

Defense Intelligence Human Capital Summit

**Use of Simulation Modeling to
Understand the Consequences of
Workforce Decisions**

3 March 2016

Agenda

- Uses of Modeling and Simulation in Personnel Management
- What is a Monte Carlo Model?
- Model Structure
- Results of Three Scenarios

Uses of Modeling and Simulation in Personnel Management

- Project future personnel inventory under a defined scenario
- Test proposals for restructuring the workforce
- Estimate impact of changes in loss, gain, or promotion rates
- Evaluate alternatives for workforce drawdown

What Is a Monte Carlo Model?

- Each member of the modeled force is considered an entity with a set of attributes
 - Grade, step, occupation, age, time in service
- Each entity is subjected to a series of events
 - Losses, gains, promotions, step changes
- What happens in each event is the result of random draws from distributions
- Since all outcomes are the result of a series of random draws, the model is typically run several times and the outcomes averaged

Defense Civilian Payroll Management Model

- A Monte Carlo model

Specify starting inventory

- By occupation and grade

- Losses

- Historical rate for IC component
- User can adjust historical rate
- Random across occupations and grades

+ Gains

- Look like past gains
- Within occupations where losses occurred; random across grades

Promotions, Step Increases

- To fill vacancies for Grade 13+
- To target grade for Grade 12 and below
- Adjust WGI dates

Cost workforce

- Current pay table
- Locality pay based on current rates
- Specialty pays a % of base

Model Structure – Order of Events

- Identify the starting inventory and, if desired, specify a target ending inventory
 - By Occupation and Grade
 - The model generates a separate target inventory for each pay period
- Identify losses
- Select gains
- Identify promotions and step increases
 - Adjust WGI dates
- Cost the force

Model Structure – Personnel Inventory

- Mapped all occupational series to eight occupational categories
- Occupations are modeled as either single grade interval or two grade interval
- GG Grades 1 through 15, Steps 1 through 10 are modeled
- Personnel inventory is expressed as a combination of grade and occupation

Model Structure – Personnel Inventory (Continued)

- All occupational series were mapped to eight occupations for this model
 - Clerical and Technical series are single grade interval occupations
 - Professional and Administrative are two grade interval occupations
- Because Security and Support have both single and two grade interval series, there are two occupations for each
- The remaining four occupations have only two grade interval job series

Model Structure - Target Inventory Event

- Beginning inventory represents the population from April of 2015
- User can create a target ending inventory using the beginning inventory as a starting point
- Changes to the target inventory are spread across the number of pay periods simulated to create a target inventory for each pay period

Model Structure - Identify Losses

Event

- Loss rates are a function of the employees' age and years of service
 - The “Rule of 85” (retirement eligibility is generally based on age plus years of service = 85)
- Loss rates are applied to identify losses by grade and occupation
 - Results in a temporary inventory
- The temporary inventory is compared to the target inventory for the pay period
- Deficits, if any, are aggregated by occupation

Model Structure - Gains Event

- The deficits, by occupation, are filled by random draws from the “pool” of gains
 - Pool is created by saving the profile of all gains in the last five years
 - Assures that the gains represent typical hires
 - The grade is the result of that random draw
- The new gains are added to the inventory

Model Structure - Promotion Event

- All promotions to GG-13 through 15 (high grades) are based on vacancies
 - A high grade gain will replace a vacancy and prevent a promotion
- Promotions to other grades are based on historical rates by grade and step
 - Four sets of rates based on
 - Single grade and two grade interval occupations
 - Whether the employee has a target grade higher than the current grade
- Update Step and WGI date

Model Structure - Cost Event

- Base pay is determined from the current pay table, by grade and step
 - Same pay table is used throughout the run to simplify comparison
- Locality pay is determined based on base pay and current locality rates
- Specialty pays are calculated as a percentage of base pay
 - Based on historical data

Model Parameters

- The model's parameters allow changes to:
 - Time period simulated
 - Loss Rates
 - Promotion Rates
 - Gains
 - End Strength
 - Number of times the simulation is repeated
 - Increased number of repeats increases confidence
- The user can create other starting inventories, but must do so outside the model

Demonstration Using AF IC Data



- Model is built in SAS 9.4
 - While it requires SAS to run, it does not require that the user know SAS
- Scenario 1 (Baseline): Ran 130 pay periods using 5 year historical loss rate of 10%
- Scenario 2: Ran 130 pay periods with losses, but no gains or promotions
- Scenario 3: Ran 130 pay periods with 25% reduction in GG-13 through GG-15 population, and overall reduction of 20%
- Model runs -- All results were averaged over 50 iterations

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength

- Losses will be approximately equal to gains
- Because the model promotes to fill vacancies in the higher grades, the distribution by grade should be relatively constant for GG-13 through GG-15
- The primary reason an analyst would use this scenario is to create a baseline for comparison

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Total Losses by Occupation and Grade over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 0 | 71 | 228 | 201 | 110 | 27 | 654 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 30 | 56 | 30 | 18 | 5 | 145 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 39 | 118 | 102 | 30 | 11 | 304 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 10 | 0 | 30 | 93 | 158 | 121 | 29 | 442 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 16 | 22 | 22 | 6 | 72 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 | 0 | 90 | 246 | 221 | 143 | 63 | 790 |
| Support (C and T) | 0 | 9 | 3 | 0 | 2 | 37 | 53 | 21 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 140 |
| All Occupations | 0 | 9 | 3 | 0 | 2 | 37 | 56 | 21 | 76 | 1 | 266 | 757 | 734 | 444 | 141 | 2,547 |

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

Total Gains by Occupation and Grade over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 0 | 36 | 0 | 122 | 185 | 168 | 49 | 9 | 632 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 30 | 0 | 50 | 38 | 20 | 0 | 5 | 145 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 26 | 0 | 70 | 126 | 63 | 12 | 0 | 303 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 103 | 0 | 166 | 53 | 72 | 25 | 16 | 447 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 19 | 14 | 29 | 9 | 1 | 85 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 79 | 0 | 146 | 215 | 204 | 115 | 29 | 801 |
| Support (C and T) | 0 | 24 | 1 | 0 | 3 | 34 | 48 | 6 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 126 |
| All Occupations | 0 | 24 | 1 | 0 | 3 | 34 | 144 | 6 | 296 | 1 | 573 | 631 | 556 | 210 | 60 | 2,539 |

Total Promotions by Occupation (To Grade) over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 125 | 214 | 106 | 78 | 16 | 607 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16 | 38 | 34 | 18 | 5 | 112 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 35 | 99 | 62 | 31 | 5 | 238 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 112 | 240 | 185 | 116 | 14 | 679 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 19 | 19 | 16 | 7 | 71 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 95 | 165 | 81 | 65 | 35 | 453 |
| Support (C and T) | 0 | 0 | 8 | 0 | 0 | 13 | 28 | 28 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 85 |
| All Occupations | 0 | 0 | 8 | 0 | 0 | 13 | 28 | 28 | 107 | 0 | 393 | 775 | 487 | 324 | 82 | 2,245 |

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

Final Population by Occupation and Grade, after all Losses, Gains, and Promotions

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 180 | 634 | 594 | 307 | 63 | 1,798 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 31 | 0 | 77 | 114 | 95 | 30 | 17 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 24 | 0 | 70 | 373 | 258 | 79 | 9 | 814 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 70 | 257 | 362 | 261 | 66 | 1,028 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 20 | 43 | 87 | 45 | 14 | 221 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 63 | 0 | 226 | 628 | 553 | 359 | 154 | 1,989 |
| Support (C and T) | 0 | 28 | 9 | 2 | 2 | 66 | 98 | 23 | 25 | 2 | 0 | 0 | 0 | 0 | 0 | 255 |
| All Occupations | 0 | 28 | 9 | 2 | 2 | 66 | 112 | 23 | 182 | 2 | 643 | 2,049 | 1,949 | 1,081 | 323 | 6,471 |

Total Cost over 130 Pay Periods, by Occupation and Cost Category (Averaged over 50 Repetitions)

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|-----------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|------------|-----------------|
| Intel | \$830,910,935 | \$2,253,173 | \$8,916,405 | \$988,728 | \$1,100,936 | \$1,852,798 | \$1,486,626 | \$7,675,557 | \$203,444 | \$855,388,610 |
| Security (P and A) | \$157,955,753 | \$409,297 | \$594,165 | \$18,216 | \$4,003 | \$35,419 | \$3,640 | \$1,532,881 | \$0 | \$160,553,365 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$357,722,616 | \$507,867 | \$1,406,232 | \$94,968 | \$171,917 | \$333,810 | \$302,521 | \$3,212,041 | \$0 | \$363,751,962 |
| Engineering | \$508,558,568 | \$0 | \$1,792,760 | \$71,264 | \$35,471 | \$273,902 | \$53,202 | \$5,225,232 | \$0 | \$516,010,410 |
| Science | \$100,486,635 | \$0 | \$62,937 | \$104,087 | \$101,931 | \$0 | \$43,834 | \$963,003 | \$0 | \$101,762,439 |
| Support (P and A) | \$950,226,570 | \$353,733 | \$5,654,048 | \$183,973 | \$103,614 | \$815,278 | \$191,040 | \$10,185,099 | \$0 | \$967,713,359 |
| Support (C and T) | \$59,330,078 | \$120,587 | \$330,221 | \$2,210 | \$0 | \$0 | \$3,013 | \$456,070 | \$0 | \$60,242,173 |
| All Occupations | \$2,965,191,168 | \$3,644,657 | \$18,756,766 | \$1,463,444 | \$1,517,880 | \$3,311,201 | \$2,083,881 | \$29,249,892 | \$203,444 | \$3,025,422,308 |

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Cost by Occupation and Cost Category for Pay Period 1

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$6,462,591 | \$17,620 | \$69,656 | \$7,884 | \$8,785 | \$14,425 | \$11,833 | \$59,567 | \$1,554 | \$6,653,916 |
| Security (P and A) | \$1,243,523 | \$3,224 | \$4,674 | \$143 | \$32 | \$277 | \$28 | \$12,078 | \$0 | \$1,263,980 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$2,786,766 | \$3,837 | \$10,869 | \$740 | \$1,352 | \$2,588 | \$2,492 | \$24,941 | \$0 | \$2,833,585 |
| Engineering | \$4,034,896 | \$0 | \$14,229 | \$567 | \$280 | \$2,198 | \$426 | \$41,332 | \$0 | \$4,093,928 |
| Science | \$789,665 | \$0 | \$488 | \$813 | \$794 | \$0 | \$342 | \$7,577 | \$0 | \$799,677 |
| Support (P and A) | \$7,449,836 | \$2,765 | \$44,294 | \$1,447 | \$810 | \$6,341 | \$1,518 | \$79,812 | \$0 | \$7,586,822 |
| Support (C and T) | \$466,192 | \$996 | \$2,472 | \$17 | \$0 | \$0 | \$20 | \$3,480 | \$0 | \$473,176 |
| All Occupations | \$23,233,470 | \$28,441 | \$146,681 | \$11,611 | \$12,052 | \$25,829 | \$16,659 | \$228,786 | \$1,554 | \$23,705,084 |

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

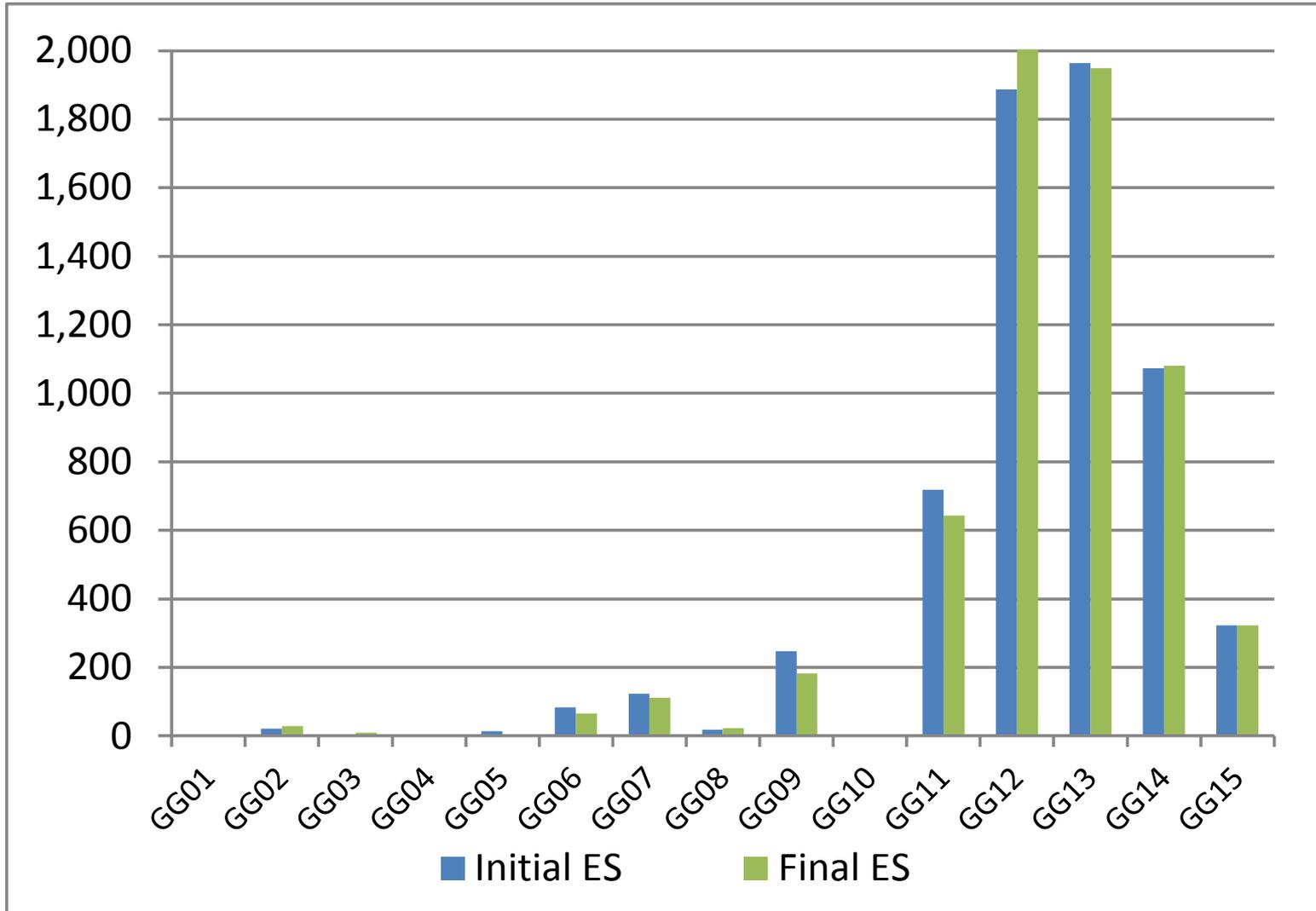
Final Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 180 | 634 | 594 | 307 | 63 | 1,798 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 31 | 0 | 77 | 114 | 95 | 30 | 17 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 24 | 0 | 70 | 373 | 258 | 79 | 9 | 814 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 70 | 257 | 362 | 261 | 66 | 1,028 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 20 | 43 | 87 | 45 | 14 | 221 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 63 | 0 | 226 | 628 | 553 | 359 | 154 | 1,989 |
| Support (C and T) | 0 | 28 | 9 | 2 | 2 | 66 | 98 | 23 | 25 | 2 | 0 | 0 | 0 | 0 | 0 | 255 |
| All Occupations | 0 | 28 | 9 | 2 | 2 | 66 | 112 | 23 | 182 | 2 | 643 | 2,049 | 1,949 | 1,081 | 323 | 6,471 |

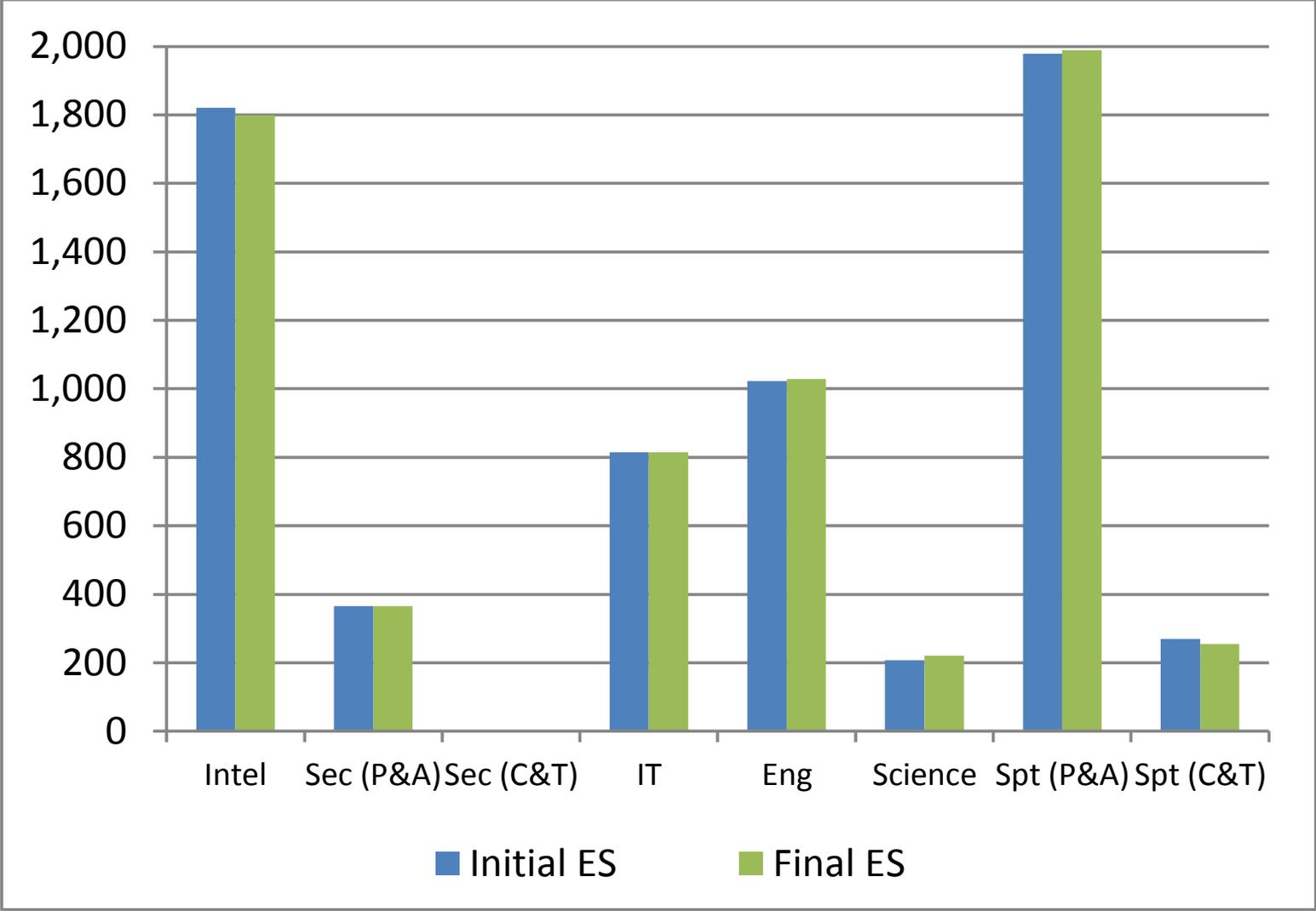
Cost by Occupation and Cost Category for Pay Period 130

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$6,314,827 | \$17,036 | \$67,206 | \$7,332 | \$8,164 | \$14,015 | \$11,070 | \$58,381 | \$1,563 | \$6,499,596 |
| Security (P and A) | \$1,190,357 | \$3,093 | \$4,504 | \$137 | \$30 | \$271 | \$28 | \$11,542 | \$0 | \$1,209,963 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$2,720,799 | \$3,952 | \$10,775 | \$717 | \$1,297 | \$2,549 | \$2,248 | \$24,428 | \$0 | \$2,766,766 |
| Engineering | \$3,806,248 | \$0 | \$13,420 | \$533 | \$266 | \$2,062 | \$400 | \$39,137 | \$0 | \$3,862,065 |
| Science | \$757,959 | \$0 | \$482 | \$787 | \$772 | \$0 | \$332 | \$7,259 | \$0 | \$767,591 |
| Support (P and A) | \$7,177,218 | \$2,675 | \$42,732 | \$1,388 | \$786 | \$6,196 | \$1,432 | \$76,917 | \$0 | \$7,309,344 |
| Support (C and T) | \$447,517 | \$855 | \$2,642 | \$17 | \$0 | \$0 | \$26 | \$3,521 | \$0 | \$454,578 |
| All Occupations | \$22,414,926 | \$27,611 | \$141,762 | \$10,912 | \$11,315 | \$25,093 | \$15,536 | \$221,185 | \$1,563 | \$22,869,903 |

Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)



Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)



Scenario 1 - Baseline Run: Final End Strength is the same as Initial End Strength (Cont'd)

- The charts show that there was a relatively good match between the Initial and Final end strength: 6,479 vs. 6,471
- The fact that the match on occupation looks closer than the match on grade is the result of replacing losses by occupation, but not necessarily grade
- An examination of loss results indicates the annual loss rate was about 7.4%
- Comparison of Slides 20 and 21 shows that the final pay period cost, \$22.9M is similar to the initial period cost, \$23.7M.
 - Cost falls slightly, in spite of maintaining end strength, because there are fewer GG13s and gains enter at lower steps.

Scenario 2 – Losses Only Run

- The model has an option to run with normal loss rates, but with no gains and no promotions
- This mode is useful for determining the expected voluntary reduction in the workforce over a given time period
- Useful for determining whether RIF or other loss programs will be needed to meet reduction goals
- Losses per pay period will be smaller over time as the rate is applied to a smaller population

Scenario 2 – Losses Only Run (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Total Losses by Occupation and Grade over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 15 | 0 | 60 | 164 | 176 | 92 | 25 | 537 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 24 | 35 | 27 | 13 | 3 | 108 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 28 | 100 | 86 | 29 | 4 | 255 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 18 | 73 | 137 | 103 | 28 | 366 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 11 | 14 | 14 | 5 | 50 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 21 | 0 | 80 | 191 | 185 | 124 | 52 | 656 |
| Support (C and T) | 0 | 5 | 0 | 1 | 2 | 39 | 35 | 4 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 98 |
| All Occupations | 0 | 5 | 0 | 1 | 2 | 39 | 44 | 4 | 68 | 1 | 215 | 574 | 625 | 375 | 117 | 2,070 |

Scenario 2 – Losses Only Run (Cont'd)

Final Population by Occupation and Grade, after all Losses

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 36 | 0 | 158 | 405 | 423 | 214 | 40 | 1,283 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16 | 0 | 55 | 93 | 62 | 22 | 9 | 258 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 75 | 228 | 180 | 42 | 11 | 560 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 44 | 169 | 242 | 152 | 37 | 657 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 11 | 34 | 63 | 35 | 7 | 158 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 73 | 0 | 160 | 384 | 369 | 233 | 101 | 1,322 |
| Support (C and T) | 0 | 16 | 3 | 1 | 12 | 45 | 68 | 14 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 171 |
| All Occupations | 0 | 16 | 3 | 1 | 12 | 45 | 79 | 14 | 180 | 1 | 503 | 1,313 | 1,339 | 698 | 205 | 4,409 |

Scenario 2 – Losses Only Run: First Pay Period

Population and Cost (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Cost by Occupation and Cost Category for Pay Period 1

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$6,462,591 | \$17,620 | \$69,656 | \$7,884 | \$8,785 | \$14,425 | \$11,833 | \$59,567 | \$1,554 | \$6,653,916 |
| Security (P and A) | \$1,243,523 | \$3,224 | \$4,674 | \$143 | \$32 | \$277 | \$28 | \$12,078 | \$0 | \$1,263,980 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$2,786,766 | \$3,837 | \$10,869 | \$740 | \$1,352 | \$2,588 | \$2,492 | \$24,941 | \$0 | \$2,833,585 |
| Engineering | \$4,034,896 | \$0 | \$14,229 | \$567 | \$280 | \$2,198 | \$426 | \$41,332 | \$0 | \$4,093,928 |
| Science | \$789,665 | \$0 | \$488 | \$813 | \$794 | \$0 | \$342 | \$7,577 | \$0 | \$799,677 |
| Support (P and A) | \$7,449,836 | \$2,765 | \$44,294 | \$1,447 | \$810 | \$6,341 | \$1,518 | \$79,812 | \$0 | \$7,586,822 |
| Support (C and T) | \$466,192 | \$996 | \$2,472 | \$17 | \$0 | \$0 | \$20 | \$3,480 | \$0 | \$473,176 |
| All Occupations | \$23,233,470 | \$28,441 | \$146,681 | \$11,611 | \$12,052 | \$25,829 | \$16,659 | \$228,786 | \$1,554 | \$23,705,084 |

Scenario 2 – Losses Only Run: Last Pay Period (130) Population and Cost (Cont'd)

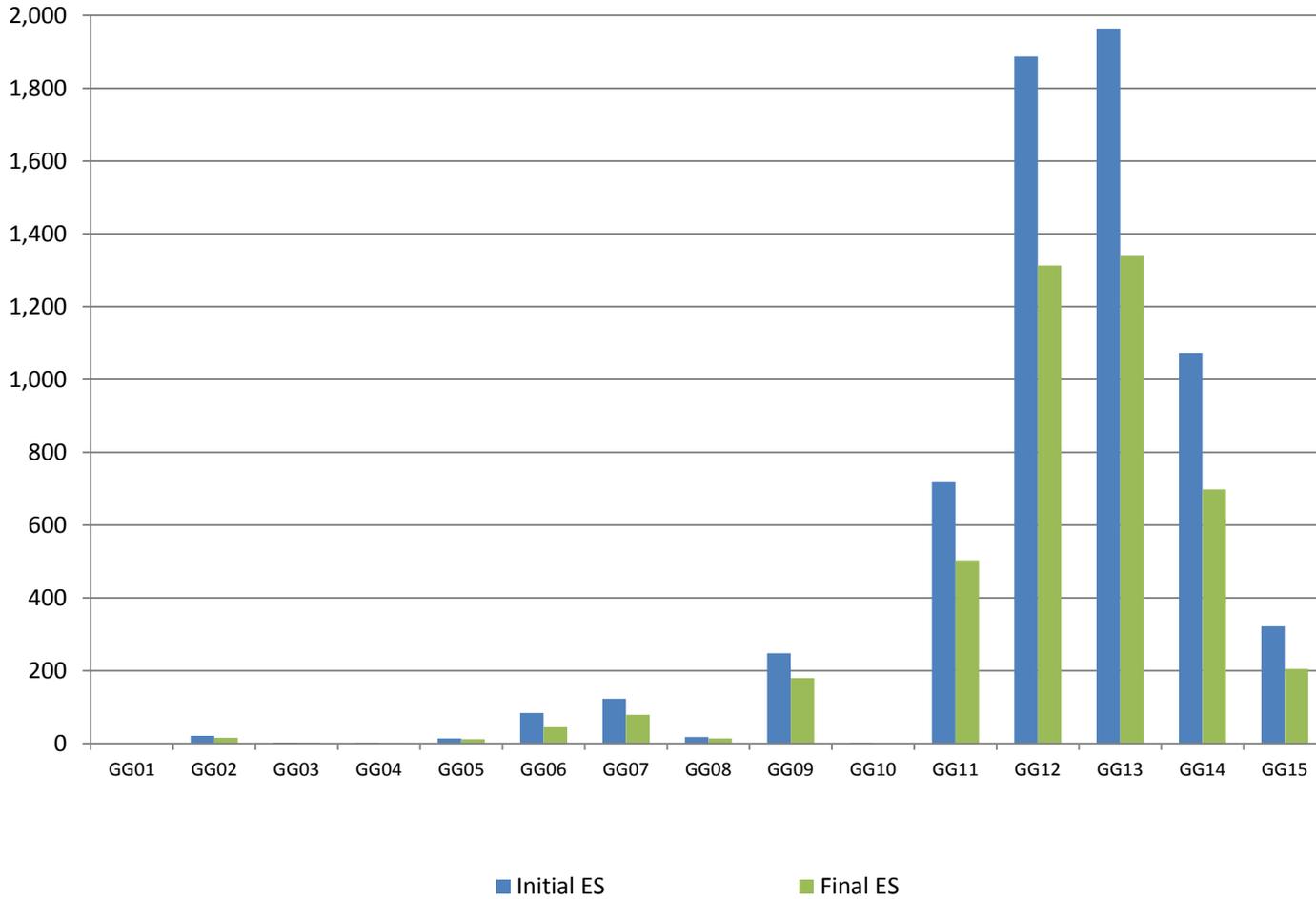
Population by Occupation and Grade at the end of 130th Pay Period

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 36 | 0 | 158 | 405 | 423 | 214 | 40 | 1,283 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16 | 0 | 55 | 93 | 62 | 22 | 9 | 258 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 0 | 75 | 228 | 180 | 42 | 11 | 560 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 44 | 169 | 242 | 152 | 37 | 657 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 11 | 34 | 63 | 35 | 7 | 158 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 73 | 0 | 160 | 384 | 369 | 233 | 101 | 1,322 |
| Support (C and T) | 0 | 16 | 3 | 1 | 12 | 45 | 68 | 14 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 171 |
| All Occupations | 0 | 16 | 3 | 1 | 12 | 45 | 79 | 14 | 180 | 1 | 503 | 1,313 | 1,339 | 698 | 205 | 4,409 |

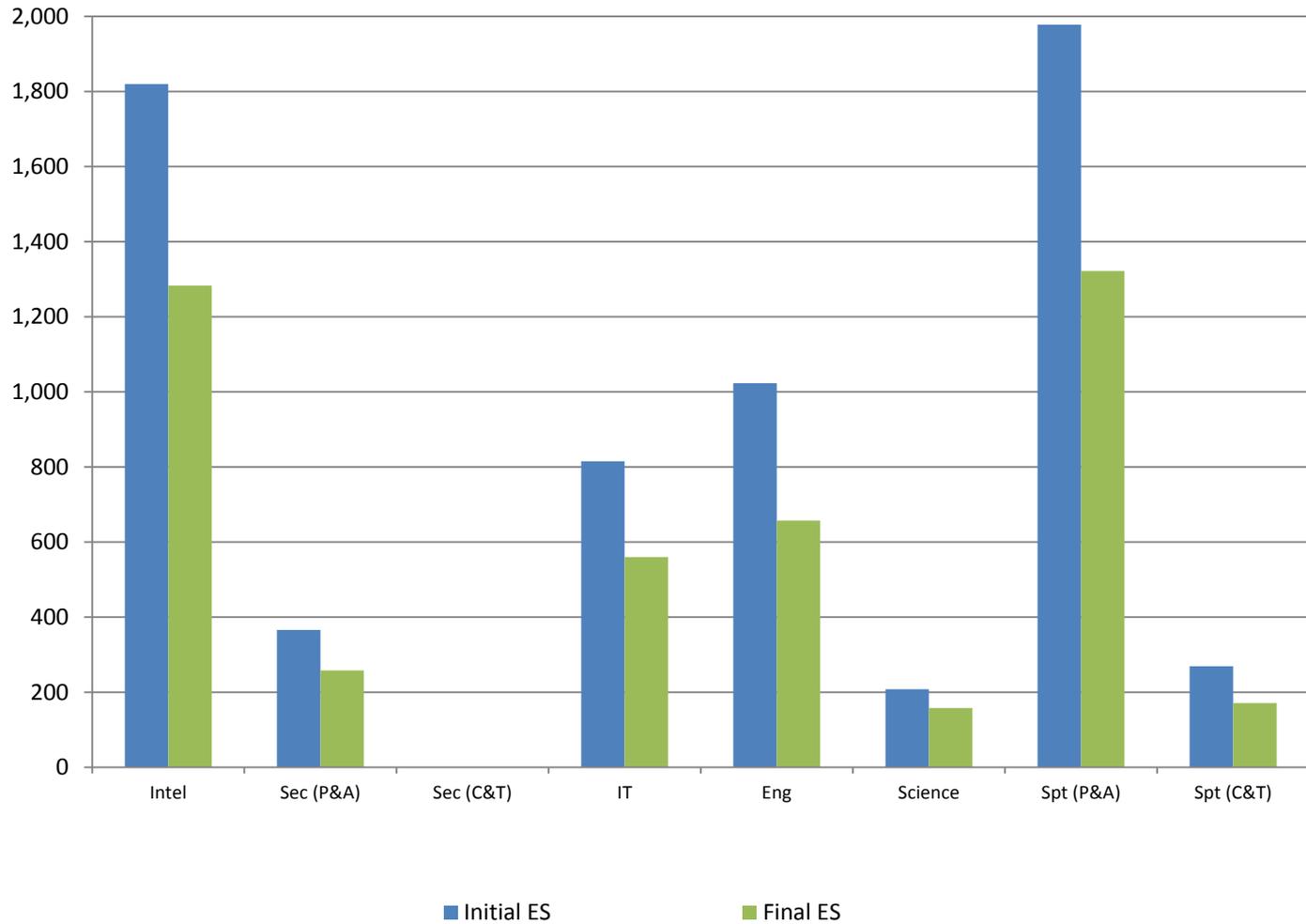
Cost by Occupation and Cost Category for Pay Period 130

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$4,529,921 | \$12,369 | \$49,035 | \$5,532 | \$6,162 | \$10,132 | \$8,310 | \$41,658 | \$1,109 | \$4,664,226 |
| Security (P and A) | \$844,952 | \$2,222 | \$3,242 | \$97 | \$22 | \$192 | \$20 | \$8,155 | \$0 | \$858,901 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$1,922,685 | \$2,654 | \$7,464 | \$519 | \$949 | \$1,771 | \$1,770 | \$17,043 | \$0 | \$1,954,855 |
| Engineering | \$2,573,993 | \$0 | \$9,254 | \$368 | \$185 | \$1,464 | \$283 | \$26,283 | \$0 | \$2,611,830 |
| Science | \$528,965 | \$0 | \$332 | \$581 | \$588 | \$0 | \$253 | \$5,075 | \$0 | \$535,795 |
| Support (P and A) | \$4,902,413 | \$1,831 | \$29,124 | \$953 | \$532 | \$4,144 | \$999 | \$52,471 | \$0 | \$4,992,467 |
| Support (C and T) | \$289,030 | \$612 | \$1,594 | \$11 | \$0 | \$0 | \$13 | \$2,150 | \$0 | \$293,410 |
| All Occupations | \$15,591,960 | \$19,687 | \$100,044 | \$8,062 | \$8,438 | \$17,703 | \$11,648 | \$152,834 | \$1,109 | \$15,911,485 |

Scenario 2 – Losses Only Run (Cont'd)



Scenario 2 – Losses Only Run (Cont'd)



Scenario 2 – Losses Only Run (Cont'd)

- As expected, there was a significant reduction in the final end strength: from 6,479 to 4,409
- In this instance, the overall loss was about 32%
- Comparison of Slides 28 and 29 shows that the final pay period cost is \$15.9M, versus an initial cost of \$23.7M.

Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25%

- Default model will reduce strength, but will try to do it uniformly
- Make a series of runs, while adjusting the percentage of GG-13 to GG-15 gains until the target is reached
- Reducing the percentage of all GG-13 to GG-15 gains by 80%, the target was achieved

Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Target Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 44 | 0 | 186 | 486 | 449 | 229 | 49 | 1,453 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 67 | 109 | 67 | 26 | 9 | 298 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 26 | 0 | 88 | 280 | 200 | 53 | 11 | 659 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16 | 0 | 53 | 207 | 284 | 191 | 49 | 801 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 14 | 38 | 58 | 37 | 9 | 164 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 80 | 0 | 205 | 491 | 415 | 268 | 115 | 1,578 |
| Support (C and T) | 0 | 18 | 3 | 2 | 12 | 72 | 88 | 15 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 231 |
| All Occupations | 0 | 18 | 3 | 2 | 12 | 72 | 105 | 15 | 212 | 2 | 613 | 1,611 | 1,473 | 804 | 242 | 5,184 |

Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)

Total Losses by Occupation and Grade over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 14 | 0 | 72 | 194 | 166 | 91 | 29 | 569 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 27 | 34 | 25 | 23 | 5 | 124 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 28 | 107 | 90 | 17 | 9 | 256 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 25 | 83 | 145 | 109 | 29 | 398 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 | 13 | 21 | 14 | 4 | 57 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 34 | 0 | 94 | 212 | 200 | 130 | 63 | 735 |
| Support (C and T) | 0 | 13 | 2 | 0 | 3 | 28 | 42 | 17 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 117 |
| All Occupations | 0 | 13 | 2 | 0 | 3 | 28 | 48 | 17 | 81 | 2 | 249 | 643 | 647 | 384 | 139 | 2,256 |

Total Gains by Occupation and Grade over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 42 | 0 | 25 | 0 | 80 | 23 | 25 | 5 | 0 | 200 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 38 | 1 | 1 | 0 | 1 | 59 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 34 | 0 | 55 | 14 | 4 | 2 | 0 | 111 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 61 | 0 | 104 | 3 | 3 | 4 | 2 | 184 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 12 | 4 | 5 | 2 | 0 | 34 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 82 | 0 | 138 | 40 | 46 | 18 | 9 | 345 |
| Support (C and T) | 0 | 23 | 0 | 0 | 3 | 21 | 30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 84 |
| All Occupations | 0 | 23 | 0 | 0 | 3 | 21 | 93 | 0 | 237 | 1 | 427 | 85 | 84 | 31 | 12 | 1,017 |

Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)

Total Promotions by Occupation (To Grade) over all Pay Periods

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 99 | 185 | 36 | 25 | 12 | 407 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 20 | 37 | 22 | 6 | 4 | 90 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 38 | 95 | 28 | 17 | 1 | 181 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 67 | 160 | 85 | 54 | 11 | 382 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 15 | 10 | 10 | 4 | 44 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 95 | 176 | 55 | 35 | 13 | 388 |
| Support (C and T) | 0 | 0 | 2 | 0 | 0 | 2 | 23 | 28 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 58 |
| All Occupations | 0 | 0 | 2 | 0 | 0 | 2 | 23 | 28 | 74 | 1 | 324 | 668 | 236 | 147 | 45 | 1,550 |

Final Population by Occupation and Grade, after all Losses, Gains, and Promotions

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 140 | 547 | 469 | 233 | 48 | 1,451 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 73 | 110 | 81 | 14 | 12 | 301 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 24 | 0 | 73 | 302 | 191 | 72 | 7 | 670 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 12 | 0 | 48 | 237 | 268 | 193 | 49 | 809 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 15 | 41 | 61 | 43 | 12 | 185 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 61 | 0 | 203 | 524 | 420 | 267 | 112 | 1,588 |
| Support (C and T) | 0 | 29 | 3 | 2 | 12 | 56 | 86 | 27 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 236 |
| All Occupations | 0 | 29 | 3 | 2 | 12 | 56 | 91 | 27 | 153 | 2 | 552 | 1,761 | 1,490 | 822 | 240 | 5,240 |

Scenario 3 – Reduce Strength, Overall and High Grades: First Pay Period Population and Cost (Cont'd)

Starting Population by Occupation and Grade

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 51 | 0 | 218 | 569 | 599 | 306 | 65 | 1,820 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 22 | 0 | 79 | 128 | 89 | 35 | 12 | 366 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 31 | 0 | 103 | 328 | 266 | 71 | 15 | 815 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 0 | 62 | 242 | 379 | 255 | 65 | 1,023 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 16 | 45 | 77 | 49 | 12 | 208 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 94 | 0 | 240 | 575 | 554 | 357 | 153 | 1,978 |
| Support (C and T) | 0 | 21 | 3 | 2 | 14 | 84 | 103 | 18 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 269 |
| All Occupations | 0 | 21 | 3 | 2 | 14 | 84 | 123 | 18 | 248 | 2 | 718 | 1,887 | 1,964 | 1,073 | 322 | 6,479 |

Cost by Occupation and Cost Category for Pay Period 1

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$6,462,591 | \$17,620 | \$69,656 | \$7,884 | \$8,785 | \$14,425 | \$11,833 | \$59,567 | \$1,554 | \$6,653,916 |
| Security (P and A) | \$1,243,523 | \$3,224 | \$4,674 | \$143 | \$32 | \$277 | \$28 | \$12,078 | \$0 | \$1,263,980 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$2,786,766 | \$3,837 | \$10,869 | \$740 | \$1,352 | \$2,588 | \$2,492 | \$24,941 | \$0 | \$2,833,585 |
| Engineering | \$4,034,896 | \$0 | \$14,229 | \$567 | \$280 | \$2,198 | \$426 | \$41,332 | \$0 | \$4,093,928 |
| Science | \$789,665 | \$0 | \$488 | \$813 | \$794 | \$0 | \$342 | \$7,577 | \$0 | \$799,677 |
| Support (P and A) | \$7,449,836 | \$2,765 | \$44,294 | \$1,447 | \$810 | \$6,341 | \$1,518 | \$79,812 | \$0 | \$7,586,822 |
| Support (C and T) | \$466,192 | \$996 | \$2,472 | \$17 | \$0 | \$0 | \$20 | \$3,480 | \$0 | \$473,176 |
| All Occupations | \$23,233,470 | \$28,441 | \$146,681 | \$11,611 | \$12,052 | \$25,829 | \$16,659 | \$228,786 | \$1,554 | \$23,705,084 |

Scenario 3 – Reduce Strength, Overall and High Grades: Last Pay Period (130) Population and Cost (Cont'd)

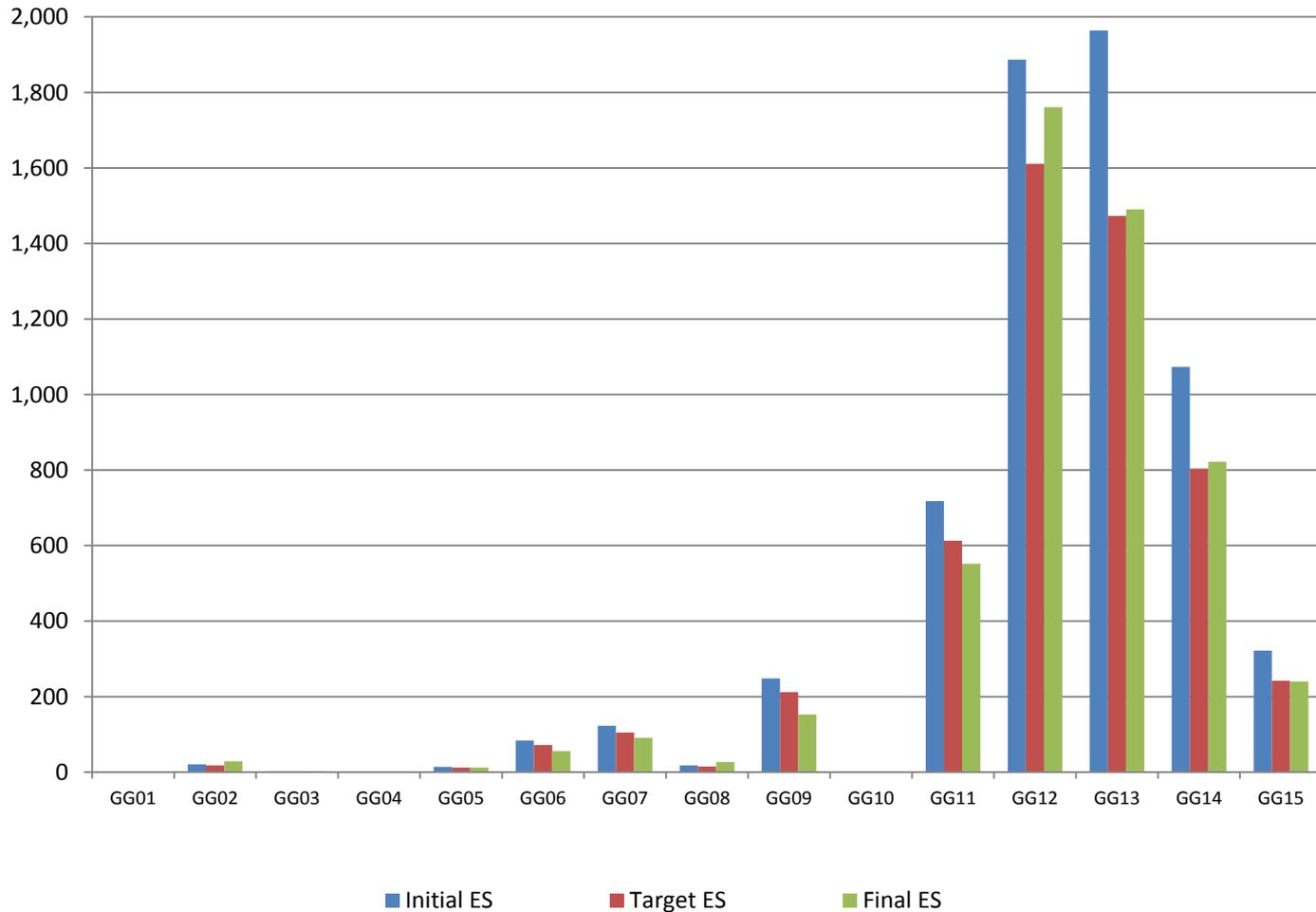
Population by Occupation and Grade at the End of the 130th Pay Period

| Occ | GG01 | GG02 | GG03 | GG04 | GG05 | GG06 | GG07 | GG08 | GG09 | GG10 | GG11 | GG12 | GG13 | GG14 | GG15 | Total |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Intel | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 13 | 0 | 140 | 547 | 469 | 233 | 48 | 1451 |
| Security (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 73 | 110 | 81 | 14 | 12 | 301 |
| Security (C and T) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| IT | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 24 | 0 | 73 | 302 | 191 | 72 | 7 | 670 |
| Engineering | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 12 | 0 | 48 | 237 | 268 | 193 | 49 | 809 |
| Science | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 15 | 41 | 61 | 43 | 12 | 185 |
| Support (P and A) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 61 | 0 | 203 | 524 | 420 | 267 | 112 | 1588 |
| Support (C and T) | 0 | 29 | 3 | 2 | 12 | 56 | 86 | 27 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 236 |
| All Occupations | 0 | 29 | 3 | 2 | 12 | 56 | 91 | 27 | 153 | 2 | 552 | 1761 | 1490 | 822 | 240 | 5240 |

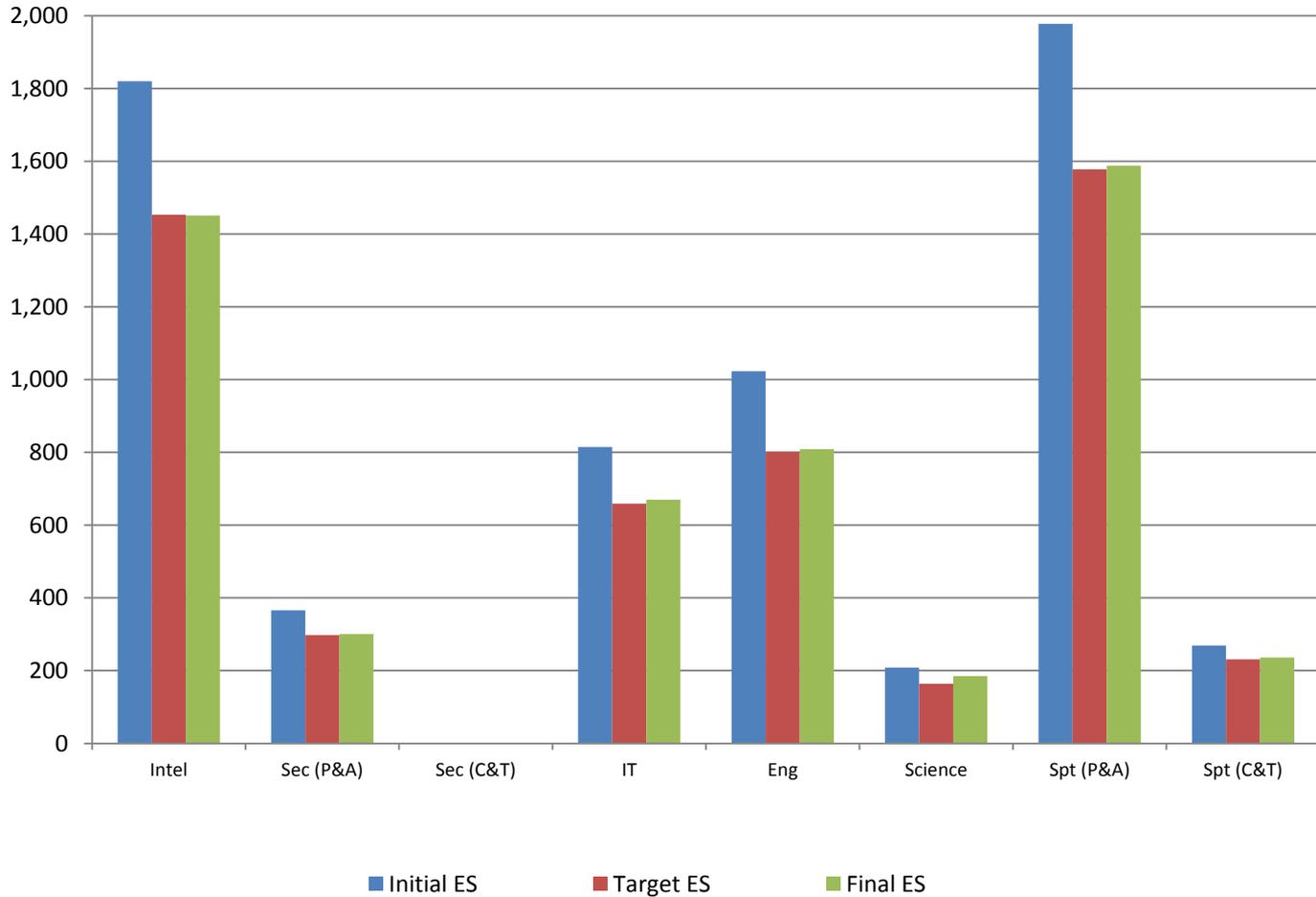
Cost by Occupation and Cost Category for Pay Period 130

| Occ | AdjPay | COLA | OverTime | HolidayPay | SundayPay | DangerPay | NightPay | CashAward | StandByPay | TotalPay |
|--------------------|--------------|----------|-----------|------------|-----------|-----------|----------|-----------|------------|--------------|
| Intel | \$5,082,314 | \$13,407 | \$54,788 | \$6,067 | \$6,779 | \$11,321 | \$9,160 | \$46,461 | \$1,262 | \$5,231,559 |
| Security (P and A) | \$976,988 | \$2,564 | \$3,794 | \$113 | \$24 | \$237 | \$23 | \$9,422 | \$0 | \$993,164 |
| Security (C and T) | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| IT | \$2,201,559 | \$3,240 | \$8,537 | \$592 | \$1,083 | \$1,993 | \$1,900 | \$19,619 | \$0 | \$2,238,522 |
| Engineering | \$3,027,473 | \$0 | \$11,041 | \$433 | \$224 | \$1,794 | \$344 | \$31,156 | \$0 | \$3,072,465 |
| Science | \$608,339 | \$0 | \$397 | \$672 | \$682 | \$0 | \$293 | \$5,792 | \$0 | \$616,174 |
| Support (P and A) | \$5,733,973 | \$2,147 | \$33,997 | \$1,123 | \$627 | \$4,854 | \$1,174 | \$61,048 | \$0 | \$5,838,943 |
| Support (C and T) | \$391,744 | \$734 | \$2,176 | \$14 | \$0 | \$0 | \$21 | \$3,151 | \$0 | \$397,839 |
| All Occupations | \$18,022,389 | \$22,091 | \$114,729 | \$9,015 | \$9,418 | \$20,199 | \$12,915 | \$176,648 | \$1,262 | \$18,388,667 |

Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)



Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)



Scenario 3 – Reduce Overall Strength by 20%, and High Grade Strength by 25% (Cont'd)

- Examining the tables shows that losses were much higher than gains, reducing end strength
- There were still some promotions at all grades
- There was a relatively good match between the Target and Final end strength
- The fact that the match on occupation looks closer than the match on grade is the result of replacing losses by occupation, but not necessarily grade
- The cost of the restructured workforce is \$18.4M in the final pay period, versus a starting cost of \$23.7M

Summary

- Models are tools, normally used by analysts, to evaluate policy options
- This model has a variety of controls to help the analyst compare options
- In general, a model can help to evaluate the relative value of competing options, but cannot give precise predictions

QUESTIONS?