Building a Foundation for Analytics

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Today’s Speakers

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Agenda

- Why It Matters
- Analytics as a Journey
- Visual Analytics Demo
- Choosing the Right Tools
- Power BI Overview
- Funding Options
Why Now?

- Proliferation of Visualization Tools
- Don’t let vendors lead the conversation
- Business analysis and discovery approach
- Key questions to consider:
  - How do we pay for it?
  - How do we build it?
  - How do we sustain it?
  - Who is going to use it?
Webinar Overview

How can we reduce the time and effort it takes to collect and integrate data from various components of the criminal justice system? What tools are available to help us communicate our analysis results to our stakeholders? Gathering and integrating data from multiple sources can often be the most laborious and time-consuming activity in SAC analysis. The tool you then use to present your analysis can be just as important and impactful as the analysis itself.

Today’s Goals:
• Define the type of analytics needed to meet your organization’s needs
• Understand what tools are available to support analytics
• Understand how these tools integrate with each other to achieve your goals
Analytics as a Journey

Building a Foundation for Analytics
“The goal is to turn data into information, and information into insight.”

- Carly Fiorina, former president of Hewlett-Packard Co.
Typical Analytics Path

As organizations mature in their use of data, they move from focusing on descriptive analytics (past hindsight) to prescriptive analytics (future foresight).

**Descriptive Analytics**
- Preliminary step in data analytics journey
- Requires minimal technology investment and provides minimal value

**Diagnostic Analytics**
- Facilitates analysis of the cause of events and behaviors
- Requires integration processes to manage multiple datasets and identify correlations

**Predictive Analytics**
- Quantifies the likelihood of a future event or behavior
- Requires statistical analysis and modeling technology used by qualified data scientists and statisticians

**Prescriptive Analytics**
- Presents decision options to affect future events or behavior based on data analysis and simulations

Source: Gartner
Choosing the Right Tools
Building a Foundation for Analytics
Building the Foundation

Building a foundation for analytics and moving from descriptive to prescriptive analytics requires investments in three key components: data integration, analysis, and visualization.

Integrate/Manage
Access data from various sources and integrate into a single platform leveraging shared attributes

Analyze
Identify patterns, and their root causes, in the data

Visualize
Share the insights from your analysis and convey the story that your data tells
Data Integration & Management

As organizations mature in their use of data, they move from focusing on descriptive analytics (past hindsight) to prescriptive analytics (future foresight).

Key Considerations

▪ What are the various sources of data needed for your analysis? Who owns them and what level of access will be made available?

▪ What are your organization’s data governance policies? Is a cloud-based data management solution an option or are you limited to on-premise solutions? Does your data contain PII or health information?

▪ What technologies are already available to the organization? What data architecture skillsets (data modeling, data integration) does the organization possess?

Cloud Platforms

- AWS
- Azure
- Google Cloud Platform

Database Options*

- Oracle
- Amazon Redshift
- SQL Server
- Netezza

* List is not exhaustive
Analytics

Once data from multiple sources has been integrated and is available in your data management platform, the next step is to turn this data into information and insights.

Key Considerations

▪ What level of reporting and/or analytics is expected by your stakeholders? What questions are they asking?

▪ What is the budget for the initial technology investment and any ongoing maintenance/license fees?

▪ What technologies are already available to the organization? What advanced analytics or statistician skillsets does the organization already possess?
Storytelling with Data

“Data, I think, is one of the most powerful mechanisms for telling stories. I take a huge pile of data and I try to get it to tell stories.”

- Steven Levitt, Co-author of *Freakonomics*
Visualizations & Storytelling

The presentation of information and analytics is just as important and impactful as the analysis itself. Not every presentation of data tells a story.

**Key Considerations**

- Who is the **audience for your analysis**? Are they only internal to the organization or do you share information with external parties?

- What are the **personas of users**? How many people will create visualizations and how many people will only view?

- How much of the necessary data integration and analytics will be done by other tools?

- What visualizations tools, if any, does your organization currently use and what would be the **learning curve to introduce a new technology**?

* List is not exhaustive
Power BI Overview

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Power BI Overview

• Part of the Microsoft suite
• Adapted from Excel-based add-ins: Power Query, PowerPivot and Power View
• First released 2015
• Offers data management capabilities including data preparation, discovery and visualizations
• Integrates with many other Microsoft tools
• Updated monthly with new functionality and capabilities
Core Strengths

Price Point

The entry cost of Power BI is significantly lower due to it being a part of the Microsoft suite—it is free for a basic user who is on O365.

Data Preparation

Power BI includes a data modeling environment that can blend multiple data sources and prepare them for reporting.

Integration

Power BI works seamlessly with the rest of the Microsoft suite including Azure to easily connect to data.

Processing

Power BI includes DirectQuery which connects live to the data to prevent any memory issues slowing down reporting.
Types of Service

Power BI

**Basic**
- Individual user
- Included free with O365
- No peer to peer sharing
- Publish to web

**Pro**
- Individual user
- $9.99 per user
- Peer-to-peer sharing
- Email subscriptions
- Collaboration workspaces

**Premium**
- Enterprise licensing
- Specify developers
- Share dashboards to anyone in org (not only Pro users)
Power BI Overview
Funding Options

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2. Implementation – Who is using the data and willing to pay?
   a. Victim Assistance Grants data – Use VOCA, VAWA
   b. Victims Compensation Data – Use Comp Fund
   c. UCR Data – If VOCA Administrator can use it, use some VOCA Admin; If Victims Compensation Administrator uses it, use some Comp Funds
   d. State Data – Use State Funds if you have access
   e. JRI Data – Subaward through CSG to integrate and house JRI measures (Slalom is doing the Discovery)
   f. Drug Task Force Data – Byrne-JAG

3. Staffing – Two Contractors
   a. Developer/Datawarehouse Architect
   b. Business Analyst/Programmer