

Oracle BI at Jet Propulsion Laboratory

BIWA Summit 2017

Vlami Software Solutions, Inc.

February 2, 2017

Vlamis Software Solutions

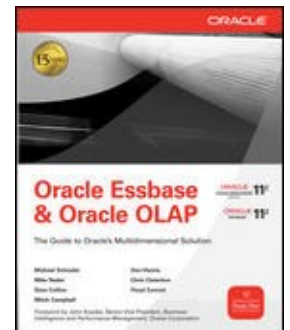
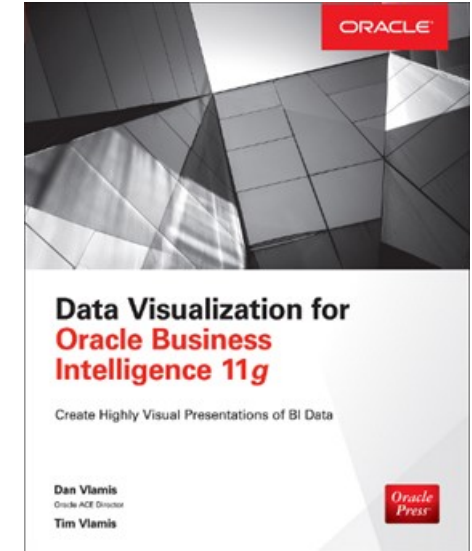
- Vlamis Software founded in 1992 in Kansas City, Missouri
- Developed 200+ Oracle BI and analytics systems
- Specializes in Oracle-based:
 - Enterprise Business Intelligence & Analytics
 - Analytic Warehousing
 - Data Mining and Predictive Analytics
 - Data Visualization
- Multiple Oracle ACEs, consultants average 15+ years
- www.vlamis.com (blog, papers, newsletters, services)
- Co-authors of book “Data Visualization for OBI 11g”
- Co-author of book “Oracle Essbase & Oracle OLAP”
- Oracle University Partner
- Oracle Gold Partner

ORACLE EDUCATION RESELLER

ORACLE APPROVED EDUCATION CENTER

ORACLE Gold Partner

Specialized
Oracle Business Intelligence
Foundation Suite 11g





Agenda

- Introduction to JPL and Vlamiis Software Solutions
- Action taken
- Result
- Future plans
- Additional topics

NASA's Jet Propulsion Laboratory

- Location adjacent to Pasadena, La Canada Flintridge, and Altadena, California
- Federally-Funded Research and Development Center, Staffed and Managed for NASA by Caltech
- Sample Current Missions



Opportunity



Voyager 1 & 2



Orbiting Carbon
Observatory 2



Kepler



MSL - Curiosity



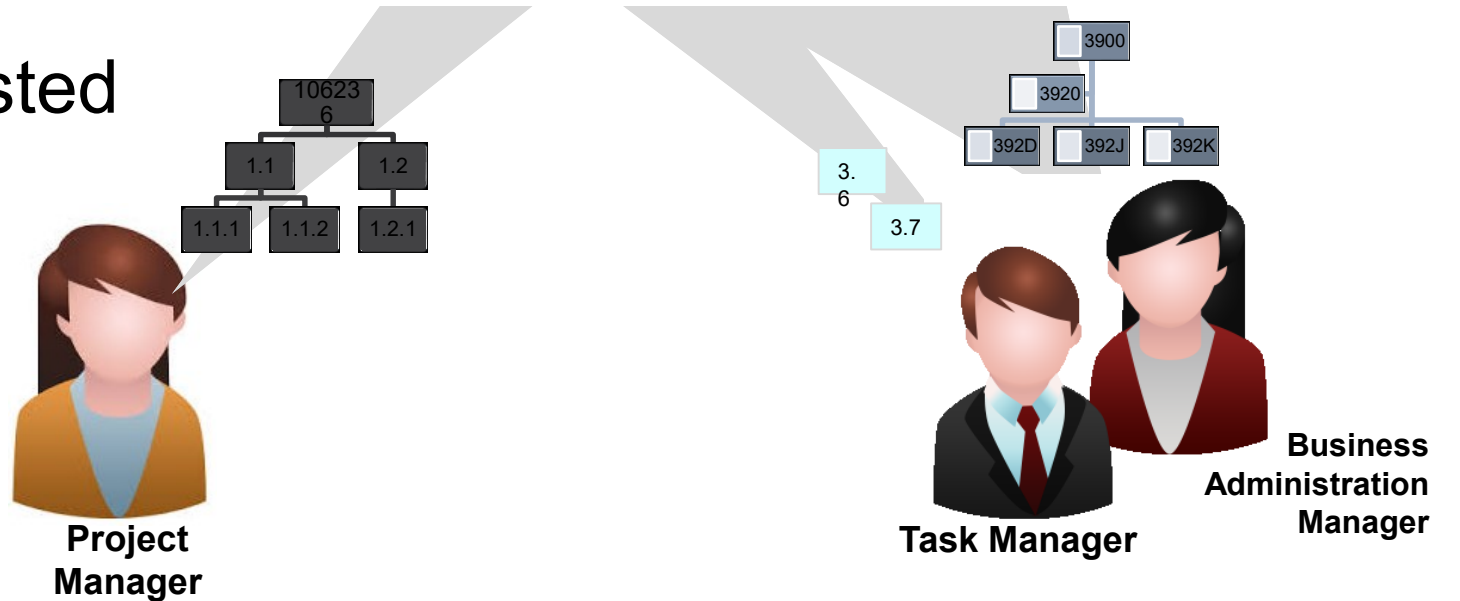
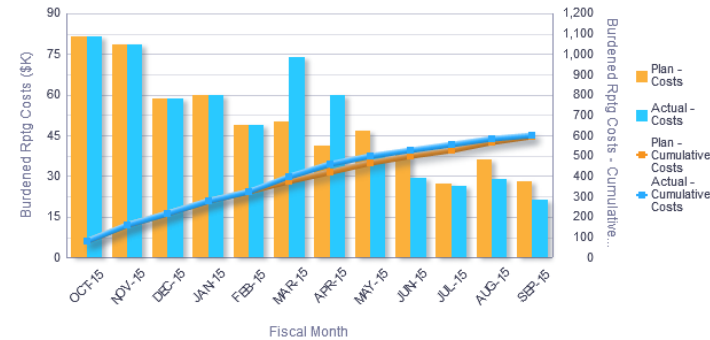
Europa

JPL Reporting Challenges/BI Opportunities

- Modernize legacy reporting capabilities
 - Legacy reporting systems incrementally architected and stitched together post ERP go live (1998)
 - Target to deliver timely, role based information
 - Reduce user tool-hopping
- Proposed five year BI program
- Mid point progress check

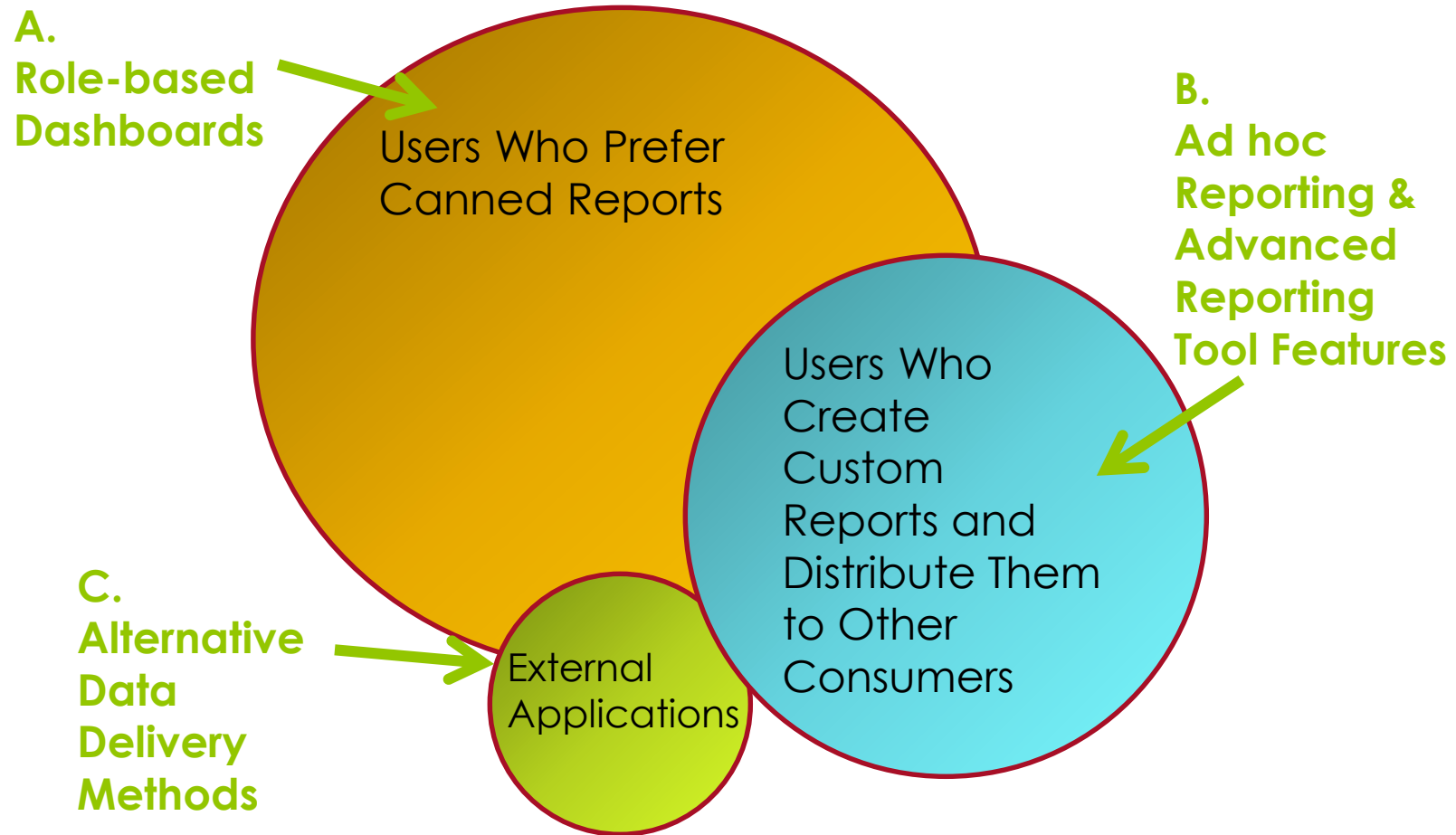
JPL BI Approach

- “Natural” Iterations
 - Each BI project delivers a business subject area
 - Role-based content developed based on which roles are interested in the subject area



JPL BI Approach

- Solution: Different product offerings for each user segment



JPL BI Deliveries

1. Prove OBIEE worked
 - *Why*: Original implementation of OBIEE led users to believe the application was slow
 - *How*: Proof of concept to confirm OBIEE performed well against a properly structured star schema
2. Stand up the BI infrastructure
 - *Why*: Development of multiple subject areas require the infrastructure first
 - *How*: Trade study of canned analytics; Capacity planning: storage, servers; OBIEE scaling, new ETL
3. Roll out first business subject area: procurement
 - *Why*: Lower risk by avoiding a monolithic initial delivery and partnering with a trusted and forgiving stakeholder and their customers while we learned about what we didn't know
4. Roll out 2 deliveries of financial subject area

JPL BI Procurement Subject Area (example)

Expired Subcontracts

of Expired Subcontracts

19

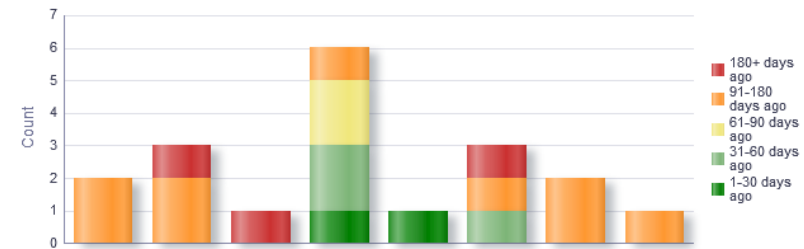
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Expired Subcontracts

Subcontracts with an OPEN or CLOSEOUT status and an end date that is less than today's date.

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Select a View: Age of Expired Subcontracts (Stacked) ▼



Expiring Subcontracts

Expiring in the next 90 Days

11

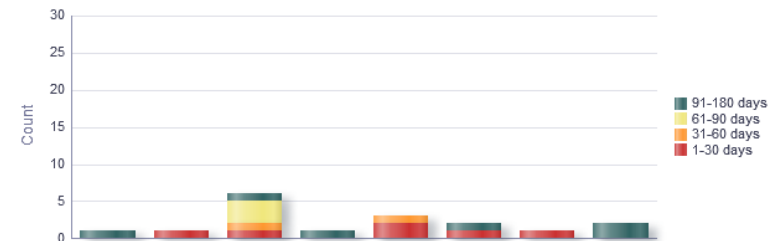
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Expiring Subcontracts

Open Subcontracts with an end date within the next six months.

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JPL BI Financial Subject Area (example)



JPL Lessons Learned

- Reassigning online transaction processing resources to BI projects resulted in steep learning curves
- Developing a new BI tool while legacy systems continue to exist pose a dilemma when other IT projects get requirements for reporting
- BI and growing data science/analytics intersection/overlap
- **JPL is a do-it-yourself culture**



Overall Timeline

- Oracle BI implementation began at JPL in 2014
- Brought in Vlami for BI assessment August 2016
- Assessment completed September 2016
- JPL investigating additional options in 2017



JPL Findings Summary – Doing well

- System is well built
- End users are positive and willing to provide feedback
- Have well-written standards and style document
- Team is dedicated and hard-working
- Role-based dashboards following some best practices
- JPL has tools needed for effective BI system



JPL Recommendations - 1

- Personnel
 - Identify current roles at JPL
 - Identify future roles
 - Evaluate current staff
 - Identify gaps
 - Train and/or reassign current staff
 - Hire new staff

- Save money by migrating off of Discoverer



JPL Recommendations - 2

- Improve BI user experience at JPL
 - Conduct a data visualization (dv) workshop for JPL
 - Starts people thinking in new ways
 - Train JPL staff on OBIEE DV
 - Review Business Reporting application to ensure consistency and best practices
 - Make presentation layer more useful by removing unused columns, adding hierarchies, and renaming fields
 - Develop “quick cards”
 - Develop JPL “BI User Group”
 - Help promote BI projects within JPL
 - Peer-support group



JPL Recommendations - 3

- Improve BI Infrastructure
 - Migrate to OBIEE12c
 - Use OBIEE Metadata dictionary option
 - Use BI Admin tool to improve on RPD
 - Evaluate Oracle Scorecard and Strategy Management
 - Start process of using BVT in 12c for migrations
 - Set up system for tracking and analyzing BI usage
 - Develop dashboards for exposing usage tracking data
 - Use Troype tool for evaluating usage and performance
 - Address various performance recommendations in document
 - Investigate using Oracle R Enterprise



JPL Recommendations - 4

- Evaluate OBIEE DV
 - Use OBIEE Data Visualization with a pilot project
 - Evaluate using OBIEE DV for exploration
- Get more support from stakeholders
 - Engage stakeholders at beginning and throughout projects
 - Use agile development method
- Extend BI project by adding Predictive Analytics
 - Investigate using Oracle Advanced Analytics for predictive analytics
 - Investigate using Oracle's Human Capital Management



Result of Assessment

- Plans to train existing staff
- Hiring more people in different roles
- Investigating moving to Oracle BI 12c
- Increased interest in using advanced analytics and data visualization
- Focused effort to retire legacy reporting capabilities like Discoverer



Possible Actions

- Training class on Oracle BI
- Training class on Oracle Advanced Analytics
- Migration from Oracle BI 11g to Oracle BI 12c
- Three-year plan to retire legacy environments (e.g. Discoverer)
- Develop “analytic warehouse at JPL” to capitalize on Oracle DB investment
- Strategic use of Vlamiis to aid BI team at JPL



Questions?

