Higher Education Data Warehousing Forum

Long Beach Community College's Insight Process Focusing on a Right-Size Solution with Phytorion

Presentation Overview

- Insight to our challenges
- Identifying the right-size strategy
- Choosing a partner
- Implementing the project
- College and Phytorion roles
- Data warehouse demo

Long Beach City College

- Two year California Community College
- Located in Los Angeles metropolitan region
- Over 3,000 classes each term
- 1,000+ courses
- 27,000 students
- 1575 employees
- 2 campuses

What Did We Need?

- A degree of independence for business analysts
- A way around limits imposed by joins and number of tables
- The ability to access data without impacting production
- Flexibility and fleetness of product was very important

Problems before Data Warehouse

- Reports ran against production dragging down performance on transactions

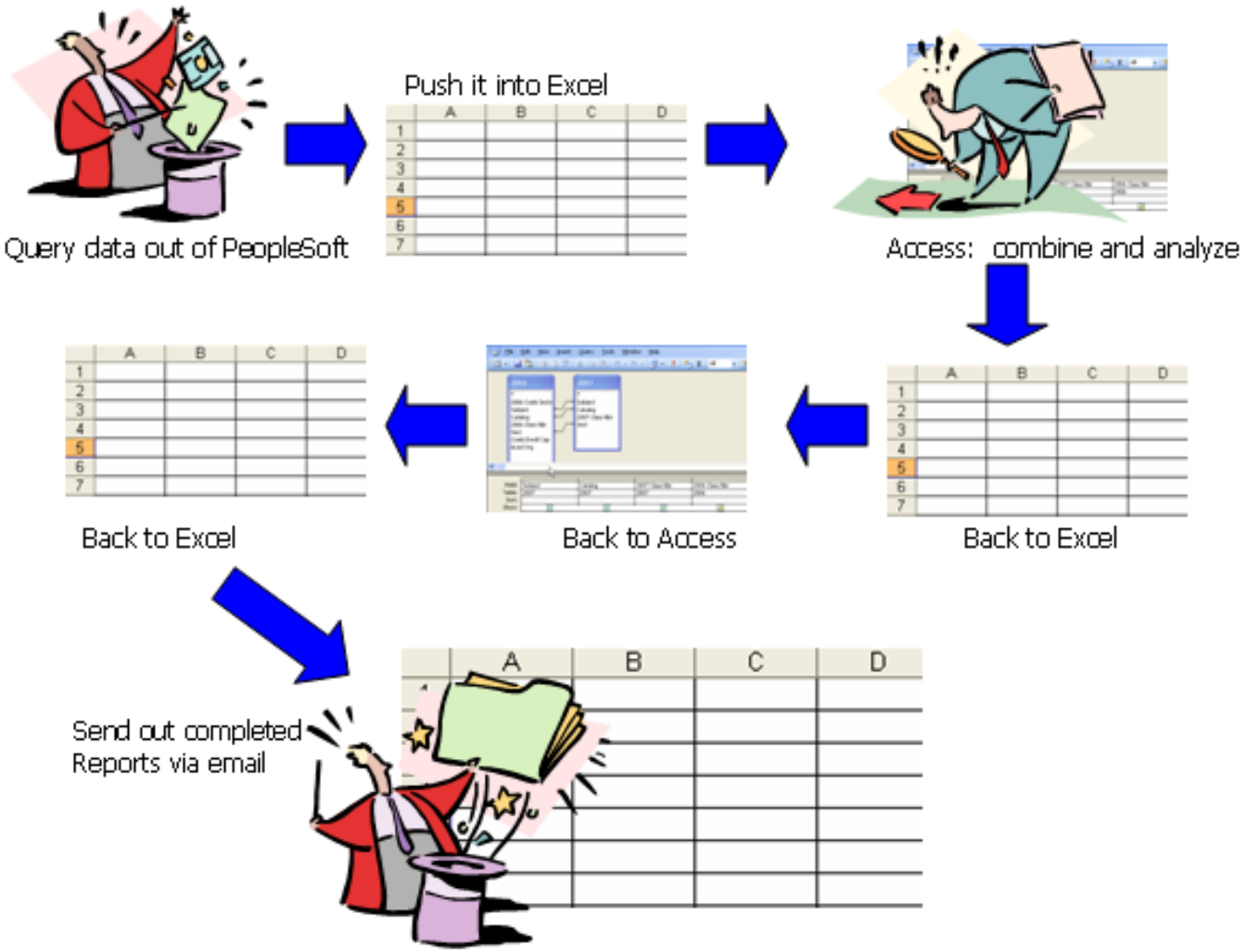
- Reports took too long to run due to complexity of PS data, joins and effective data rows

- Limited experience writing complex reports by Business Analysts

The Good Old Days

- Reports developed by IT
- Reports from disconnected databases
- Less demand for ad hoc data

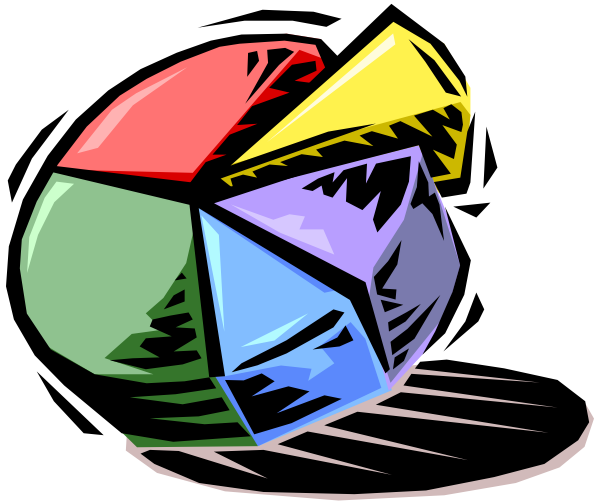
How Did We Get Data Before?



Here We Go Again

What? You want to ask another question about that slice of the pie?

Start over.



Why a Data Warehouse?

Transactional systems:

- Optimized for processing
- Thousands of tables
- Effective dated
- Tree structures
- Complex joins to report on needed data
- Live data

What about a Dimensional Model?

- Optimized for reporting
- Trees flattened to allow for quick rollup
- Effective dates transformed to valid date ranges and current flags
- Dimensions allow efficient data slicing
- Lots of derived customized fields
- Near live data

Joining Tables is Easier in a DW

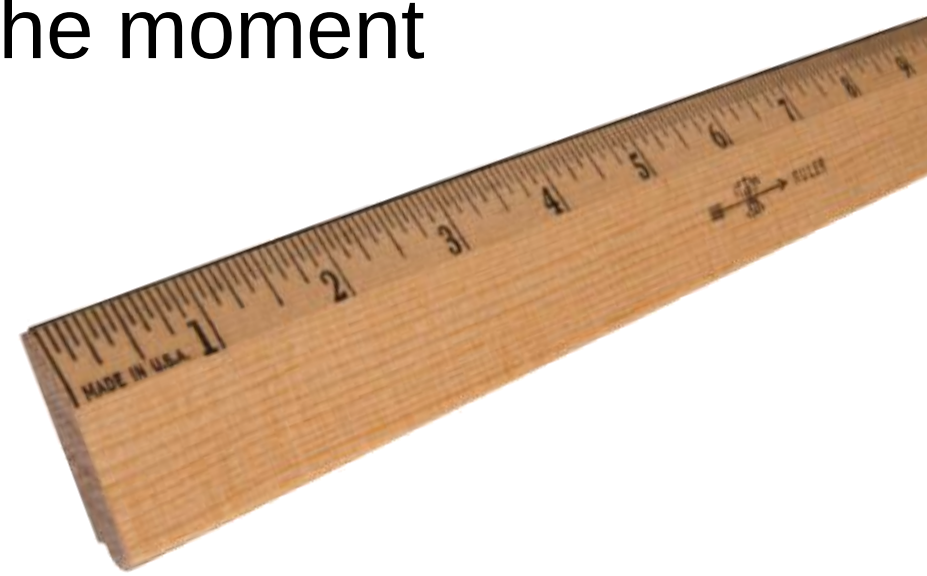
- Surrogate ID's or SID's allow for high-speed efficient joins between fact and dimension tables

- Naming conventions ensure that there's never any doubt about which fields to join

Problems Getting to Your Data?

What is the Right Size?

- A flexible, scalable implementation
- High value: low cost for great results
- Large scale solutions – does one size ever fit?
- In house applications are often designed for the moment



The Right Size Answer for Us

- Build a data warehouse
- Use outside expertise
  - No learning curve
  - A faster time to deployment
- Design 80% jumping off solution
- Expect to grow and expand
- Knowledge transfer

Why a Custom DW with Phytorion?

- In depth expertise and experience
- Time savings
- They knew how to consolidate the data, speed processing
- Reporting sophistication
- Standardized design process
- Ability to interpret our business requirements
- Knowledge transfer

Project Steps

1. What are the business questions?
2. Understand the requirements
3. What PeopleSoft tables are needed
4. Which data is fact and which is dimensional?
5. Decide level of granularity needed
5. Build the data warehouse
6. Test the data warehouse
7. Review the Visio documents and data maps
8. Start writing reports!

Our Story – What's Included

- Counseling Datebook and Assessment
- Financial Aid
- Admissions & Records
- Human Resources
- Academic Services
- Student Services
- Financials

Data Highlights

- Characteristics of Students
- Degrees, Certificates, Honors
- Information about each course
- Information about classes
- Roll ups →Division → School → Dept → Subject
- State reporting and complex derived fields
- Financial information
- Human Resources employee information
- Student GPA, load, status, test scores
- ISIR, PELL, & FA characteristics

What Else? Derived Fields!

- **Course Key**: HIST 10 (Subject + Catalog Number)
- **FTES** full time equivalent student:

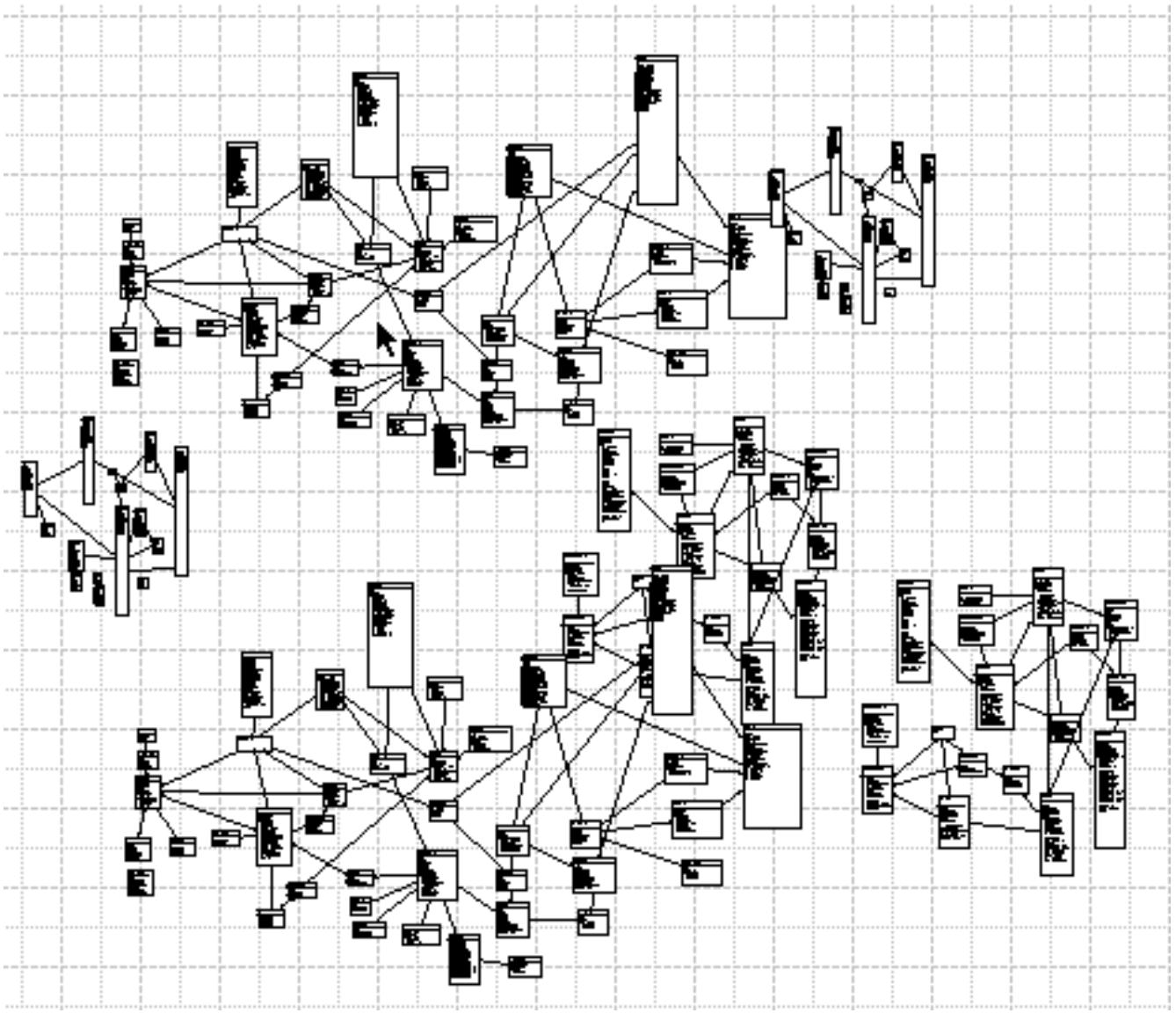
  If attendance type = "W" then count residents enrolled * class hours/meeting * 17.5 / 525
- **Weeks of Instruction**:

  actual weeks calculated according to dates
- **Days**:

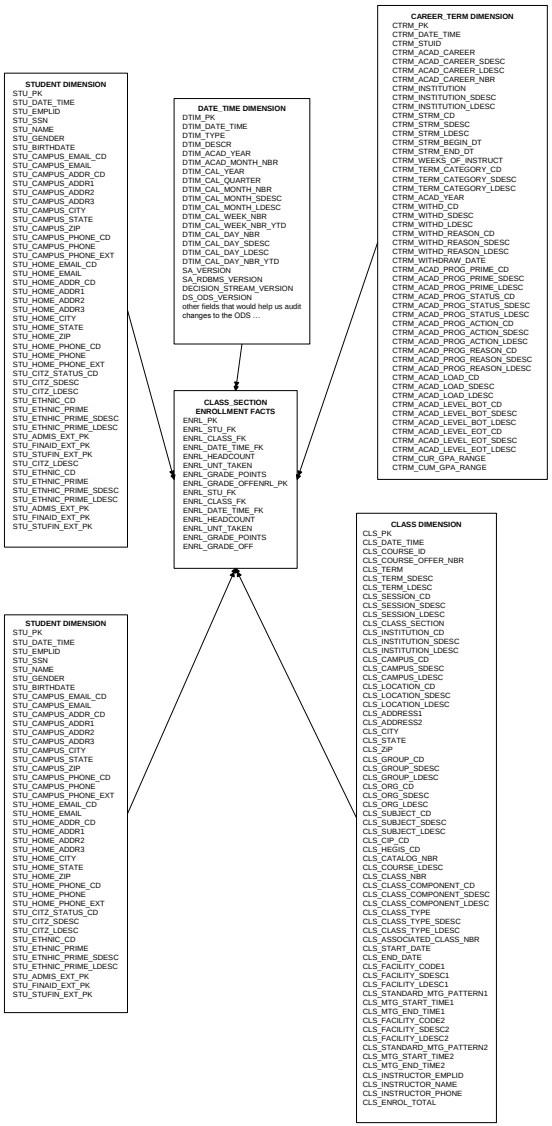
  converted from Y & N's to Monday, Tuesday, etc.
- **Meeting Patterns**: converted to MWF
- Save time and cut down on errors

Anything is possible with a customized approach

Start with this Structure



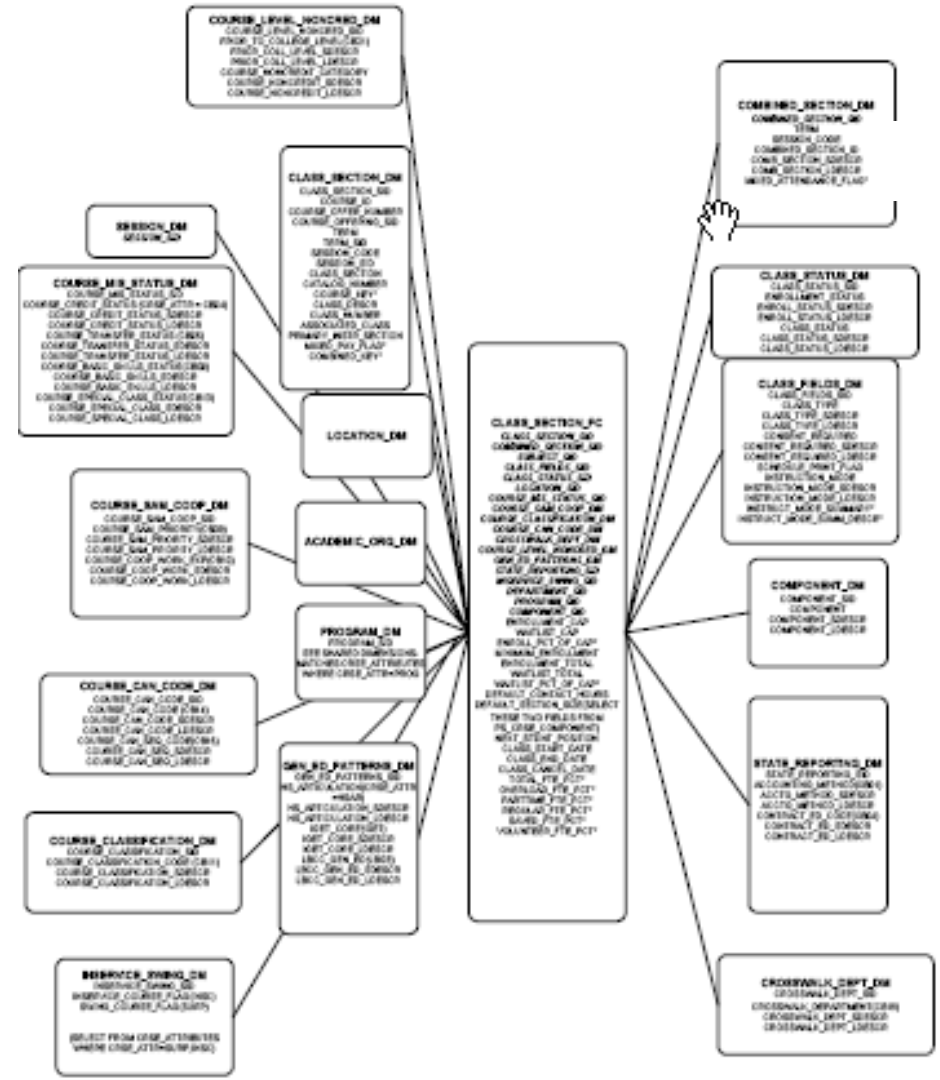
Transformed it to This!



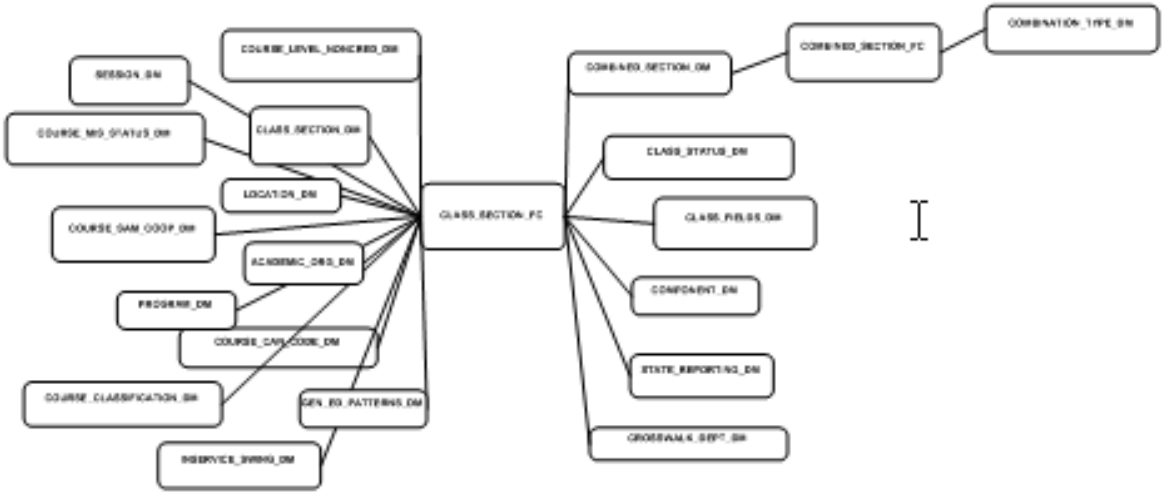
Delivered Documents – Data Maps

CLASS_SECTION_DM		BUILD_NAME=CLASS_SECTION_DM_B9					
CLASS_SECTION_DM	CLASS_SECTION_SID	SID					
CLASS_SECTION_DM	COURSE_ID	M	S-K1		PS_CLASS_TBL	CRSE_ID	
CLASS_SECTION_DM	COURSE_OFFER_NUMBER	M	S-K2		PS_CLASS_TBL	CRSE_OFFER_NBR	
CLASS_SECTION_DM		FUNC				COURSE_OFFERING	DS_CONCAT:CHAR(11),'+',CRSE_ID,CRSE_OFFER_NBR
CLASS_SECTION_DM	COURSE_OFFERING_SID	L	T		STG_COURSE_OFFERING_DM	COURSE_OFFERING	COURSE_OFFERING_DM_KEY,MAX(VALID_FROM_DATE)<=STA
CLASS_SECTION_DM	TERM	M	S-K3		PS_CLASS_TBL	STRM	
CLASS_SECTION_DM	TERM_SID	L	T		TERM_DM	TERM_SID	TERM=STRM
CLASS_SECTION_DM	SESSION_CODE	M	S-K4		PS_CLASS_TBL	SESSION_CODE	
CLASS_SECTION_DM	SESSION_SID	L	T		SESSION_DM	SESSION_SID	TERM=STRM,SESSION_CODE
CLASS_SECTION_DM	CLASS_SECTION	M	S-K5		PS_CLASS_TBL	CLASS_SECTION	
CLASS_SECTION_DM		M	S		PS_CLASS_TBL	START_DT	
CLASS_SECTION_DM		M	S		PS_CLASS_TBL	SUBJECT	
CLASS_SECTION_DM	CATALOG_NUMBER	M	S		PS_CLASS_TBL	CATALOG_NBR	
CLASS_SECTION_DM		FUNC				TRIM_CATALOG_NB	TRIM:CHAR(10),CATALOG_NBR
CLASS_SECTION_DM	COURSE_KEY	FUNC					CONCAT:CHAR(18),'',SUBJECT,TRIM_CATALOG_NBR
CLASS_SECTION_DM	CLASS_DESCR	M	S	NA	PS_CLASS_TBL	DESCR	
CLASS_SECTION_DM	CLASS_NUMBER	M	S		PS_CLASS_TBL	CLASS_NBR	
CLASS_SECTION_DM	ASSOCIATED_CLASS	M	S		PS_CLASS_TBL	ASSOCIATED_CLASS	
CLASS_SECTION_DM	PRIMARY_INSTR_SECTION	M	S		PS_CLASS_TBL	PRIM_INSTR_SECT	
CLASS_SECTION_DM		L	T		CLASS_SECTION_DM_B2	PAY_TYPE_DISTINC	CRSE_ID,STRM,SESSION_CODE,CLASS_SECTION
CLASS_SECTION_DM	MIXED_PAY_FLAG	FUNC		N			CASE:CHAR(1),PAY_TYPE_DISTINCT_COUNT>1,'Y',DEFAULT,'N'
CLASS_SECTION_DM		M	S		PS_CLASS_TBL	INSTITUTION	
CLASS_SECTION_DM		LJ	S		PS_SCTN_CMBND	SCTN_COMBINED_I	INSTITUTION,STRM,SESSION_CODE,IGNORE(SCTN_COMBINED_
CLASS_SECTION_DM		FUNC				SESSION_PLUS_SCT	CONCAT:CHAR(7),'',SESSION_CODE,SCTN_COMBINED_ID
CLASS_SECTION_DM	COMBINED_KEY	FUNC					CASE:CHAR(7),SCTN_COMBINED_ID='',' ',DEFAULT,SESSION_PL

Delivered Documents – Visio's



Delivered Documents – User Docs



Fact Table: Class Section FC

Granularity: One row per course per term per session per class section
Primary PS Tables: PS_CLASS_TBL
Facts: Enrollment and waitlist capacities and percentages full, FTE percentages for various instructor types

Dimensions:
Class Section Dim: Contains descriptive class information such as course ID, course description, class number, course title, equivalent courses, subject and catalog number
Session Dim: Contains information about the academic session (description, start/end dates)
Course SAM Coop Dim: Contains codes and descriptions for attributes SAM Priority (CB09) and Coop Work Experience (CB10)
Course Classification Dim: Contains code and descriptions for course classification (CB11)
Course Can Code Dim: Contains codes and descriptions for can code (CB15) and can sequence code (CB15)
State Reporting Dim: Contains codes and descriptions for accounting method (XB01) and contracted code (XB04)

Delivered Document – ETL Training

DecisionStream 7.1 Training Guide
Chapter 2: Builds

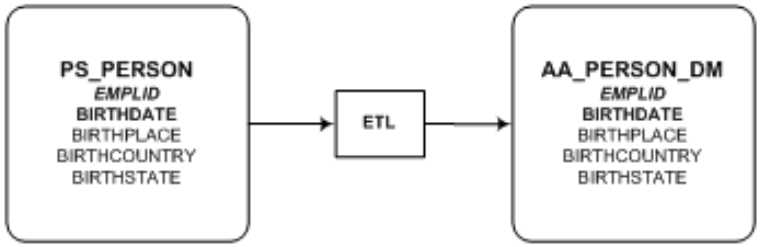
PHYTORION

Chapter 2: Builds

This walk through will take you through the steps to create a build. This build will move data from the PS_PERSON in the source database to a warehouse table AA_PERSON_DM. The diagram below details the columns you will use from PS_PERSON to populate AA_PERSON_DM.

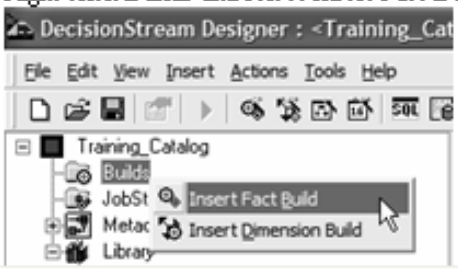
NOTE: This Training Guide is based on PeopleSoft version 8.9. If you are on an earlier version, you will have to make the following changes in the training exercises.

- Substitute PS_PERSONAL_DATA for PS_PERSON.



Creating A New Build

1. Right click Builds and select Insert Fact Build.



Right Size

- Solid base: meeting 80% of needs
- Off and running
  - Usable by business analysts
  - Rolled out to front line workers
- An Insight into LBCC
  - Exec level decisions supported
  - Important new initiatives supported
  - Faster analytics
- Versatile platform for the future

What We Got

- Instance success – Up and running in 4 months!
- Our definitions, our data – every college is truly different
- Concrete results that everyone can see and benefit from
- Knowledge transfer
- Fewer paths to take and fewer joins to make

What did we Learn?

- New data architecture
- Dimensional Modeling Schemas
- ETL build tool
- And that old dogs <u>can</u> learn new tricks
  - Data definitions
  - Dimensional structures
  - Reporting tools

A True Partnership

- Customized, not turn key
- Phytorion guided us to what's most useful
- Designed <u>with</u> us
  - Data elements we wanted
  - Unique derived fields created
  - Our priorities
  - Strategize to solve **our** problems with best practice expertise
- We had naive users and they were patient

What do True Partners Do?

- Don’t impose a solution
- Have a true collaborative approach
- Provide thorough documentation and exceptional support

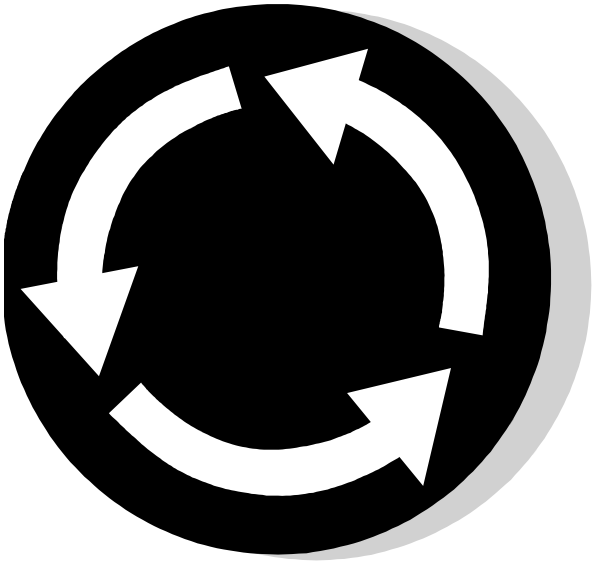
- Best of all…….

No black box

Because researchers like to know where the data is coming from

Project Roles

- Project Manager
  - Project liaison
  - High level needs
  - Set timelines and resources
- Research
  - Functional liaison
  - Build reports and test data
  - Verified output
- Phytorion
  - Business requirements
  - Star schemas
  - Developed ETL code
  - Training
- Information Technology
  - Hardware needs
  - Technical support



College Roles

- Executive sponsorship was critical
- Liaison from Executive Committee
- Project Team
  - Designers of project
  - Business Analysts
  - IT staff

Live Remote from California

What We've Done in the Last Year

- Identified data and built a data warehouse
- Deployed reports
- Deployed a complex enrollment management application
- Automated updates to projections
- Set up security based on role and area
- Building more complex reports and developing a Dashboard

Questions and Answers

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