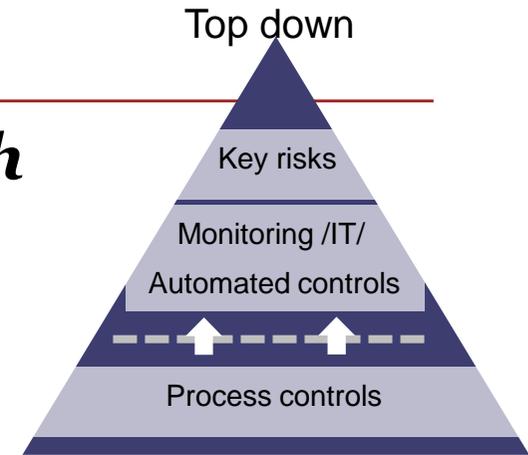
Continuous monitoring of the risk remediation progress

- Reporting: Alerts reporting and ageing (risk exposure); Recording of alerts remediation activities
- Organization: Responsibility and ownership, escalation process
- Compliance level: Trend analyses and monitoring of behavioral change



PwC's Risk Based Top Down Approach

Where do you start? To leverage data analytics and implement a CA / CCM solution successfully, you need to first determine where you want the analytics to be focused



What are the higher risk areas in the enterprise?

Within those areas, which risks do you want to focus on?

Can we create high value analytics which will help address those risks?

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Potential Technology Architecture

Technology Considered



Description / Use

MS SharePoint or Workflow Mgmt Tool



Screens presented to users based on modules implemented and user roles.

MS Analytical & Reporting Services or Reporting Tool



Behind the scenes formatting of reports and information to be presented through the dashboard.

TBD based on vendor selection and requirements (e.g. ACL CCM, Oversight, MS SQL Server, etc.)



Analytical engine which is customized based on testing/auditing requirements.

Leverage Internal Data Warehouse or MS SQL Server



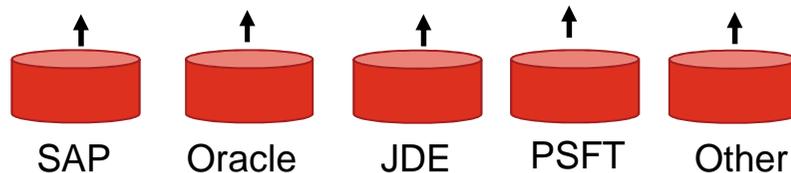
Modules are implemented in the warehouse based on data requirements associated with KRI's.

MS Integration Services or client existing ETL Tool*



Automated process to pull data from source systems and map into data warehouse.

*Integration or ETL tool used will depend on the software used for the Audit Data Warehouse



Leverage existing client infrastructure and source system.

CA / CCM Software Tools

- Tools should not drive CA / CCM decision-making and approach definition
- A suitable tool could be selected once requirements / processes are well-defined
- There are many acceptable tools on the market
- Most specialized tools require significant investment
- Less expensive general data analysis tools are already owned by companies (ACL, MS Access, MS SQL Server). While lacking some specialized features, these are widespread and could be effectively used in the initial phases

The Ideal CA / CCM Resource

To effectively deliver results with a strong value proposition, the ideal resource to lead and build the data analysis and CA / CCM solution would have the following capabilities:

- **Accounting**
- **Business processes**
- **Audit methodologies**
- **IT and manual controls knowledge**
- **Basic fraud knowledge across major business cycles**
- **ERP knowledge**
- **Data normalization skills**
- **Strong analytical skills**
- **Excellent organization & communication skills**
- **Programming knowledge**

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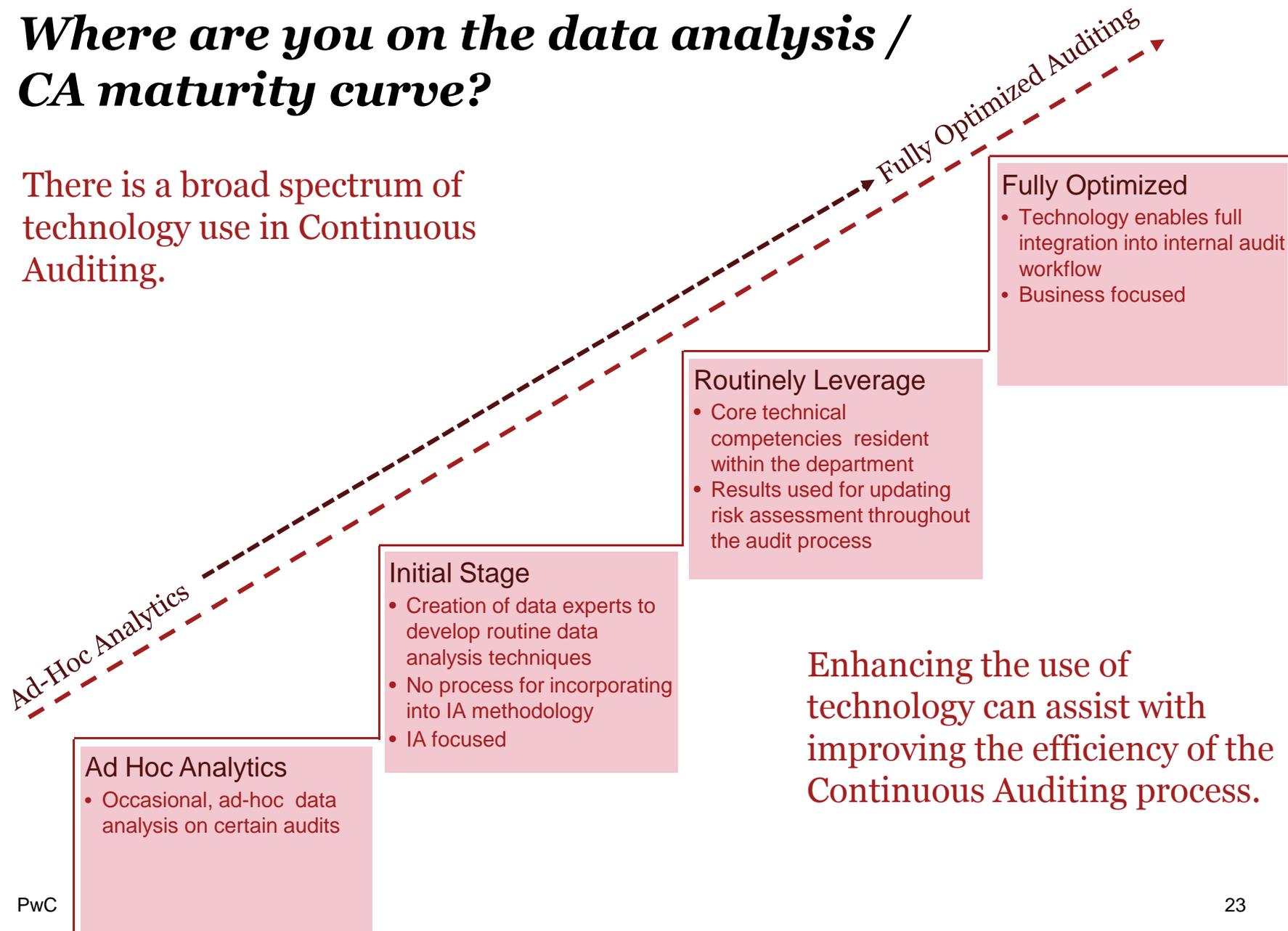
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Where are you on the data analysis / CA maturity curve?

There is a broad spectrum of technology use in Continuous Auditing.



Further Discussion and Next Steps

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