IDC MaturityScape Benchmark: Big Data and Analytics in Government

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Presentation to ACT-IAC Emerging Technology SIG

July, 2014
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 all five dimensions
  - 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

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC GI 247362, March 2014
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.

Source: IDC MaturityScape: Big Data and Analytics – A Guide to Unlocking Information Assets IDC Doc #238771
# IDC Big Data Analytics Maturity Model: Stage Characteristics

<table>
<thead>
<tr>
<th>Stage description</th>
<th>Ad Hoc</th>
<th>Opportunistic</th>
<th>Repeatable</th>
<th>Managed</th>
<th>Optimized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage description</strong></td>
<td>• Basic Essentials</td>
<td>• Integrated Processes</td>
<td>• Automated operations</td>
<td>• Measured for validation</td>
<td>• Proven contribution</td>
</tr>
<tr>
<td><strong>Intent (Strategy, sponsorship justification)</strong></td>
<td>• No strategy, unbudgeted projects</td>
<td>• Department level siloed strategy</td>
<td>• Business unit level strategy</td>
<td>• Cross BU level strategy</td>
<td>• Enterprisewide, documented accepted strategy</td>
</tr>
<tr>
<td><strong>Data (Relevance, Quality, Availability)</strong></td>
<td>• Easily available data used requires manual effort</td>
<td>• Multi-sourced structured unstructured content exists</td>
<td>• Consistent data governance and security not established</td>
<td>• Metrics to manage data exist timeliness and veracity exists</td>
<td>• Enterprisewide access to on time trusted multi-structured data</td>
</tr>
<tr>
<td><strong>Technology (Adoption, Performance, Functionality)</strong></td>
<td>• On premise technology requires major effort to use</td>
<td>• New tech is acquired for a specific purpose</td>
<td>• Multiple fit for purpose technologies are deployed</td>
<td>• Wide range of fit for purpose technologies broadly adopted</td>
<td>• Software /hardware optimized with a high level of automation</td>
</tr>
<tr>
<td><strong>People (Organization, culture, skills)</strong></td>
<td>• A few individuals have necessary skills lack of management interest</td>
<td>• Teams have skills but a lack of intra-organizational coordination</td>
<td>• Skills acquisition governed by stated strategy and augmented w external skills</td>
<td>• Executive support for a centralized BDA group, analytics skills decentralized</td>
<td>• All necessary expertise exists Executive priority on BDA</td>
</tr>
<tr>
<td><strong>Process (Tracking, analysis, decisioning)</strong></td>
<td>• Access to siloed information lack of collaboration between IT and LOB</td>
<td>• Data analysis vs. data tracking, prep and decision support processes</td>
<td>• Monitoring and documenting decision processes</td>
<td>• Metrics for evaluating process quality and success</td>
<td>• Processes have appropriate support staffing, technology, and funding</td>
</tr>
</tbody>
</table>

Source: IDC MaturityScape: Big Data and Analytics – A Guide to Unlocking Information Assets IDC Doc #238771
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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.

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC Doc # GI247362, March 2014
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

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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

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC Doc # GI247362, March 2014
Intent

- Are there performance metrics? How is ROI measured?
- Is there upper management support?
- Is there a budget? Is the budget ad hoc or enterprisewide?
- Is there strategy? Is it documented? Is it enterprisewide?
- Are there performance metrics? How is ROI measured?

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC Doc # GI247362, March 2014
People

People Attributes

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


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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.

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC Doc # GI247362, March 2014
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

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC GI 247362, March 2014
Government Big Data & Analytics Model  Maturity: 

Benchmarking Each Characteristic

• Maturity curves different for each dimension
  – Intent
  – Data
  – Technology
  – People
  – Process

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC GI 247362, March 2014

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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*

<table>
<thead>
<tr>
<th>Method</th>
<th>High Achievers</th>
<th>Low Achievers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad hoc</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>Opportunistic</td>
<td>14%</td>
<td>47%</td>
</tr>
<tr>
<td>Repeatable</td>
<td>54%</td>
<td>29%</td>
</tr>
<tr>
<td>Managed</td>
<td>31%</td>
<td>12%</td>
</tr>
<tr>
<td>Optimized</td>
<td>2%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC GI 247362, March 2014

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IDC Maturity Model Benchmark: Big Data and Analytics in Government

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

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC GI 247362, March 2014
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

Source: IDC MaturityScape Benchmark – Big Data and Analytics in Government in North America, IDC Doc # GI247362, March 2014
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?**

Source: IDC MaturityScape: Big Data and Analytics – A Guide to Unlocking Information Assets IDC#238771
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