THE "HUMAN MORALE" OPTIMIZATION PROBLEM

It was a Monday morning and the newly appointed HR person had just arrived. She was recruited newly by the board of directors in the light of the resignation of the previous HR employee. Yes, recently all seemed not so well for Microsoft Finance.

The previous quarter saw disastrous results leading to several employee resignations that caused a certain level of chaos among the employees leading to disruption of the team dynamics. To compound to the woes, employees were dissatisfied with the existing appraisal rating system and salary distribution system and this led to the previous HR resigning oweing to one on one conflicts with employees.

Though Microsoft Finance looked strong on paper it was in shambles on the human front. This led to the need for shifting focus now to the "Human Morale" optimization problem for which the new savior was appointed.

The new HR was confronted with the task of improving the work dynamics and boosting the morale of the disheartened employees who were resigning one after the other in quick succession.

The HR who was a specialist in HR analytics was also a reasonably good data cruncher and proceeded to go through the existing rating system of the employees division-wise in the following sample of the dataset as demonstrated in Exhibhit 1.

Exhibhit 1: Employee rating system

		Qual				Sat			
Division	Worker	1	2	3	4	1	2	3	4
3	1	9	8	6	8	1	2	6	7
2	2	10	0	5	6	9	6	7	4
1	3	5	8	10	5	1	7	7	3
1	4	4	0	5	2	9	1	0	3
2	5	9	10	4	5	9	8	8	3
4	6	5	2	7	3	2	8	1	5
2	7	8	3	1	2	1	8	2	2
1	8	2	2	9	2	8	3	1	6
1	9	8	7	6	3	4	3	4	1
4	10	7	0	1	8	4	1	5	4
3	11	8	1	6	6	2	0	9	3
2	12	0	7	1	2	5	2	1	1
1	13	9	0	5	4	3	0	7	8
3	14	9	2	2	7	1	1	2	10
3	15	1	3	8	4	9	8	6	8
1	16	9	6	4	5	5	7	8	8
4	17	8	0	5	0	5	7	2	4
2	18	6	7	6	3	2	4	1	6
3	19	3	4	5	4	8	7	6	6
2	20	3	9	4	4	2	2	2	3
3	21	1	6	9	1	7	1	8	4
1	22	5	1	3	7	8	9	6	7
3	23	8	7	10	2	6	2	5	9
3	24	3	6	4	4	7	2	9	2
1	25	7	1	1	0	4	9	10	9
3	26	0	9	8	1	1	2	9	0
1	27	3	9	1	5	9	9	2	8

The above data contained the employee ratings department-wise for all the existing 80 employees. The ratings were given by manager and also a self-rating by employees on a scale of 0-10 and this governed the existing appraisal system. The task was to assign 80 workers in Microsoft Finance to a job in one of four workgroups? As mentioned, the head of each workgroup rated each employee's competence on a 0 to scale (10 equals most competent) and each employee has rated his satisfaction with each job assignment (again on 0 to 10 scale).

She was faced with a constraint to assign between 18 and 22 people in each workgroup otherwise a heavy penalty was to be incurred. She suggested Job competence was to be considered twice as important as employee satisfaction.

How to assign employees to workgroups to maximize total satisfaction and ensure that each division has the required number of employees and how to bring life to the company is the challenge confronting the new HR. Only time can tell how this can be achieved.

Case questions:

Q1. What is the best allocation combination to maximize the employee satisfaction satisfying all the constraints?

Q2. Which excel solver algorithm is to be applied in this context?

Q3. What steps what would to take if you are confronted with the same situation and where does analytics feature in the process?