Human Resource Case Study

**Case Facts**

Similar in necessity to that of both the finance and accounting data, Human resource data is important for organizations to be able to maximize their impact. Companies want to better understand their employees’ demographics, skills, performance. HR is a company wide data

**Data Warehouse Concepts**

* Employee Profile Tracking –
  + - granularity of one row per employee profile and a factless fact table
    - Use of type 2 SCD technique for tracking profile changes
  + Precise Effective and Expiration Timespans
    - These describe the time frame during which the employee profile is accurate
    - Date and time stamps should be used to track the changes if data is loaded on a more frequent basis
  + Dimension Change Reason Tracking
    - Dimension rows can have a change reason tracking
      * ZIP, address, etc.
    - Can be queried to obtain data about various changes
  + Profile Changes as Type 2 Attributes or Fact Events
    - You don’t want to track all the employee event changes
      * Could result in millions of rows
* Headcount Periodic Tracking
  + The count of the employee’s statuses
    - Number of new hires, salary paid, vacation days taken, etc.
    - Headcounts are primarily taken monthly
* Bus Matrix for HR Processes
* Packaged Analytic Solutions and Data Models
  + Many vendors provide a prebuilt solution that includes most of an organizations HR needs
  + These prebuilt solutions are less risky to implement because every company hires people, pays them, etc. and they require less ETL and modeling development effort
  + Abstractions can be introduced to better customize the products for the company
* Recursive Employee Hierarchies
  + - One manager could manage many employees making this a recursive field
  + Change Tracking on Embedded Manager Key
    - Designating fields as type 2 would create new rolls every time something like and address change occurs, but this allows for history
    - If you specify an employee dimension to be type 1 then there would be no history, and it would always associate an employee with the current manager
  + Drilling Up and Down Management Hierarchies
    - Simple approach for fixed-depth tables handling many-to-one employee-to-manager relationships is appropriate
    - More complex approaches are required when you want to drill up or down the management chain
    - Utilizing bridge tables like in the customer hierarchy is a good answer to variable depth tables
      * They are difficult to build and difficult to navigate for the BI user
    - Bridge table has one row for each manager and each employee who is directly or indirectly in their chain and includes a row for the manager for themselves
    - There is no right or wrong way to go about the management hierarchy in a table, just what works for the organizations
* Multivalued Skill Keyword Attributes
  + - You can supplement the employee table with a technical skillset table
  + Skill Keyword Bridge
    - Each employee has a variable number of skills
    - The bridge table would include a foreign key for each of the employee’s skills and an employee skill foreign key that connects back to the employee
  + Skill Keyword Text String
    - You can simplify the design by removing the need to many-to-many bridge of skills
    - Utilizing the keyword text string with a delimiter in between each of the skills and would be concatenated together
    - Utilizing the Ucase command in SQL will reduce the confusion of whether the skills were stored as upper case or lower case by forcing them to be uppercase.
    - Querying with the wild card symbol, %, will retrieve any employee with the certain skill
* Survey Questionnaire Data
  + - Stored in a single table where the responding employee and reviewed employee are 2 dimensions on the table
  + Text Comments
    - Are typically stored in a free form of text table with its own foreign key associated to another table
    - Very bulky and bogs down the query, but are typically filtered down far enough that it is not such a big deal

**Summary**

The design of an HR system is like that of both the finance and accounting data design. Companies want to capture all the employee information that they can including demographics, skills, performance, and reviews to name a few. The outline describes above is a good start, but needs to be customized specifically for the needs of an organization.