Workforce Planning and Analytics

J. More, C. Presta

May 31, 2005

CAERP Conference
Palm Springs, CA, United States
June 8, 2005 through June 10, 2005
This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the University of California nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the University of California, and shall not be used for advertising or product endorsement purposes.

This work was performed under the auspices of the U.S. Department of Energy by University of California, Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.
Joan More, Tina Presta
Lawrence Livermore National Laboratory
Workforce Planning and Analysis Group
June 9, 2005
Workforce Planning and Analytics

Workforce planning -- the process of getting the right people, with the right competencies, in the right jobs at the right time.

Analytics -- using numbers and contexts to explain the present and predict the future.

“The business of computing is insight not numbers”
Richard Hamming, mathematician, pioneer computer scientist
Human capital - the subject of workforce analysis

What is human capital?
- The knowledge, skills and abilities of talented and productive people

Why is human capital important?
- The strategic use of human capital is the key to competitive advantage in a knowledge economy
Information design – a method for workforce analysis

What is information design?
- The gathering, analyzing and presenting of pertinent information to explore a topic, or to focus decision-making or action

Why is good information design important?
- Provides insight and provides an organization with a strategic basis for making human capital decisions
- It is a way for the HR professional to become a strategic player and provide critical input on business issues
Human capital – what does management need to know?

- Current status of the workforce
- Alignment of the workforce to current projects
- Gap analysis of the results
- Recommendations for action
- Analysis of strategic positioning
Workforce Analysis – gathering information inside the organization

Official internal information source data on employees

Institutional databases, archived data and information

- do you have access?
- have you archived past data?
Workforce Analysis – if possible, capture and archive ‘raw’ data, not standard summary reports

Snapshots in time – usually available in institutional databases
- Unique identifier (name, employee number)
- Organization information (multiple levels)
- Job information (multiple items: title, appt type, mgmt levels, etc.)
- Education information (degree, year, school, discipline)
- Standard demographic information (gender, ethnicity, age, etc.)
- Company specific demographic information (service, ratings, etc.)
- Dates (hire, termination, job dates, organization dates, etc)

Activity reports – usually available in institutional databases
- Records of internal movement (job changes, org changes, etc.)
- Records of hires and terminations

Other reports – may be available, may have to hunt for or create
- Applicant pool information / posting and vacancy information
- Skills and competencies
- Participation in training, special programs

Educate yourself about what the data means, how it is collected, possible errors and inconsistencies.
Create standard summary fields that are meaningful to your organization. For example: job families, age cohorts, etc.
Workforce analysis – gathering information outside the organization

Global, national, local trends that affect your business

- Industry trends
- Benchmarking of like organizations
- Online demographics
  - Census data (http://www.census.gov/)
  - National Science Foundation (http://www.nsf.gov/)
  - State of California (http://www.dof.ca.gov/)
  - Others (county information, Dept of Labor, Professional Organizations, etc.)
Workforce analysis – your managers have probably heard these reports, but what does it mean to your organization

The aging workforce
One-fifth of this country's large, established companies will be losing 40 percent or more of their top-level talent in the next five years. At the same time, the number of young adults (ages twenty-five through thirty-four) is due to sink abruptly between now and approximately 2006. (source: Hudson Institute)

The global workplace
45% of the Fortune 500 were doing off-shore software development in 2003. US companies using off-shore software development will increase by 50% in the next two years. (source: Forrester Data Group)

The changing expectations of workers
88% of “Emergent” employees believe that loyalty is not related to the length of employment but rather to the level of contribution an employee makes to an organization. 94% of “Traditional” workers believe that loyalty is about the willingness to stay with an employer for the long haul (source: Spherion, Inc.)
Workforce analysis – even when your managers are aware of the context, they probably won’t remember it.
**Workforce analysis – putting it all together**

**Gap analysis of the results**

<table>
<thead>
<tr>
<th>Description</th>
<th>Trending</th>
<th>Metric Analysis</th>
<th>Predictive Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>What …</td>
<td>Look across time or events</td>
<td>Is the result meeting a particular goal or expectation? How will we know it?</td>
<td>Given several scenarios, can we tell where we’re heading in the future?</td>
</tr>
<tr>
<td>How many …</td>
<td>Longitudinal study of career movement / life changes</td>
<td>Can it assist in strategic planning?</td>
<td></td>
</tr>
<tr>
<td>Distributions and comparisons…</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number / rate of terminations and hires by job category for fiscal year 2005</td>
<td>How does this number / rate compare to the last five years? (remember to plug in any relevant context)</td>
<td>Is the organization able to replace key losses? Is the hire/term activity an opportunity to change skill mix?</td>
<td>If one scenario states that the organization will have 25% more computer scientists in five years … what indicators will you be tracking?</td>
</tr>
</tbody>
</table>
Workforce analysis – putting it all together

Gap analysis of the results

The tools you need may be simple – you can do a lot with the Microsoft Office suite.

- Do you currently get information electronically or hardcopy?
  Downloads from institutional databases can easily be imported into EXCEL or ACCESS

- Are you proficient with any analytic tools -- especially Excel?
  You can use EXCEL to quickly summarize and graph your information.

- Will you need to combine data from several sources?
  Archiving your data in ACCESS gives you the ability to easily retrieve ‘slices’ of data or to join different data sources
Excel's pivot table – quickly explore and present information
Workforce analysis – presenting information to management

Talking in the language of numbers

- Issues translated into language and pictures that help managers understand

- Present the information as an analyst – not as an advocate.

- Give the manager time to explore the information themselves; they will gain more insight, and believe the numbers more, if they can draw their own conclusions.

- However, do give the viewer all the ‘clues’ to correctly interpret the analysis (definitions, relevant context, etc.)
Workforce analysis – presenting information to management

The evolution of a presentation

1. Organization  | Age Cohorts | Total
---|---|---
Org XXX | 20-24 | 44
       | 25-29 | 234
       | 30-34 | 377
       | 35-39 | 650
       | 40-44 | 1089
       | 45-49 | 1494
       | 50-54 | 1328
       | 55-59 | 1076
       | 60-64 | 396
       | 65+   | 85
   Total   |       | 6780

2. Age Cohorts  |   | Total
---|---|---
0-4  |   | 44
05-9 | 181 | 49
10-14| 230 | 141
15-19| 222 | 145
20-24| 190 | 220
25-29| 110 | 180
30-34| 84  | 145
35-39| 179 | 156
40-44| 101 | 114
45-49| 64  | 91
50-54| 30  | 40
55-59| 22  | 12
60-64| 2   | 11
65+  | 2   | 11
   Total| 1228| 1109

3. Age Cohorts  |   | Total
---|---|---
0-4  |   | 44
05-9 | 181 | 49
10-14| 230 | 141
15-19| 222 | 145
20-24| 190 | 220
25-29| 110 | 180
30-34| 84  | 145
35-39| 179 | 156
40-44| 101 | 114
45-49| 64  | 91
50-54| 30  | 40
55-59| 22  | 12
60-64| 2   | 11
65+  | 2   | 11
   Total| 1228| 1109

4. Service Cohort %
   | 10.1%| 16.4%| 12.3%| 16.2%| 17.9%| 12.1%| 4.3%| 1.0%

5. Service Cohort %
   | 18.1%| 16.4%| 13.3%| 16.2%| 17.9%| 13.1%| 4.3%| 1.8%

6. Service Cohort %
   | 22.0%| 9.2%| early career

7. Service Cohort %
   | 35.6%| 39.6%| eligible for retirement
   | 12.4%| more likely to retire
   | 26.8%| 4.0%| most likely to retire
Workforce planning – positioning yourself within the organization

Analysis of strategic positioning

Integration of human capital assessments and strategies with the organization’s core business practices.

Analysis and metrics:
- Comprehensive workforce profiles
- Impact of an internal or external ‘change’ on the population
- Measures of flexibility in the workforce
- Information from employee surveys and focus groups