Managing a Business Intelligence Center of Excellence (BI COE) with Business Objects
A Case Study at Amtrak

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Amtrak
Amtrak is a government-owned corporation organized in 1971

- Provides intercity passenger train service in the United States
- Rail network serves 527 destinations in 46 states and 3 Canadian Provinces
- Incorporates over 21,000 miles of rail, and has over 20,000 employees
- In 2010, Amtrak served 28.8 million passengers, and generated $2.45 billion in revenue
What is a BI Center of Excellence?

Centers of Excellence combine the strategic role and governance of program management offices, business expertise of subject matter experts, and the technical knowledge of systems personnel.

BI COEs are centered and constructed around these foundations of an organization:

- Enterprise Coordination
- Common Solution Design
- Asset Management
- Infrastructure
Four Categories of BI COEs

1) BI COE as an IT Unit
   Implemented at Amtrak

   - CIO
     - IT Unit
     - BI COE
     - IT Unit

2) Virtual BI COE - Shared by Departments

   - Finance
   - Sales
   - Marketing

3) BI COE as Part of Operations - Overseeing Business Divisions

   - COO
     - BI COE
     - Division 1
     - Division 2
     - Division 3

4) Distributed BI COE - Shared by Lines of Business Divisions

   - Corporate
     - Division 1
     - Division 2
     - Division 3
BI COE Staff Organization at Amtrak

Information Technology Department

Chief Information Office (CIO)

Chief Architecture Officer (CAO)

Enterprise Information Group (EIG)

Business Intelligence Center of Excellence (BI COE)

Group Information Officers (GIOs)

Application Teams
- Marketing
- Engineering
- Mechanical
- Finance
- Transportation
- Operations

Business Departments and Groups

BI COE is a technology group with the Information Technology Department
BI COE Team responsible for Business Objects Environment
Responsibilities of Amtrak BI COE

BI COE Team always responsible for ...
- Universe
- QAAWS / BI Web Services

Development of Crystal Reports \ Web Intelligence \ Xcelsius Dashboards can conducted by ...
- Application (GIO) Team
- BI COE Team
BI COE Maintains and Supports Business Objects Environment & Projects

- Development of universes and dashboard middleware (QAAWS)
- Designs / implements BOBJ security
- Plans capacity of BI infrastructure
- Leverages best practices in BI implementation to efficiently use infrastructure and to produce successful project results
- Leverages enterprise view of data (EDW and Data Marts)
- Conducts Application Support of Business Objects

Enterprise BI Projects Categorized as:

- Turnkey “Heavyweight”
- Shared “Lightweight”
Responsibilities of BI COE

Management of BusinessObjects Application Infrastructure

- Application Administration
- Application Performance Tuning
- BusinessObjects Upgrades and Patches
- Security Planning
- Technical and Capacity Planning

Full Life-Cycle Projects (Turnkey & Shared Solutions)

Technical Responsibilities of BI COE

- BusinessObjects Universe Design
- BusinessObjects / Brio Administration
- Brio to BusinessObjects Conversion
- If Turnkey, BusinessObjects Report Development
- If Turnkey, Xcelsius Dashboard Development
- Application Support
- Training / Knowledge Accelerator
- Report / Dashboard Testing
- Technical Oversight
Responsibilities of IT App / Business Teams

IT Applications (GIO) Team Responsibilities

- Project Management
- Coordination with Business Teams
- Budgeting / Funding for Projects
- For Shared Projects, Development of BusinessObjects Reports / Dashboards
- For Shared Projects, System Testing of Reports / Dashboards

Business Team Responsibilities

- Documentation of Requirements
- Report/Dashboard User Acceptance Testing (UAT)
- Education of Casual Users
Application team gathers and documents requirements.

- **Application team develops, tests, supports reports and dashboards.**

Application team performs functional and integration testing of reports / dashboards.

- BI COE team provides **technical oversight**.

- BI COE team designs and develops Business Objects universe, middleware, and the security model.

- BI COE team provides ongoing application support for the Business Objects platform components of the solution.

- BI COE team provides design and code reviews.

- BI COE provides pre-deployment acceptance.
BI COE team **designs and develops the entire solution**, including the Business Objects universe, middleware, security model, reports, and dashboards.

- BI COE team works with Project Team to gather and document requirements.
- BI COE team does all testing up to the point of user acceptance testing (UAT).
- BI COE team provides ongoing application support for the Business Objects platform components of the solution.
- BI COE team provides design and code reviews.
- BI COE provides pre-deployment acceptance.
**BI Project Funding / Budgeting**

**BI Project Budgeting**

- Application (GIO) Team or Business Team is responsible for budget funding
- BI COE is responsible for providing LOE, Costs and Timetable estimates

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**Shared Project** vs. **Turnkey Project**
Case for Shared / Turnkey Solution

BI Project Initiation
- Application (GIO) Team or Business submits a Project Service Request
- Director, Enterprise Information Group (EIG) determines solution type
- GIO, CAO, and KPI Governance Group mitigates when necessary

Determination Criteria (Shared vs. Turnkey?)
- Size / Scope / Complexity of Project
- Project Schedule and Required Resources
- Available Technical Resources within BI COE and Application (GIO) Team
- Level of Interaction with Business
- Existing State of Project
- Breadth of Participating Business Units
## Services Provided by Amtrak BI COE

<table>
<thead>
<tr>
<th>Service</th>
<th>Shared Solution</th>
<th></th>
<th>Turnkey Solution</th>
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<tbody>
<tr>
<td></td>
<td>Application /</td>
<td>BI COE</td>
<td>Application /</td>
<td>BI COE</td>
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<tr>
<td></td>
<td>GIO Team</td>
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<td>GIO Team</td>
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<tr>
<td>Requirement Gathering &amp; Documentation</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>BOBJ Application Administration</td>
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<td>X</td>
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<tr>
<td>BOBJ Application Support / Maintenance</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>BOBJ Universe Design &amp; Development</td>
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<td>X</td>
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<tr>
<td>BOBJ Security Planning</td>
<td></td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Report Development</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Dashboard Development</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>System / Functional / Integration Testing</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Application Performance Tuning</td>
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<td>X</td>
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<tr>
<td>Coordination of End-User Training</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Coordination of User Acceptance Testing</td>
<td>X</td>
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<td></td>
<td>X</td>
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<tr>
<td>Technical Acceptance Testing</td>
<td></td>
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<td>X</td>
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</tbody>
</table>
## BI COE – Access and Available Tools

<table>
<thead>
<tr>
<th>Group</th>
<th>Type of Access</th>
<th>Available Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI COE</td>
<td>Administrator Access</td>
<td>Central Management Console (CMC) * Import Wizard * Universe Designer* QAAWS* Xcelsius Designer Crystal Reports Designer Web Intelligence InfoView Portal</td>
</tr>
<tr>
<td>Application (GIO) Team</td>
<td>Developer Access</td>
<td>Crystal Reports Designer Web Intelligence InfoView Portal</td>
</tr>
<tr>
<td>Business Users</td>
<td>End User Access</td>
<td>Reports Dashboards InfoView Portal</td>
</tr>
</tbody>
</table>

*As The Central Management Console (CMC), Import Wizard, Universe Designer, and Query as a Web Service (QAAWS) are all tools designed and used for middleware design and/or administration of Business Objects environments, only members of the BI COE will have access to them.*
Implementation of BI COE - Two Phase Plan

Phase 1 (Coordination of Status)
- Coordination of Status of all BI Projects
- BI Projects continue as planned
- BI Resources stayed in existing project teams

Phase 2 (Centralization of Projects / Resources)
- BI COE responsible for Development/Deployment of BI Projects
- New BI Projects must be approved by BI COE
- Determination of Shared / Turnkey Projects
- BI Resources managed by BI COE
- Oversight of all Business Objects initiatives

Phase 1 Lasted Nine Months

Phase 2 On-going
Centralization / De-Centralization of BI Projects

Outside Circles
Business Intelligence Projects Developed / Maintained by Application Teams

BI Center of Excellence

- Brio to BOBJ Conversion
- Universe Development
- BOBJ Security Planning
- BOBJ Application Administration
- Technical Oversight
- Application Support
- BOBJ Capacity Planning
- BOBJ Performance Testing
- CSPMI
- Chief of Police
- eTicketing
- Logistics
- MLOA
- Safety (ASIS)
- Pension Administration
- Engineering Dashboard
- Strategic Asset Management
- Mechanical Dashboard
- COO Dashboard
## Sample Business Intelligence Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Turnkey / Shared</th>
<th>Services Provided by BI COE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Asset Management (SAM)</td>
<td>Shared</td>
<td>Universe Development, Security, Performance Tuning, Technical Oversight, Application Support</td>
</tr>
<tr>
<td>Safety (ASIS)</td>
<td>Shared</td>
<td>Universe Development, Security, Performance Tuning, Technical Oversight, Application Support</td>
</tr>
<tr>
<td>Mechanical Dashboard</td>
<td>Shared</td>
<td>Security, Technical Oversight, Application Support</td>
</tr>
<tr>
<td>Engineering Dashboard</td>
<td>Shared</td>
<td>Security, Technical Oversight, Application Support</td>
</tr>
<tr>
<td>Board of Directors (BOD) Dashboard</td>
<td>Shared</td>
<td>Universe Development, Security, Technical Oversight, Application Support</td>
</tr>
<tr>
<td>E-Ticketing</td>
<td>Shared</td>
<td>Security, Technical Oversight, Application Support</td>
</tr>
</tbody>
</table>
Business Objects Support (Maintenance) Process Flow

Management of Incidents

**Business Team**
- Submits an Incident
  - Calls the helpdesk to communicate incidents with a clear description of their issue.

**Help Desk**
- Records and Assigns
  - Generates an incident (IM) and/or Service Request (SR) into ISM and assigns to appropriate support queue

**GIO Support Team**
- Provides Tier 2 Application Support
  - Addresses/resolves the incident and in case of report development
  - Reassigns to BI COE in case of issue with BOBJ infrastructure
  - Reassigns to Data COE in case of database related issue

**ISM Support Queue**
- I-QHD

**BI COE**
- Maintains Business Objects / Brio Infrastructure
  - Addresses/resolves incidents related to the infrastructure of Business Objects / Brio
  - Addresses/resolves incidents related former Brio applications (Labor, RRDW, STARS, TAPS, PCM)
  - Conducts application administration of Business Objects / Brio

**Team Email Distribution Lists**
- DL BI COE Support
- BRIOTECH
- ISM Support Queue
  - A-QAMTBOBJ
  - A-QBRIO

**Data COE**
- Responsible for support/development of Oracle & SQL Server Databases, EDW, & ETL

**ISM Support Queue**
- A-QCSO

**Client Services Operations (CSO)**
- Responsible for maintaining servers / operating systems...
  - Addresses/resolves the incident with operating systems and servers
  - Maintains OS level / patches / maintenance / NetIQ Monitoring
  - Works in the Data Center

**ISM Queue**
- A-QTSO
- Team Email Address
  - DRMTECH
Enhancement Process Flow for Business Intelligence and Enterprise Data

Management of ITPIRs – Small Enhancements

Business Team
- Submits an ITPIR
  - Initiates Enhancement Request

Business Sponsor
- Approves the ITPIR
  - Approves Enhancement Request before being sent to IT.

Project Management Office (PMO)
- Reviews & Assigns the Request
  - Assigns enhancement to GIO Project Team Owner:
    - M&PD
    - Operations
    - Enterprise Resources

GIO Project Team Owner
- Reviews and Clarifies Enhancement
- Submits a Center of Excellence (COE) Engagement Request
  - Further defines enhancement request and answers any open questions related to scope

Program Director, COE
- Reviews & Signs Off on COE Engagement Request
- Reviews & Provides Level of Effort (LOE)
  - Reviews COE Engagement Request and conducts sign-off
  - Provides individual LOEs and documents all Open Engagement Requests

BI COE / Data COE / GIO Teams
- BI COE Team and Data COE Teams of EIG Build Enhancement
  - Program Office of EIG governs both BI COE and Data COE teams.

GIO Project Team
  - Coordinates testing and approvals from Business.
Benefits of BI COE at Amtrak

Adoption of a BI COE has enabled:

- Reports and dashboards deployed across Amtrak will be consistent and standardized
- Streamlined business processes - due to incorporation of best practices
- Managed deployments - consistent oversight incorporated into every stage of development
- More accurate, consistent and repeatable project estimates
- Higher project success rates
- Better use and integration with the Enterprise Data Warehouse (EDW)
- Higher confidence in IT department

BI COE team involvement across all BI projects:

- Improves knowledge transfer and resource reuse
- Creates a shared repository of information
- Enhances value as subject matter experts to the business
- Provides savings via improved and shared BI production support
Questions
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