Business Case and Proposed Solution Document

Step 1: Proposal Overview
To be completed by Project Owner, Business Process Owner or OIT (on behalf of business process owner)

Proposal Name: Business Intelligence Implementation for University of Minnesota	
Business Unit(s): OIT, Office of Planning and Analysis, Enterprise Financials, HR, Student, other units and colleges.	
Business Process Owner: **Peter Radcliffe and Ann Hill Duin representing:** **President Robert Bruininks** **SVP E. Thomas Sullivan (Academic Affairs & Provost)** **SVP Frank Cerra (Health Sciences)** **SVP Robert Jones (System Academic Administration)**	
Proposed quarter for inclusion into the Enterprise Plan: FY 2011 Q1	**Proposed Go-Live Date:** Q4 FY 2011

Is this proposal related to a compliance issue?

- ☐ Yes
- ☒ No

Support for University Strategic Goals (P = Primary, S=Secondary)

P	S	
☐	☒	Exceptional Students
☐	☒	Exceptional Faculty and Staff
☒	☐	Exceptional Organization
☐	☒	Exceptional Innovation

Support OIT Strategy

- ☒ Invest in enterprise system scale initiatives that create savings, improve service and maximize the University's investment in systems.
- ☒ Extend the usefulness of enterprise-class systems with new technologies, workflow and other processes.
- ☐ Invest in promising emerging technologies to maintain a competitive leadership role that attracts the brightest students, faculty, staff and research funding.
- ☒ Create strategic partnerships that support the institution's goals, mission and vision and which create strategic advancement opportunities.
- ☐ Maintain, enhance and improve the technology infrastructure to alleviate outages and improve reliability.
- ☒ Simplify the complex technical environment through the pursuit of single enterprise standardized systems, transactions and processes to deliver higher quality, efficiency and effectiveness.

Linkage to Benefit Categories

- ☒ Improve Productivity/Efficiency
- ☒ Reduce Costs
- ☒ Enhance Revenues
- ☒ Improve Service/Product Quality
- ☐ Engage Employees
- ☐ Mitigate Risk

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Business Problem/Need

The University's need for an Enterprise BI solution has been well documented in multiple reports published over the course of the last 5 years at the University. In 2009 a PEL team was charged with examining organizational readiness and potential roadblocks for evidence based decision making at the University. Within this report they documented the defined need and discovered "more than a dozen institutional reports have investigated and reported on the need for validated data, tools and dashboards, metrics and measurements, and increased analytic capacity." Their report identified 5 major themes:

1. Need for Data Validation and Oversight
2. Perceptions of the Office of Institutional Research
3. Need for Tools and Dashboards
4. Need for Analytic Skills
5. Units have Unique Needs

An additional and immediate need is for improved financial reporting. These requirements have been fully documented in a report completed 3/12/2010 entitled *EFS Reporting Strategy: Financial Data Warehouse Requirements Initiative*. Within that report the requirements fall within six broad categories:

1. Transactional Detail Data
2. Flexibility of reporting Parameters & Tree Based Summarization/Roll-ups
3. Reporting Across PeopleSoft and Non-PeopleSoft Systems
4. Functional Usability
5. Simplified Data Structure and Data Access
6. Data Maintenance and Documentation Practices

Some of these EFS requirements are being fulfilled with other projects but the more long term requirements around data sourcing and reporting tools should be addressed in the implementation of the University Enterprise BI solution.

Proposal Summary

The initial BI implementation should begin addressing the needs of the Enterprise which include improved data validation and oversight, tools and dashboards, a process for developing the necessary analytic skills, and providing a common good service for units to meet their unique need. The BI implementation should target some specific student and financial reporting requirements and the loading of PeopleSoft data into the Oracle EPM. It should also fulfill some of the financial tools requirement.

To solve the growing need for an Enterprise BI solution the following steps should be taken:

- A Unified Vision of Business Intelligence
  - BI can only be successful if leadership supports data driven decision making. A unified vision can help create this culture. Senior leadership including the President, Senior Vice Presidents, Chancellors, Deans and administrative unit heads need not only to embrace data based decision making but also work to instill this culture in their organizations.
- Development of a well defined process for making evidence based decisions
  - As part of fostering a culture of evidence based decision making a well defined process for making data based decisions needs to be created and made available to everybody at the University.
- BI Toolset to support evidence based decisions
  - OIT should provide a centralized BI toolset to support evidence based decision making and make it available as a common good service.

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Proposal Summary

- Data Governance and Quality Assurance
  - A group should be created to provide data and content governance for business intelligence. This group would maintain metadata for data available in an enterprise data warehouse.
  - Data custodians will be determined for every dataset used in an enterprise data warehouse and the Data Governance group will work with data custodians to ensure integrity of data in DW.
- Development and use of University Metrics and Dashboards
  - The Office of Planning and Analysis will develop a set of University dashboards and metrics to measure our institutional standing and progress towards strategic goals.
  - These metrics will be agreed upon in advance and endorsed by senior leadership.
- Skill and Resource Development
  - After a detailed analysis of current BI analytic capabilities, develop an independent BI center of excellence, "UofM Analytics Collaborative" to share knowledge and develop more advanced analytical skills in University staff. This group will serve as a vehicle for educating staff on best practices and creating a pool of experts who can be consulted on BI projects.

The solution to some of the financial data warehouse requirements will be solved in the short term with other projects, but the BI Implementation Project will address some of the following long term requirements:

- Use of PS Financials EPM
  - Finance will determine subject areas in the PS Financials EPM to be implemented.
- Reporting Toolset
  - A reporting tool will be installed to support financial reporting needs. This will replace legacy reporting tools.

Initial content should include:

- 2-5 Subject areas within PS EPM
- Trial of distributed environment and a set of data from outside OIT loaded.
- Set of current DW tables
- Initial dashboard supporting University Metrics project

Anticipated Benefits

Benefits of BI Implementation:

- More effective and definitive decision making. Less time manipulating data and more time answering questions.
- Aggregation and summarization of data for quicker decision making.
- Cost benefits from time saved when individuals no longer need to aggregate data and from more cost effective decisions being made.
- Accountability
- Culture of evidence
- Actionable intelligence
- Efficient use of resources

Impact of Not Doing It

Direct costs of not implementing a BI solution include:

- Maintaining custom built legacy reporting systems
- Without a standard platform each unit in University spends significant amounts of resources creating its own custom reporting solutions. See BI Cost Benefit Analysis spreadsheet for more details.

Opportunity Costs:

- The primary impact of not doing this project is a decrease in the competiveness of the University to retain/recruit students and to attract research money. In higher education, making small incremental steps forward merely maintains one's current position. Not taking those steps means the University falls behind.
- There appears to be some cultural readiness within current leadership which may not exist in the future.

Organizational Impact

Organization Name	Type of Impact
Entire University	• Once implemented the expectation is that data driven decision making eventually becomes the norm. • Each college and central unit will be judged based on new University metrics • During implementation resources will be required

Additional Comments:

Step 2: Proposed Delivery

To be completed by OIT

Proposed Solution

In a joint effort between OIT and the Office of Planning and Analysis a University BI Project will be initiated. The overall BI project will be broken down into phases to make the project more manageable and to allow for an iterative process of content development.

At the end of all phases the following would be in place:

- Enterprise BI tool/Hardware purchased and installed
  - Oracle BI Tool set purchased and installed which includes the following tools: dashboards, ad hoc reporting, standardized reporting.
  - Development instances operating with support for distributed development done via a SLA.
  - Meta Data Management tool built or purchased
- BI Oversight
  - BI Steering Committee – This group will oversee BI initiatives at the University and monitor efforts to provide the data, tools and competencies necessary to support data driven decision making.
  - Data Governance Board – This group will be in charge of data management and maintain the information contained within meta data tool. The group will also work towards creating common data definitions and data quality standards.
  - University Analytics Collaborative – The function of this group would be the promotion of BI within the University and the sharing of knowledge related to BI. It will also serve as a vehicle for educating staff and the development of a pool of BI experts.
- Set of University Dashboards
  - Designed to improve the University of Minnesota institutional standing and show progress towards this goal
  - Used for strategic decision making
- Functioning Distributed Development Environment
  - Common Good Service/SLA operating that allows for both centrally and local data stores to be modeled together and used in BI toolset.
  - Common forum for developing and sharing reports/metrics exists
  - Active discussion surrounding meta data and standards
- Current DW activities will have been consolidated into a new BI toolset
  - UMReports migrated to BI Publisher for standardized reporting between PS and other institutional data stores.
  - Current DW data available in updated toolset.
  - Single Enterprise Data Warehouse
- PeopleSoft Enterprise Performance Management (EPM) in place for each PS instance.
  - Financial EPM
  - HR EPM
  - Student EPM
- Report Development for PS and DW occurs in BI Toolset
  - New reports written for PS and BI unit will be available within the new BI toolset the reporting tool used in PS and UMReports

The initial phase (BI Implementation Project) and focus of all subsequent project materials will be focused on the creation of the technical and non-technical infrastructures and some initial content. The end result of Phase I will be a solid platform for driving fact based decision making at the University. The content included in Phase I is primarily to serve as a test of both the technical and non-technical architecture. There will be some content from the PS EPM, collegiate data, current DW data and an initial dashboard with University metrics.

Proposed Solution

Phase I: BI Implementation Project

- Technical Infrastructure
  - Hardware purchased and configured
  - OBIEE Tools purchased and installed
  - Development environments and migration paths defined and created
  - Metadata tool purchased or developed
  - Distributed development of enterprise data warehouse and reports defined
- Non-technical Infrastructure and all relevant processes
  - Standards documented for development and data
    - Support processes and roles defined
    - Change control procedures
    - Security processes and guidelines
    - Issue Management and conflict resolution
    - Data and Metadata management processes
    - Data Quality Control
    - SLAs
    - Ongoing Communications
  - BI Steering Committee Roles and Responsibilities determined
  - Data Governance board created
  - University of Minnesota Analytics Collaborative functioning
  - Common Good Service/SLAs documented and available for use by additional units
  - Training programs defined for technical staff as well as end user training
- Content
  - PS EPM – implement 2-5 subject areas in PS EPM
  - Set of UMReports initially migrated to BI Publisher platform
  - Initial University Dashboard and metrics defined in conjunction with the Office of Planning and Analysis
  - Initial content from a BI initiative targeting student related data
  - Initial content from a new user of the distributed environment defined with SLA/Common Good Service.
- Schedule for later phases defined
  - Data and BI content thought out and defined

Phase II: Initial Content Migration from Legacy systems & Common Good Service Development

- SLA/Common Good Service Development
  - After the initial implementation the expectation is that significant effort will be required to sign up and train individual units and colleges.
  - Processes reviewed for adding content and data to Enterprise BI toolset
- Consolidation of reporting onto a single platform
  - Complete migration of UMReports from custom platform to updated toolset
- Modeling of current DW content for use in BI Toolset
- Addition of additional University metrics and Dashboards.

Phase III – through final version of described above

- Release cycle of content until final version realized, this schedule should be defined during initial implementation
  - Data/Metric/Report releases

Solutions Considered

Alternatives Considered	Why Chosen/Not Chosen
Do Nothing	Not Chosen because this is the status quo and the need only continues to grow. An enterprise BI solution has been on the OIT 6 year plan for 5 years.
Other BI Tools	See "Sole Source Justification for the Purchase of OBIEE"

Implementation Options

Implementation Options	Rationale
Phased Implementation of Technical portions and Business portions as defined in Proposed Solution	The vision for BI at the University will evolve over time and what's most important is putting together a framework that allows for flexibility and future changes but at the same time provides standards and path forward.

Technical Architecture Impacts

The implementation of BI will include additional application architecture that will need to be supported within OIT. This new architecture will include web servers, application servers, and database servers as well as a migration path requiring multiple instances. This architecture follows a common model and will fit into OIT's current support structure, but the application management staff will require additional training.

The BI toolset and database will also be made available as a common good service and will require proper administrative processes in place. This will be a new service.

Data governance at the scale discussed in this business case will be new to OIT and should be a step incorporated into all systems with databases. All new applications should follow naming standards and utilize common definitions.

BI should be a component of all future projects.

New Vendor

No new vendor unless meta data tool requires it.

Preliminary Time Estimate

Phase I of the overall BI project will start Q1 of FY 2011 and will run until the end of Q4 FY 2011. The time estimates and schedules for remaining phases will be determined as part of Phase I.

Customer Readiness

The University has published many reports about the need for action and has indicated a moment of cultural readiness and desire to implement a BI system. The Office of Planning and Analysis will be the primary Business Owner as a representative of executive management at the

Customer Readiness

University.

Preliminary Cost Estimate

- ☐ Under $250,000
- ☐ $250,000 - $1,000,000
- ☐ $1,000,000 - $5,000,000
- ☒ Over $5,000,000

Risks

- Technology – medium/high
  - Upgrade to BI 11g is occurring now and the University should make all attempts to go with the latest version available.
  - Relatively new technology and the University has minimal level of experience with Oracle BI toolset. The application architecture fairly standard.
- Complexity - low
  - There are some workflow changes that could occur but overall this risk is low.
- Integration - low
  - Some integration required with the creation of PS data marts but low risk.
- Organization - medium
  - Change in University Leadership within the next year is a significant risk
  - There is general agreement that more evidence based decision making is something the University should focus on, but this process is easier said than done. The actual process of making fact based decisions is much more difficult and time consuming than decisions based on intuition. Will the support for the idea translate into support for the actual process?
- Project Team – low/medium
  - As a joint effort between the business and IT this project has a much greater chance at success.
  - Some risk in overall University experience with BI and new model of distributed development.
  - Overall team has experience and positive attitude.
- Financial Investment - low
  - Expectation of a positive ROI

Additional Comments:

Step 3: Cost Benefit Analysis

To be completed by Business Process Owner or Project Owner

Cost/Benefit Analysis

See documents ‘BI Cost Benefit Analsys.xls’, ‘BI savings estimates.doc’