Transforming Government with Analytics

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What Are Analytics?

<table>
<thead>
<tr>
<th>Optimization</th>
<th>“What’s the best that can happen?”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictive Modeling/</td>
<td>“What will happen next?”</td>
</tr>
<tr>
<td>Forecasting</td>
<td></td>
</tr>
<tr>
<td>Randomized Testing</td>
<td>“What happens if we try this?”</td>
</tr>
<tr>
<td>Statistical analysis</td>
<td>“Why is this happening?”</td>
</tr>
<tr>
<td>Alerts</td>
<td>“What actions are needed?”</td>
</tr>
<tr>
<td>Query/drill down</td>
<td>“What exactly is the problem?”</td>
</tr>
<tr>
<td>Ad hoc reports</td>
<td>“How many, how often, where?”</td>
</tr>
<tr>
<td>Standard Reports</td>
<td>“What happened?”</td>
</tr>
</tbody>
</table>

Degree of Intelligence

Predictive and Prescriptive Analytics (the “so what”)

Descriptive Analytics (the “what”)
Types of Analytics

<table>
<thead>
<tr>
<th>Content Type</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>Past: What happened? (Reporting)</td>
</tr>
<tr>
<td></td>
<td>Present: What is happening now? (Alerts)</td>
</tr>
<tr>
<td></td>
<td>Future: What will happen? (Extrapolation)</td>
</tr>
<tr>
<td>Insight</td>
<td>Past: How and why did it happen? (Modeling, testing)</td>
</tr>
<tr>
<td></td>
<td>Present: What’s the next best action? (Recommendation)</td>
</tr>
<tr>
<td></td>
<td>Future: What’s the best that can happen? (Optimization/simulation)</td>
</tr>
</tbody>
</table>
The Planets Are Aligned for Analytics in Government

- Supply factors
  - Powerful information technology
  - Massive amounts of—but siloed—data
  - Critical mass of quantitative skills
- Demand factors
  - An administration that cares about fact-based decision-making
  - The need to reduce fraud, waste and abuse
  - A general climate of doing more with less
Analytics at Work—The Big Picture

Analytical Capability

Organizational Context

Desired Result

Data

Enterprise

Leadership

Targets

Analysts

Analytical Culture
And Business Processes

Better Decisions!

Systematic Review
Levels of Analytical Capability

- **Stage 1**: Analytically Impaired
- **Stage 2**: Localized Analytics
- **Stage 3**: Analytical Aspirations
- **Stage 4**: Analytical Companies
- **Stage 5**: Analytical Competitors
Analytical Competitors
Old Hands, Turnarounds, Born Analytical

- Marriott — Revenue management
- Progressive — risk, pricing
- Harrah’s — Loyalty and service
- MCI/Worldcom — Cost identification and reduction
- Capital One — “information-based strategy”
- Google — page rank, advertising, HR
Analytical Applications in Government

- USPS—vehicle routing, assigning mail to airlines
- SSA—processing disability applications
- IRS—predicting noncompliance
- World Bank—randomized testing
- VA—disease management
- FBI/ATF/NYC—CompStat and “intelligence-led policing”
- Sweden National Tax Authority—confidence and compliance
- Canadian Forest Service—fire prediction
How to Do It: The Analytical DELTA

DELTA $\Delta =$ change

Data ........ breadth, integration, quality
Enterprise .......... approach to managing analytics
Leadership .......... passion and commitment
Targets ............ first deep, then broad
Analysts .......... professionals and amateurs
Data

- The prerequisite for everything analytical
- Clean, common, integrated
- Accessible in a warehouse
- Measuring something new and important
New Metrics / Data

- Wine Chemistry
- Optimized revenue
- Smile Frequency
If you’re competing on analytics, it doesn’t make sense to manage them locally

- No fiefdoms of data
- Avoiding “spreadmarts”—analytical duct tape

Some level of centralized expertise for hard-core analytics

Firms may also need to upgrade hardware and infrastructure
Leadership

Gary Loveman at Harrah’s
- “Do we think, or do we know?”
- “Three ways to get fired”

Ken Kizer at the VA
- “the largest and most successful implementation of an electronic health record ever undertaken”

Jeff Bezos at Amazon
- “We never throw away data”

“Our CEO is a real data dog”
Sara Lee executive
The Great Divide

Is your senior management committed?

Full steam ahead!
- Hire the people
- Build the systems
- Create the processes

Prove the value!
- Run a pilot
- Measure the benefit
- Try to spread it
Targets

- Pick a major strategic target—deep, then broad
  - IRS = Compliance
  - TD Bank = Customer service and its impact
  - Harrah’s = Loyalty
  - Google = Page rank/advertising + HR
- Can also have two primary user group targets
  - Wal-Mart = Category managers + Suppliers
  - Owens & Minor = Supply chain managers + hospitals
Analysts

1%
Analytical Champions--Own
Lead analytical initiatives

5-10%
Analytical Professionals—Own/Rent
Can create new algorithms

15-20%
Analytical Semi-Professionals—Own/Rent
Can use visual and basic statistical tools, create simple models

70-80%
Analytical Amateurs--Own
Can use spreadsheets, use analytical transactions

* percentages will vary based upon industry and strategy
Observations on Analytics in the U.S. Federal Government

- Plenty of data, but it’s often not recognized as a transformational asset
- Most agencies don’t act as a single enterprise with regard to analytics
- The advocacy of analytics by agency leadership is rarely strong
- Many agencies are aware of the most important targets
- Agencies may lack great analysts and the ability to hire them, but they can rent them
Keep in Mind

- Five levels, five factors for building analytical capability
- Data and leadership are the most important prerequisites
- Make sure your targets are strategic
- Tie all your analytics work to specific decisions
- This is not business as usual—there is a historic opportunity to transform government!