Enterprise Reporting and Institutional Research at Delaware: A Partnership with Phytorion

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Today's Presenters

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Almost 50 years of combined University experience

University of Delaware

- Public, State Assisted University
- 22,000 Undergraduate Applicants
- 17,000 Undergraduates
- 3,500 Graduates
- Almost 250 Degree Programs
- 4,000 Employees

Located in suburban Newark, Delaware midway between Philadelphia and Baltimore

Origins back to 1743, was chartered in 1833

Why Institutional Research?

- We collect data

- We analyze, distribute, and present data

- We assist in planning, decision-making, and policy formulation based on data

- We ensure the accuracy of vital University statistics

- We respond to diverse requests for data

- We assist other units with research and assessment

We Have a Vested Interest in Reporting

Synopsis of Presentation

- People Soft and Reporting
- Cognos
- Data Warehousing Decision
- Process and Sample Report
- Example
- Partnership with Phytorion
- Future Plans

Reporting in PeopleSoft HR and Financials Was a Challenge

- PSQuery – *Heavily Used on Campus, but…*
  - Too many tables to join
  - Report formatting was limited
  - Outer Joins were difficult to program
  - System was slow
- Limited support from Information Technology
- Could not report across systems

Remember the Good 'ol Days of Legacy Reporting?

- Production reports developed by IT
- Users easily produced reports
- Included data from several sources
  - Human Resources
  - Finance
  - Student Records
  - Development, etc.

How can I help you?

PeopleSoft Reporting – Now What?

- PSQuery
- N-Vision
- Crystal
- Excel, Access, SPSS

How should I run this report?

At times, all of the above…
Other times, none of the above

Solution, Part 1: Cognos

- Framework Manager
- Cognos Connection
  - Query Studio
  - Report Studio
- Training documents on-line

Hey, we can do this!

Problems: 1 year ago

- Reports ran against production – drag on performance

- Reports took too long to run due to the complexity of PS data - joins and effective dated rows

- Limited Cognos and PeopleSoft expertise on campus

AND…

Cognos prefers
Dimensional Data structures

BUT

PeopleSoft is a
Transactional Database

Again, Now What?

- How can we get away from reporting against production?

- Which of the 1000's of tables do we use?

- How can we handle reporting?
  - 20 table joins?
  - Effective dating?
  - One version of the Truth?
  - History?

- How can we run a report without twiddling our thumbs while we wait?

Our Solution: A Data Warehouse

- IR took the lead - we live on data!

- We wanted outside experts
  - Did not have expertise on campus
  - No time; No resources

- We did not want an out of the box solution
  - Wanted customization
  - Ability to grow and expand
  - Ownership

Enterprise Solution
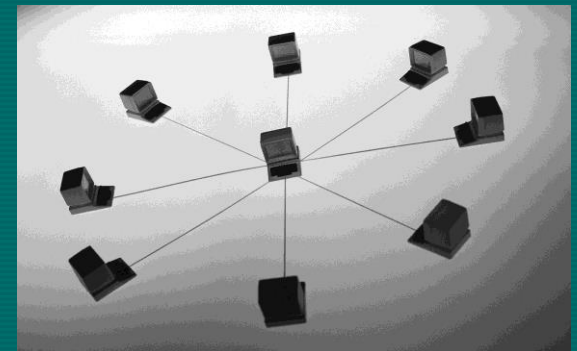
Unlike Others, Phytorion Offered…

- Expertise and experience
- Time savings
- Data consolidation
- Processing speed
- Reporting sophistication
- Knowledge of Cognos
- Knowledge transfer
- Ability to decipher our business requirements

New Challenges

- Learn new data architecture
- Learn Dimensional Modeling Schemas
- Learn new ETL build tool
- Confidence that we are reporting the **correct** 'single version of the truth' to campus
- Teaching 'old dogs new tricks'
  - Data Definitions
  - Dimensional Structures
  - Reporting Tools

How Did Phytorion Do It?
~ Trade Secret~

- Provided a Multi phased approach
  - Gathered business requirements and defined reporting needs via individual meetings with each major functional area
  - Produced design document listing business rules and tables involved for each area
  - Design delivered via web conference calls between Phytorion, Institutional Research, and the functional users

And Helped Us Build Relationships

Phytorion
- Business requirements
- Star schemas
- Developed ETL code
- Trained technical DBA's

Institutional Research
- Functional Unit Liason
- Built and tested packages
- Wrote reports in Cognos
- Verified output

Information Technology
- Software and hardware needs
- Database copies
- ETL load time
- Technical support

Success = Team Work

Process Description

1. Gather Business Rules Requirements
2. Create SDM Sourcing Documents
3. Build the UDSIS Source Tables (Visio)
4. Build the SDM Design (Visio)
5. Build Framework Manager Package
6. Create Cognos Report

Sample Report

Spring Honors Students in Arts and Sciences with GPA >= 3.9

Include e-mail, ethnicity, gender, program, plan, GPA, and translations

In PSQuery, this would require:

– *10 table joins*

– *lots of patience*

Phytorion Business Rules Requirement Gathering

Business Rules: Students (sample)

- Students are tracked by program (college), plan (major), and subplan (concentration)
- Students can be active in multiple careers at the same time. Plan sequences 10-19 store majors (the primary major is plan sequence 10), 20-29 store minors, ***30's indicate various honors (honor students, Dean's scholars, etc)***, 40's indicate certificates. For reporting, it would be helpful to have the ***30 series plans set as flags***.
- Term honors and dean's list will be tracked in the PS_HONOR_AWARD_CS record.
- Milestones will probably be used by GRAD, but it's unclear how.

Reporting Needs:
1. Students:
   a. Slice Students by:
      i.   Admit Term
      .
      .
      xxv. Honors

Create SDM Sourcing Documents

(Honors data is stored in ACAD_PLAN as a plan)

- **STUDENT_PLAN_FC** *(Fact Table)*
  - Honors plans (Honors, Dean's Scholar, and Connected) are not included as plans in this table; they are tracked as **flags in the Student Prog Attributes Dimension**.

- **Student Prog Attributes Dimension**
  Technical Notes:
  - To filter out honors plans, the following SQL should be added to the main select:
    WHERE ACAD_PLAN NOT IN ('HONORS', 'DEAN SCHLR', 'CONNECTED')
  - This fact table is sourced from a left outer join of PS_ACAD_PLAN, PS_ACAD_SUBPLAN on EMPLID, ACAD_CAREER, STDNT_CAR_NBR, EFFDT, EFFSEQ, ACAD_PLAN

Locate the UDSIS Source Tables

Program/Plan Source:
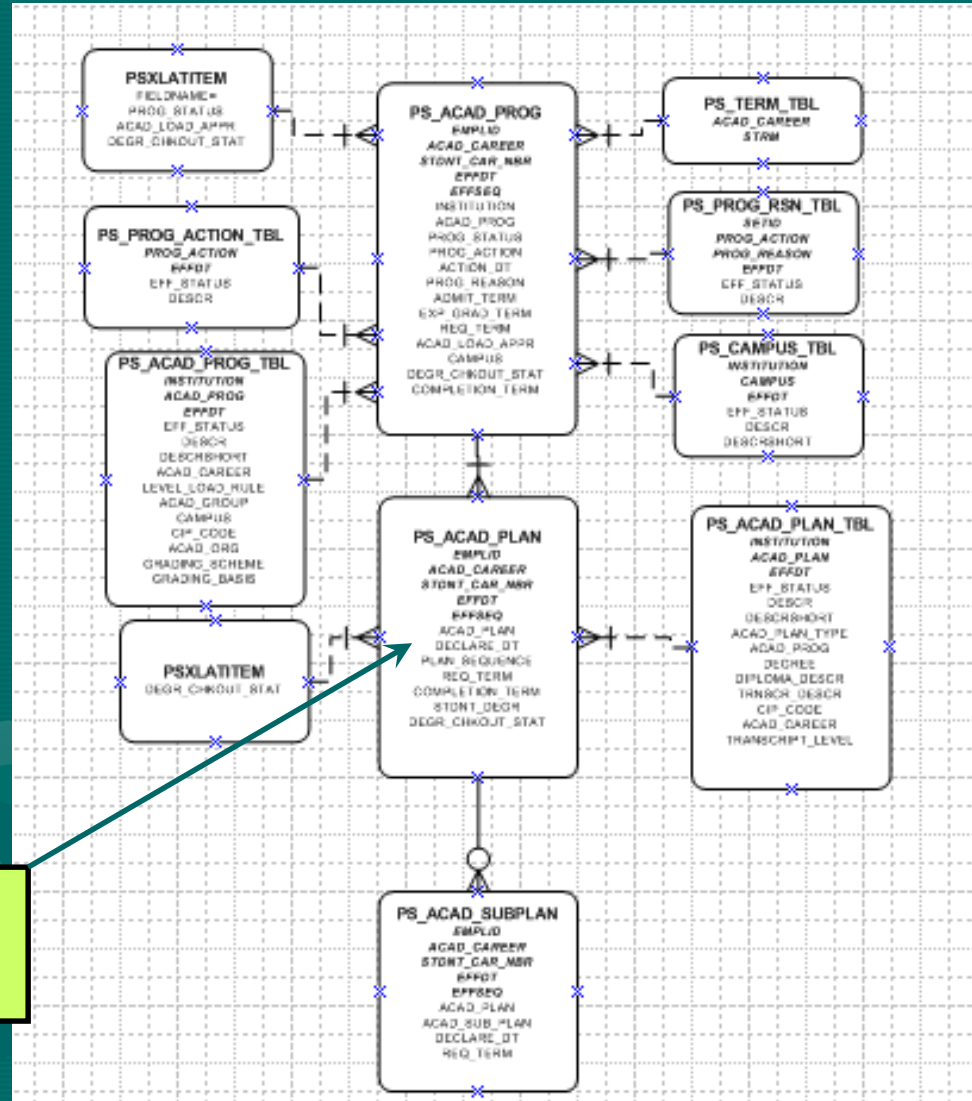
Build the SDM Design (Visio)
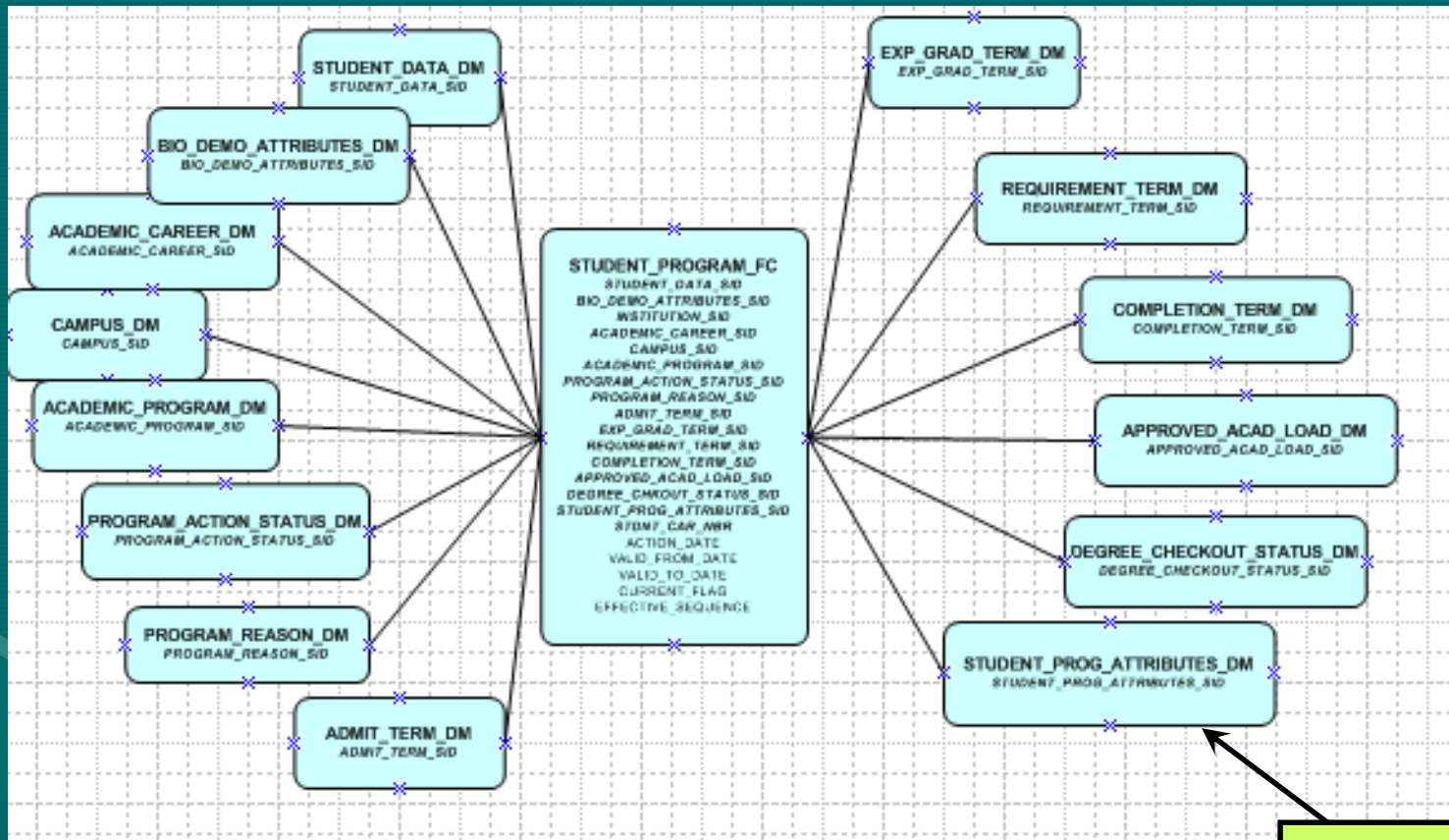
Student Program
Attributes Dimension
•Contains Honors-flag

Build Framework Manager Package

Student Program
Attributes Dimension
•Contains Honors-flag

Create Cognos Report

How many joins?
NONE

How long to run?
SECONDS

Finally… It's Easy

- With Phytorion's help, we now have…
  - Surrogate Identifiers (SID) for creating star schemas
  - Valid to and from dates for effective dating
  - Derived fields based on user specifications
  - No competition with production
  - Seamless joins

Basically, ALL of our requirements, plus stuff we never dreamt of !

But with Clear Vision

- Don't underestimate the amount of time it will take
- Don't underestimate the amount of resources you will need
- You may not make everybody happy
- Consider the "best" time to implement

A Good Partner Will…

- Not force things on us
- Be patient & willing to listen
- Offer guidance
- Be flexible
- Communicate
- Respond right away

AND

- Do it right - Won't hide behind a contract

Continuing Work

- Write and distribute reports to the University Community
- Set up security on packages and reports
- Train users
- Go Live!

Plans for the future

- Continue partnership with Phytorion
- We will begin – *right after we leave this conference* – with requirement gathering for Finance….to be followed by Human Resources
- Bring into warehouse some internally developed solutions for Housing and Dining
- Provide an institution-wide data warehouse with Cognos as the preferred reporting tool

A Work in Progress

- Next year we'll continue the story
- What were our successes?
- Where did we fall short?
- What about training?
- What about Cognos support?
- What about security?

Questions?

Contact Information

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