



Business Intelligence Study Team Summary & Recommendations

Overview:

In April, 2006, the state of North Dakota's Business Intelligence (BI) Study team selected CIBER, Inc. to conduct a high level assessment of the State's business intelligence architecture and strategy. The primary deliverables for this project were to provide the State with:

- A compilation of the State's business intelligence requirements
- Specific vendor/technology pros and cons related to the business intelligence requirements
- Recommended business intelligence and data warehousing information architecture
- High-level business intelligence and data warehousing implementation strategy
- High level implementation budget

You will find that report attached to this document. The BI Study team reviewed the report and recommendations. Below is a summary of CIBER's recommendations and the BI Study team's comments and recommendations.

Summary & Recommendations:

CIBER listed 12 main recommendations/steps for North Dakota to take.

1) Adopt an enterprise Business Intelligence software standard

The team agrees with this recommendation but thinks we should do the Proof-of-Concept (POC) before determining the primary standard or preferred solution set. Specific business solutions (e.g. WIC) and integrated Commercial-off-the-Shelf (COTS) BI software (e.g. MMIS) will be acceptable for narrowly defined business needs. Criteria should be set for evaluating the applicability of the standard as well as determine the usefulness of the MITI bridge. A conceptual diagram of this POC (Figure 1) is attached to this document. This concept may change slightly after working with the vendors to define the specifics.

2) Adopt an enterprise Data Integration (Extract, Transform, Load – ETL) software standard.

The team agrees with this recommendation. Further evaluation is needed to select the standard. A POC should be completed to compare SAS and Informatica.

3) Adopt an enterprise Data Warehouse Platform standard.

The team agrees with this recommendation. The team recommends using Oracle to leverage existing infrastructure and reduce start-up costs until a "critical mass" stage is reached (approximately 1 terabyte of data). At that point Neteeza should be evaluated.

4) Integrate the recommended BI solution into the State's Enterprise Architecture.

The team agrees with this recommendation. Formal development and approval of the recommendations and potential standards will help to communicate the conceptual integration of BI with the existing architecture. Actual implementation of the integration will happen on a project by project basis. The study team recommends that initially the data and information domain team be responsible for development of standards and other artifacts regarding BI.



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5) Eventually replace the current non state standard BI related software with state standard BI software.

The team agrees with this recommendation and believes that it should be communicated as a future state. Replacement of current reporting tools will likely happen over time once the value of the new tools is proven. While having a single reporting tool across the enterprise may not occur due to business needs, we should continue to strive for a limited number and have a preferred toolset identified.

6) Perform BI assessments of new application systems.

The team agrees with this recommendation. Business and systems analysts will need to be made aware of the capabilities offered by BI so that they can evaluate where and when to include BI in the solution set for a particular application. Having a preferred or standard solution documented through EA will help reduce the number of options proposed by vendors. As per recommendation 1, Specific business solutions and integrated COTS reporting will be acceptable for narrowly defined business needs. Criteria should be set for evaluating the applicability of the standard.

7) Establish a central Business Intelligence Competency Center.

The team agrees with this recommendation. The Competency Center would initially consist of 1 to 2 FTEs within ITD that may initially include the following responsibilities:

- Facilitate development of a methodology for deploying BI applications
- Promote best practices regarding BI and information architecture
- Act as a clearing house for information about BI projects within agencies
- Provide consulting to agencies planning BI projects
- administer the servers, software and databases
- Coordinate the activities of the BI Application Advisory Council and participate in data standards development through EA

We see this center evolving over time and possibly requiring additional technical staff in agencies depending upon demand for BI applications.

8) Consider using the Cognos BI solution for the PeopleSoft business intelligence applications.

The team believes that Cognos, as well as SAS, should be considered for PeopleSoft (PS) BI applications. The use of PeopleSoft EPM, as well as the Ascential ETL tool, does not seem promising in the long run. ND's licensing of Ascential is for PS only and since IBM recently acquired the software, the future direction of the tool is cloudy. The same can be said with the EPM product. Since Oracle acquired PS, it is likely they will use the Oracle DW product in future PS/Fusion releases.

9) Consider sharing BI costs with other organizations.

The team believes having a proven solution available will provide other entities with an option to consider joining the solution and sharing costs..

10) Establish a statewide BI Application Advisory Council.

Rather than establish a separate structure, the team believes that a governance structure exists within EA that can be modified to incorporate development of a "data architecture" and related technical standards. Specific technical standards would be a request from the Information Architecture side to the Technical Architecture side. Specific information/data standards would be developed out of the BI Advisory Council.



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The Advisory Council would bring together the BI practitioners, data stewards and research analysts within agencies to share lessons learned and best practices. Figure B at the end of this cover letter proposes a governance structure. It is important to note the Information Architecture is not limited in scope to Business Intelligence. Specific technical standards would be a request from the Information Architecture side to the Technical Architecture side. Specific information/data standards would be developed out of the BI Advisory Council.

11) Utilize outside consultants on an as needed basis.

The team agrees that consulting help will be needed to get started and also supplement existing staff on larger projects.

12) Establish a budget.

The team recommends that agencies include project funding in their IT plans and budgets for 2007-09. The team recommends that ITD ask for sufficient FTEs to support the BI infrastructure, application development and the competency center. The team recommends that ITD request general funds to staff the competency center for at least the first biennium. Should General Funds not be approved, these costs would need to be absorbed in BI project budgets.

Next Steps:

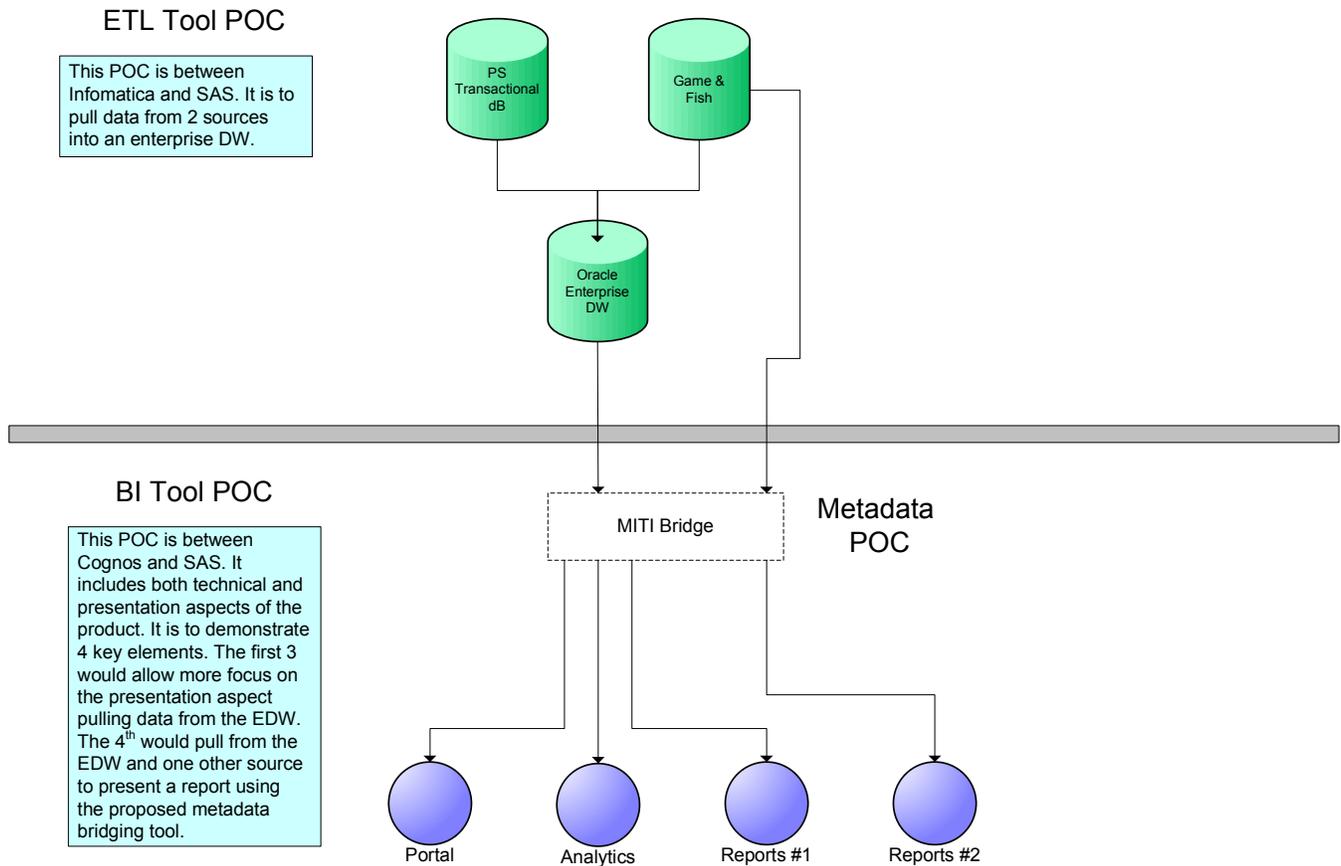
- 1) The Study team recommends that EA charter a project team to begin implementing some of these recommendations.
- 2) The project team should develop the appropriate procurement strategy and get appropriate approvals.
- 3) The project team should open dialogs with the recommended vendors to plan for the POC. The appropriate EA Technical Domain teams should be involved throughout.
- 4) Based upon the outcome of the POCs, the project team should initiate implementation. The appropriate domain teams should develop the appropriate standards as recommended above.
- 5) ITD should put the FTEs for the Competency Center in their 07-09 budget. Agencies should budget for desired BI projects planned for 07-09.



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Figure 1

BI Proof of Concept





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Figure 2

Proposed Business Intelligence Governance

