



# **IDC MaturityScape Benchmark: Big Data and Analytics in Government**

Adelaide O'Brien

Research Director

IDC Government Insights

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# IDC MaturityScape Benchmark: Big Data and Analytics in Government

## *Agenda*

- IDC's Big Data Definition
- IDC's Big Data & Analytics Maturity Model
- Benchmarking the Federal Government
- Essential Guidance
- Q and A

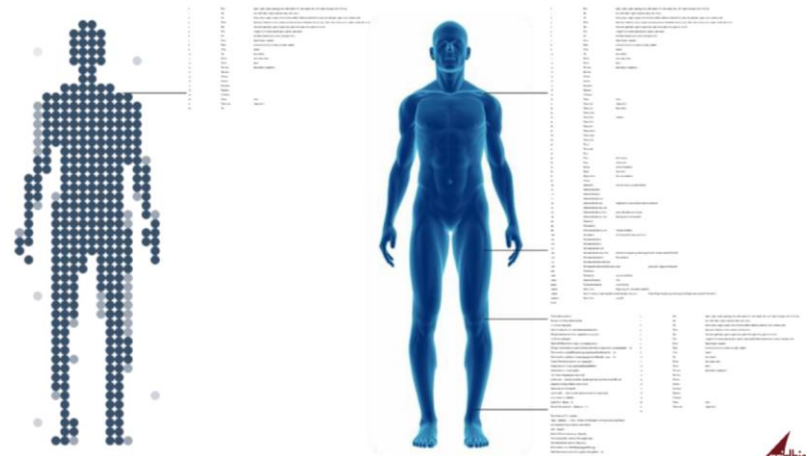


# Big Data & Analysis Maturity: Why Should Government Care?

- Big Data success depends on
  - Technology
  - Data
  - Process
  - Intent
  - People
- The more mature government capabilities are in these five core dimensions, the more benefits government receives
- Success depends on the absolute level of maturity in each dimension and on aligning the five dimensions at or near the same level of maturity
- A recent survey shows federal government “haves” and “have nots” relating to maturity

# IDC Definition of Big Data and Analytics Capabilities

*Big Data and Analytics capabilities represent a mix of talent, technology, and processes designed to economically extract value from very large amounts and/or fast growing, multi-structured data to support tactical, operational, and strategic decision making*



# IDC Big Data Analytics Maturity Model: Stage Characteristics

	Ad Hoc	Opportunistic	Repeatable	Managed	Optimized
Stage description	<ul style="list-style-type: none"> <li>• <b>Basic Essentials</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Integrated Processes</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Automated operations</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Measured for validation</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Proven contribution</b></li> </ul>
<b>Intent</b> (Strategy, sponsorship justification)	<ul style="list-style-type: none"> <li>• No strategy, unbudgeted projects</li> </ul>	<ul style="list-style-type: none"> <li>• Department level siloed strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Business unit level strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Cross BU level strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Enterprisewide, documented accepted strategy</li> </ul>
<b>Data</b> (Relevance, Quality, Availability)	<ul style="list-style-type: none"> <li>• Easily available data used requires manual effort</li> <li>• Data incomplete</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-sourced structured unstructured content exists</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent data governance and security not established</li> </ul>	<ul style="list-style-type: none"> <li>• Metrics to manage data exist timeliness and veracity exists</li> </ul>	<ul style="list-style-type: none"> <li>• Enterprisewide access to on time trusted multi-structured data</li> </ul>
<b>Technology</b> (Adoption, Performance, Functionality)	<ul style="list-style-type: none"> <li>• On premise technology requires major effort to use</li> </ul>	<ul style="list-style-type: none"> <li>• New tech is acquired for a specific purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple fit for purpose technologies are deployed</li> </ul>	<ul style="list-style-type: none"> <li>• Wide range of fit for purpose technologies broadly adopted</li> </ul>	<ul style="list-style-type: none"> <li>• Software /hardware optimized with a high level of automation</li> </ul>
<b>People</b> (Organization, culture, skills)	<ul style="list-style-type: none"> <li>• A few individuals have necessary skills lack of management interest</li> </ul>	<ul style="list-style-type: none"> <li>• Teams have skills but a lack of intra-organizational coordination</li> </ul>	<ul style="list-style-type: none"> <li>• Skills acquisition governed by stated strategy and augmented w external skills</li> </ul>	<ul style="list-style-type: none"> <li>• Executive support for a centralized BDA group, analytics skills decentralized</li> </ul>	<ul style="list-style-type: none"> <li>• All necessary expertise exists Executive priority on BDA</li> </ul>
<b>Process</b> (Tracking, analysis, decisioning )	<ul style="list-style-type: none"> <li>• Access to siloed information lack of collaboration between IT and LOB</li> </ul>	<ul style="list-style-type: none"> <li>• Data analysis vs. data tracking, prep and decision support processes</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring and documenting decision processes</li> </ul>	<ul style="list-style-type: none"> <li>• Metrics for evaluating process quality and success</li> </ul>	<ul style="list-style-type: none"> <li>• Processes have appropriate support staffing, technology, and funding</li> </ul>

# IDC Big Data Technology Stack



## Decision Support & Automation Interface

Applications with functionality required to support collaboration, scenario evaluation, risk management, and decision capture and retention



## Analytics & Discovery

This layer includes software for ad-hoc discovery, and deep analytics and software that supports real-time analysis and automated, rules-based transactional decision making.



## Data Organization & Management

Refers to software that processes and prepares all types of data for analysis. This layer extracts, cleanses, normalizes, tags, and integrates data.

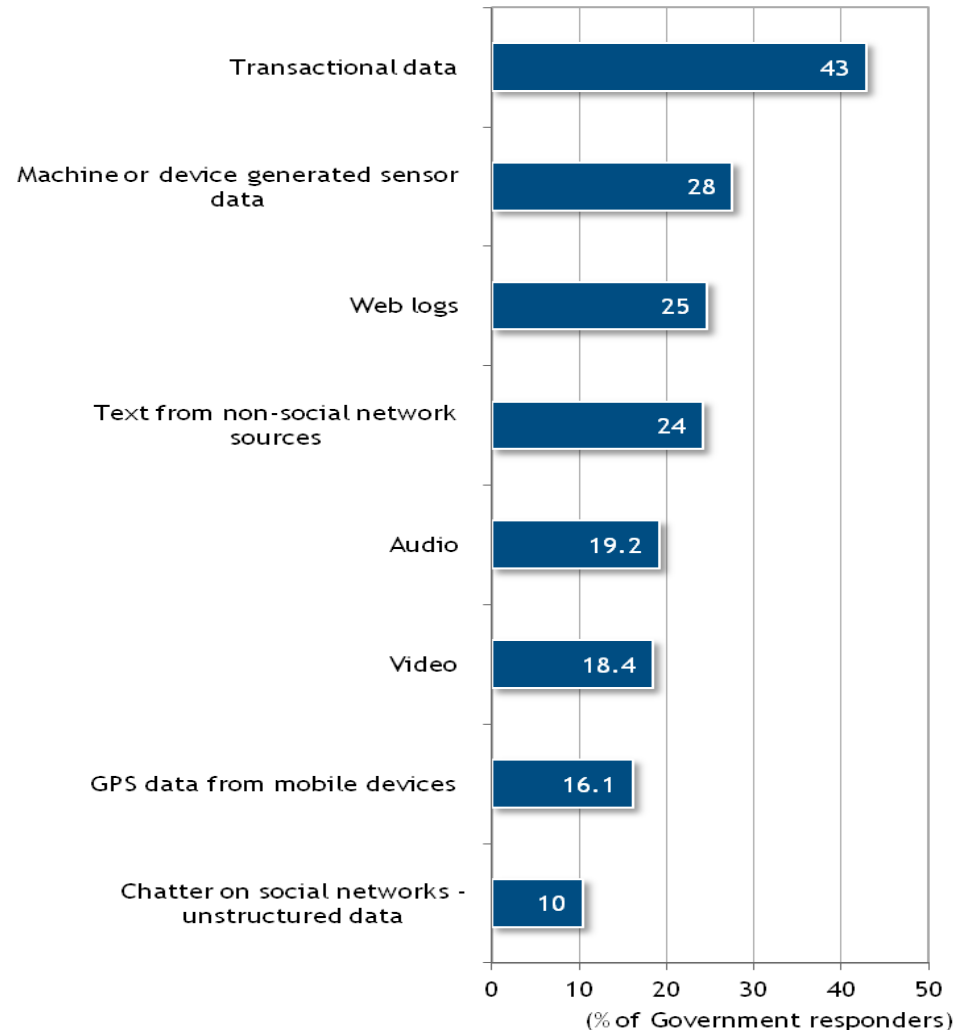


## Infrastructure

The foundation of the stack includes the use of industry standard servers, networks, storage, and clustering software used for scale out deployment of Big Data technology

# Data

- Data sources
  - Internal
  - External
- Data types
  - Structured
  - Unstructured
- Governance
  - Quality
  - Security



*Q. What type of data are being captured and analyzed in your organization?*

Source: IDC Global *Technology and Industry Research Organization IT Survey*, May 2013 N= 182

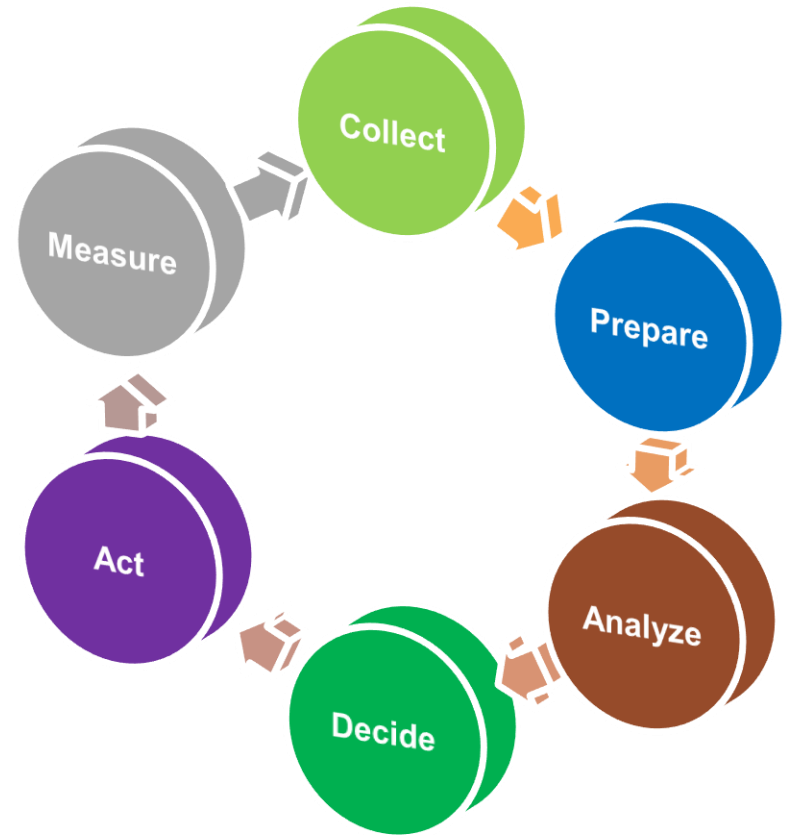
# Process

## ■ Information Management and Analysis

- Data collection
- Consolidation
- Integration
- Analysis
- Information dissemination
- Information consumption
- Decision making

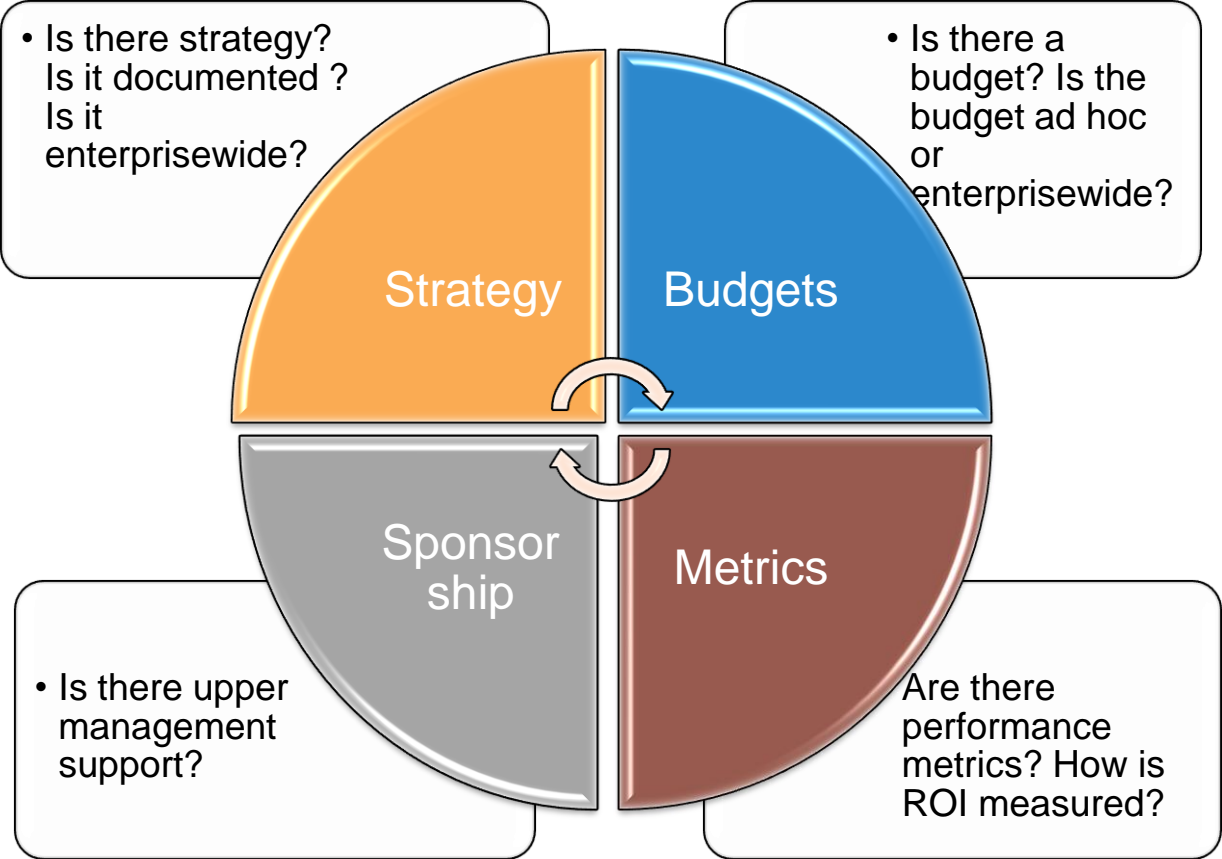
## ■ Decision Management

- Rules management
- Knowledge repositories
- Expert identification
- Collaboration





# Intent



# People

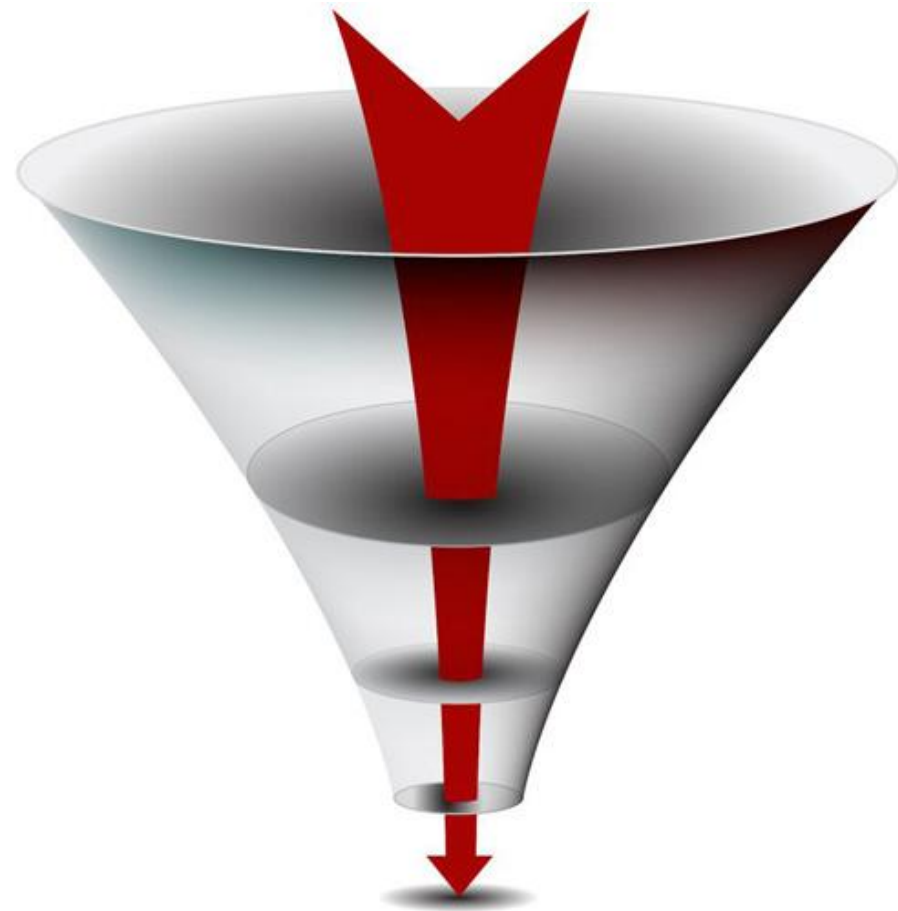
## People Attributes

- Technology and analytics skills
- Intra-group and intergroup collaboration
- Organizational structures
- Leadership
- Training
- Cultural readiness



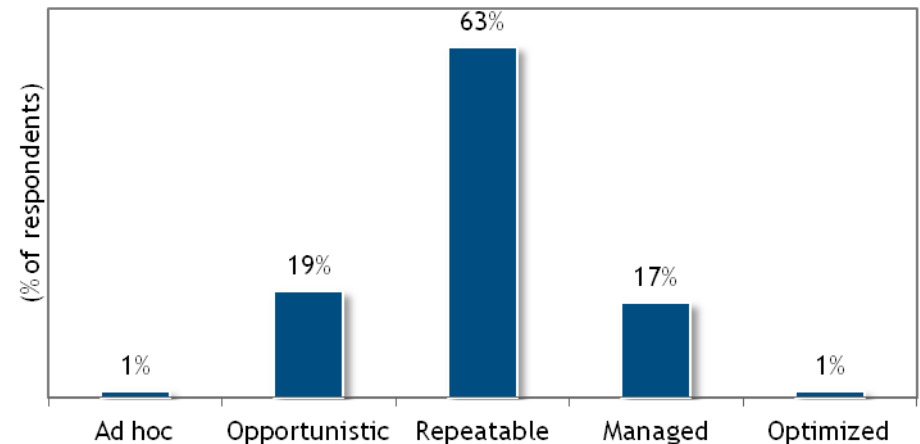
# Government Big Data & Analytics Maturity Model Benchmarking

- IDC Benchmarked Government maturity based on a survey of 98 government stakeholders
- Analyzed the survey data, synthesized the findings, and drafted recommendations
- Categorized High Achievers vs. Low Achievers, and captured trends of High Achievers



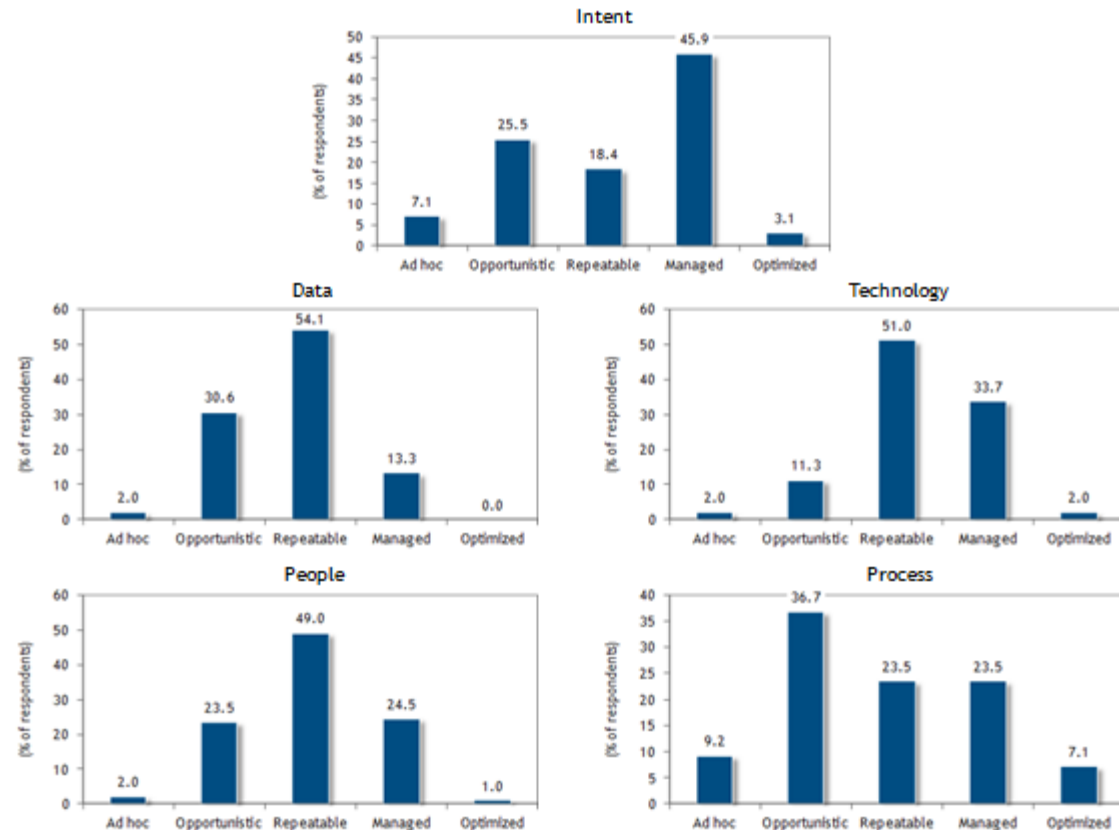
# Government Big Data & Analytics Model Maturity: *Benchmarking Composite Characteristics*

- Composite maturity includes all five dimensions
  - People
  - Technology
  - Data
  - Process
  - Intent
- Composite score valuable for evaluating overall maturity



# Government Big Data & Analytics Model Maturity: *Benchmarking Each Characteristic*

- Maturity curves different for each dimension
  - Intent
  - Data
  - Technology
  - People
  - Process

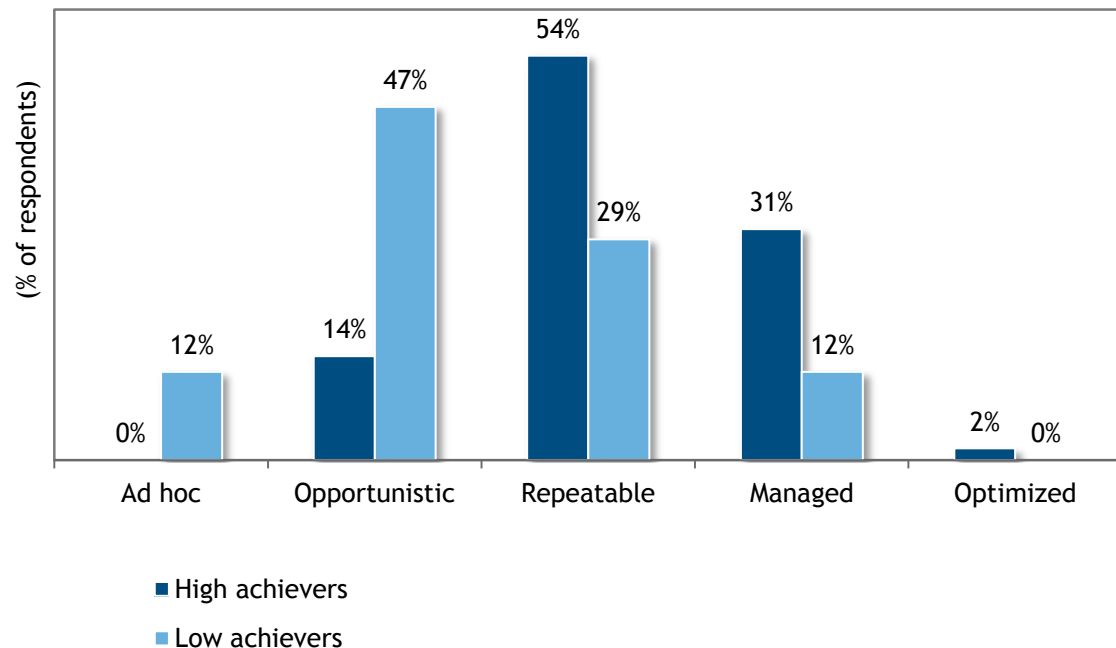


# Comparing Maturity Between High and Low Achievers in Government

## *High Achievers tend to*

- Successfully recruit, hire, develop, retain, and reward data scientists and statisticians, as well as business/ program analysts
- Have staff involved in evaluating business outcomes

*People Characteristics of Big Data and Analytics*  
*High Achievers tend to Skew Right, Low Achievers Skew Left*



# IDC Maturity Model Benchmark: Big Data and Analytics in Government

**Intent**

- High achievers are more apt to collaborate, communicate, and/or coordinate with other groups on big data and analytics activities to achieve desired outcomes
- High achievers work a “top and bottom” Big Data support system including

**Intent**

- 9% more likely to have executive involvement (critical for resourcing and championing Big Data projects)
- 32% more likely to have non-executive managers that promote and encourage the use of their Big Data solutions (critical for pervasive use)

**Process**

- High Achievers use continuous process improvement enabled by quantitative feedback and piloting innovative new solutions

# Comparing Maturity Between High and Low Achievers in Government

## *Characteristics of High Achievers*

- High Achievers deploy
  - Advanced analytics tools for predictive statistical analysis or data mining
  - Apps for consuming data in support of decision making on mobile devices
  - Tools for multi-dimensional analysis or ad-hoc analysis
  - Structured reporting tools and dashboards
- In addition to complete data, data in high achieving organizations is integrated with other data types such as text , structured, web rich media, mobile device, and geographical or spatial data

**Technology**

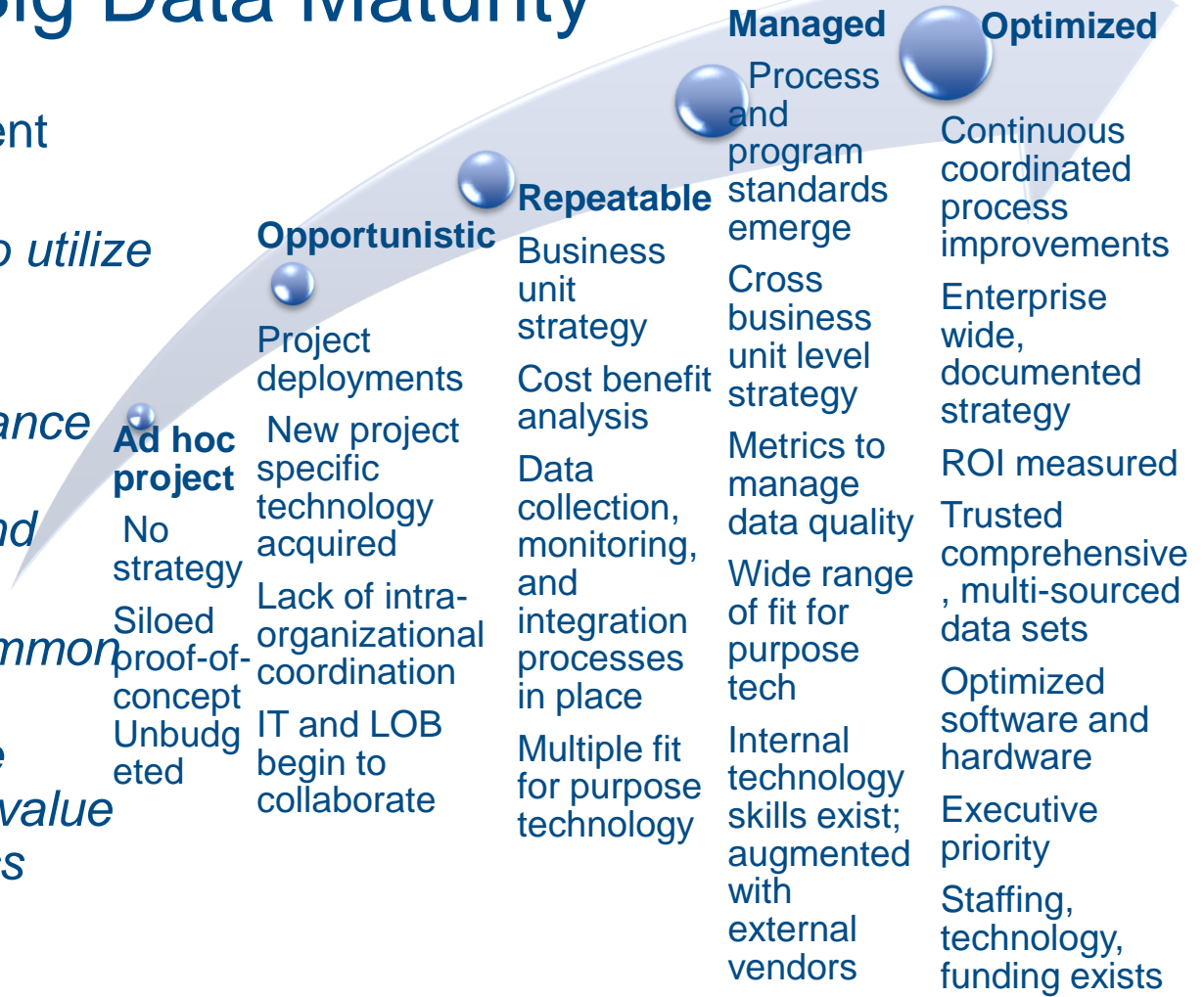
**Data**



# Government Big Data Maturity

## Questions for Government

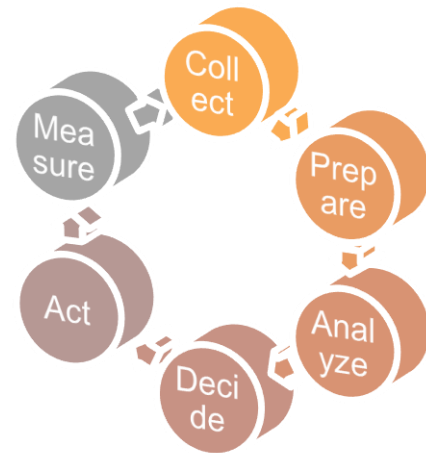
- *How mature is our organization's ability to utilize Big Data Analytics?*
- *Does my organization have a maturity imbalance between intent, data, technology, people, and process?*
- *What are the most common practices among high achievers that achieve higher-than-expected value from Big Data Analytics projects?*



# Essential Guidance



- Review your agency maturity in light of this benchmark
- Focus on all five dimensions to increase success
- Survey across your agency and discover your own traits of your agency high achievers
- Measure progress



# Questions and Answers

Adelaide O'Brien

[aobrien@idc.com](mailto:aobrien@idc.com)

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