CFO of the Future
Changing CFO capabilities in a world of big data
Universe of Transaction (UoT)
A centralized, standardized CFO function will provide real time insights

<table>
<thead>
<tr>
<th>CFO Role</th>
<th>Financial Reporting</th>
<th>Compliance / Control</th>
<th>Decision Analytics on Financial Performance</th>
<th>Decision Analytics on Mission Performance</th>
</tr>
</thead>
</table>
| Analytics Performed | • Sound transaction processing  
• Creation of traditional finance reports (e.g., balance sheet) | • Provide assurance on strength of internal controls and risk management processes | • Perform cost management analysis  
• Provide resources for performance review | • Link cost performance data to related priority mission objectives  
• Partner on cost and mission analytics |
| Time | ~ Quarterly/Annually | ~ Quarterly | ~ Monthly or better | ~ Daily / Real time / predictive |
| Data Architecture | Distributed, non-standard | Distributed, standard | Centralized, standard | Centralized, standard, automated |
| Role of UoT | • Disaggregated systems approached on a one-off basis  
• No enterprise view | • Disaggregated systems  
• Central "translation" ability via single taxonomy  
• UoT collecting data from multiple sources | • UoT central host system  
• UoT leverages existing data linkages to receive specific updates/refreshes | • UoT central host system  
• Automated feeds for cost & audit  
• Shared service provider for analytics on financial performance and cost |

CFO Impact

Lower

Higher
Hype vs. Reality?

DATA IS THE NEW BACON

“DATA IS THE NEW GOLD”
CFO act of 1990 empowered modern govt. CFOs to create enterprise-wide analysis

Purpose of the modern CFO's office

1. Bring more effective general and financial management practices to the federal government

2. Provide for improvement of accounting systems, financial management practices, and internal controls

3. Provide for complete, reliable, and timely data to better finance, manage, and evaluate government programs

Concept of data analytics is not new
The Year 1990

#1 Song in 1990

#1 Movie in 1990

Technology in 1990.....
What is different this time?

• Strong demand from leadership

• Audit

• Technology

• We are actually seeing value
  – NFR tracking tool – impacts all
  – UoT – first focus on 4th Estate
  – Cost management – impacts all
UoT Existence and Completeness Flow

Flow of Financial Transaction Data

Feeder ↔ GL Recons (DFAS Reconciliation Project)
GL ↔ UTB Recons (OSD BIO, AUD-IT Project)
UTB ↔ ATB ↔ Financial Statement Recons (DFAS Departmental Reporting)

Responsibility Office

Existence

Feeder systems
Initiate transaction level data and distribute data to general ledger(s)

Completeness

General ledger(s)/legacy systems
Maintain data and distribute to budgetary reporting system

Budgetary reporting system
Compiles and analyzes data and records adjustments to data

Financial statement reporting system
Receives edit-checked data from budgetary reporting system

Existence Required to Start Audit
Data architecture: Centralized architecture will enable better governance and automation

Current DOD system landscape

- Distributed data and management environment
- Some integration, but lacking visibility to full spectrum of DoD data
- Insights limited to single line of business or organization

Future state use of UoT

- Retention of current disaggregated system structure
- UoT collects data from multiple sources
- Creation of a "Rosetta Stone" to allow for enterprise-level views

Siloed data

Enterprise view with UoT

DoD data source system
OUSD(C) Business Integration Office is becoming a data shared service provider for 4th Estate UoT

- **FMSAAS** – Provides finance and analytics Subject Matter Experts, to solve challenging FM problems
- **DAAS** – Standardizes the data available to the Enterprise for download and exploration. Provides a Single Source of Truth
- **SAAS** – Provides a number of web-based analytics tools to enable a variety of analytic use cases ranging from simple to complex. Truly enables Self-Service Analytics for the Enterprise
- **IAAS** – A flexible, secure, and scalable infrastructure that reduces risk and cost for data management and advanced analytics
Challenges to getting to the CFO of the future and how we overcome them

• Distrust of data

• Non-standard data

• Access to data

• Analytical skill sets
Distrust of Data

ARE YOU SURE THE DATA YOU GAVE ME IS CORRECT?

I'VE BEEN GIVING YOU INCORRECT DATA FOR YEARS. THIS IS THE FIRST TIME YOU'VE ASKED.

WHAT?

I SAID THE DATA IS TOTALLY ACCURATE.
As his data lake turned into a data swamp, George regretted not investing in data standards and quality.
Data access

I NEED SOME DATA FROM AN UNREACHABLE GUY NAMED ED. WHAT SHOULD I DO?

JUST MAKE UP A BUNCH OF DATA LIKE EVERYONE ELSE DOES.

EVERYONE ELSE DOES THAT?

ARE YOU DOUBTING MY DATA?
LET’S SOLVE THIS PROBLEM BY USING BIG DATA NONE OF US HAVE THE SLIGHTEST IDEA WHAT TO DO WITH
What can we do with data analytics that adds value to you?

Real examples
What makes a good data analysis? Data should tell a story!

• What is the question?
• Who is the audience for the question?
• What would you do with the analysis that adds value?
• What data sources have the data you need?
• How frequently do you need the data?
• What would a good visualization look like for a manager/executive and analyst?
### Analytics Menu – Not all inclusive

<table>
<thead>
<tr>
<th>Financial Statements</th>
<th>IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does my GL details tie to my unadjusted trial balance?</td>
<td>• What is the cost my IT?</td>
</tr>
<tr>
<td>• Can I reconcile my GL details to my financial statement line?</td>
<td>• What are my license costs?</td>
</tr>
<tr>
<td>• What are my tie point variances?</td>
<td>• Am I effectively sourcing my IT software license costs?</td>
</tr>
<tr>
<td>• Do I have abnormal balances?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compliance/Audit</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Am I SFIS compliant?</td>
<td>• Are we effectively using our medical facilities?</td>
</tr>
<tr>
<td>• What are the # of NFRs and CAPs I have?</td>
<td>• Are we spending the right amount on each student?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What is the cost of my real property by category?</td>
</tr>
<tr>
<td>• What is the cost of my custodial compared to others?</td>
</tr>
<tr>
<td>• What is the cost of my real property compared to commercial benchmarks?</td>
</tr>
</tbody>
</table>
Use Case 1: Reconcile

• Can we trace this?

<table>
<thead>
<tr>
<th>LINE</th>
<th>DESCRIPTION</th>
<th>Calculated Amount</th>
<th>DDRS AFS Amount</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Totals</td>
<td>$44,185,156,138.60</td>
<td>$44,185,156,138.60</td>
<td>$0.00</td>
</tr>
<tr>
<td>1A1</td>
<td>Fund Balance with Treasury (Note 3)</td>
<td>$7,430,679,574.17</td>
<td>$7,430,679,574.17</td>
<td>$0.00</td>
</tr>
<tr>
<td>1A2</td>
<td>Investments (Note 4)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>1A3</td>
<td>Accounts Receivable (Note 5)</td>
<td>$1,374,714.52</td>
<td>$1,374,714.52</td>
<td>$0.00</td>
</tr>
<tr>
<td>1A4</td>
<td>Other Assets (Note 6)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>1B</td>
<td>Cash and Other Monetary Assets (Note 7)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>1C</td>
<td>Accounts Receivable Net (Note 5)</td>
<td>$4,873,971.98</td>
<td>$4,873,971.98</td>
<td>$0.00</td>
</tr>
<tr>
<td>1D</td>
<td>Loans Receivable (Note 6)</td>
<td>$0.00</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
</tbody>
</table>
Use Case 1: Reconcile

• When the following is true?

All of these systems, plus 15,000+ rows of crosswalks support FBWT
Learning from Reconciliation

- We can learn about system issues and drive change through specific problem statements

<table>
<thead>
<tr>
<th>uot_sglprefix</th>
<th>uot_signedamount</th>
<th>uot_transseffdate</th>
<th>uot_transid</th>
<th>uot_transpostdate</th>
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</thead>
<tbody>
<tr>
<td>4902</td>
<td>38871.98</td>
<td>20130930</td>
<td>1307072129</td>
<td>20160406</td>
</tr>
</tbody>
</table>

Posting date is almost three years after effective date

<table>
<thead>
<tr>
<th>fund application</th>
<th>fund master</th>
<th>uot_begfy</th>
<th>uot_endfy</th>
<th>uot_transpostdate</th>
</tr>
</thead>
<tbody>
<tr>
<td>9717180100</td>
<td>9718190100</td>
<td>2018</td>
<td>2019</td>
<td>20171206</td>
</tr>
</tbody>
</table>

Master data changed after posting creates reconciliation issue

<table>
<thead>
<tr>
<th>supplier</th>
<th>uot_fednonfedind</th>
<th>Uot_signedamount</th>
</tr>
</thead>
<tbody>
<tr>
<td>021-W*** USA *** MAT CTR EUR*****</td>
<td>N</td>
<td>$ (60,273.50)</td>
</tr>
</tbody>
</table>

Federal vendor rolling up to non federal payables

Controls can always be improved, because people will always find a way . . .
Use Case 2: Performance

• Are we getting better? How do we know?

What types of obligations were executed in the final month of fiscal year 2017?
Learning from financial metrics

ENTITY obligated 24.29% of O&M budget in final month.

81.74% of the are contract obligations for information technology and professional services.

Several of those obligations are with suppliers who have high dollar sole source thresholds.

Behaviors will change when we are able to trend with these details.
Example 3: Cost Analysis
Air Force Base A, FY 16

Cost comparison between AFB A, portfolio medians, and commercial reference estimates:

<table>
<thead>
<tr>
<th>Product</th>
<th>Air Force Base A</th>
<th>Air Force Regional Median</th>
<th>Air Force Median</th>
<th>DoD Median</th>
<th>Air Force Base A Commercial Equivalent (estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>22.21</td>
<td>10.33</td>
<td>8.38</td>
<td>7.80</td>
<td>12.42</td>
</tr>
<tr>
<td>Custodial</td>
<td>0.79</td>
<td>0.35</td>
<td>0.34</td>
<td>0.33</td>
<td>0.67</td>
</tr>
<tr>
<td>Electricity</td>
<td>2.18</td>
<td>1.15</td>
<td>1.10</td>
<td>1.04</td>
<td>1.24</td>
</tr>
<tr>
<td>Grounds</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.13</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>0.25</td>
<td>0.18</td>
<td>0.19</td>
<td>0.20</td>
<td>0.31</td>
</tr>
<tr>
<td>Pest Control</td>
<td>0.08</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.05</td>
</tr>
<tr>
<td>Refuse</td>
<td>0.08</td>
<td>0.07</td>
<td>0.07</td>
<td>0.09</td>
<td>0.10</td>
</tr>
<tr>
<td>Restoration and Modernization</td>
<td>2.82</td>
<td>1.76</td>
<td>1.54</td>
<td>0.96</td>
<td>4.72</td>
</tr>
<tr>
<td>Road Clearance</td>
<td>-</td>
<td>-</td>
<td>0.01</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>Sewer</td>
<td>0.05</td>
<td>0.08</td>
<td>0.08</td>
<td>0.07</td>
<td>0.27</td>
</tr>
<tr>
<td>Sustainment</td>
<td>15.75</td>
<td>6.57</td>
<td>4.92</td>
<td>4.96</td>
<td>4.61</td>
</tr>
<tr>
<td>Water</td>
<td>0.18</td>
<td>0.10</td>
<td>0.07</td>
<td>0.08</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Air Force Base’s A real property costs in FY 16 were broadly comparable (on a per sq. ft. basis) to portfolio medians; however, cost appeared high in both Electricity and Sustainment.

Data source: FY 16 CODE
Example cost analysis:
Electricity spend at Air Force Base A (I / II)

Electricity cost per square foot comparison vs. CORE benchmarks:

Air Force Base A Cost Analysis:
- Total FY 16 Electricity Cost*: ~ $7.5 Million
- Total Square Feet: ~ 3.44 Million Square Feet
- Cost per Square Foot: $2.18 / Square Foot

Cross Service Regional Median:
$1.12 / Square Foot

Next step: Review and identify best practices being employed at installations outperforming commercial reference model
Insight to Action

• This all means nothing, unless

Local
• Willingness to make reconciliation a habit
• Willingness to change processes

Shared Service
• Willingness to adopt culture of data
• Willingness to take calculated risks

System Level
• Willingness to make system changes
• Willingness to make agency performance a priority